GENERAL CATALOG 1975-76

SAN DIEGO STATE UNIVERSITY

THE CALIFORNIA STATE UNIVERSITY AND COLLEGES

General Catalog

and

Announcement of Courses

Volume 62

1975

San Diego State University
San Diego, California
92182

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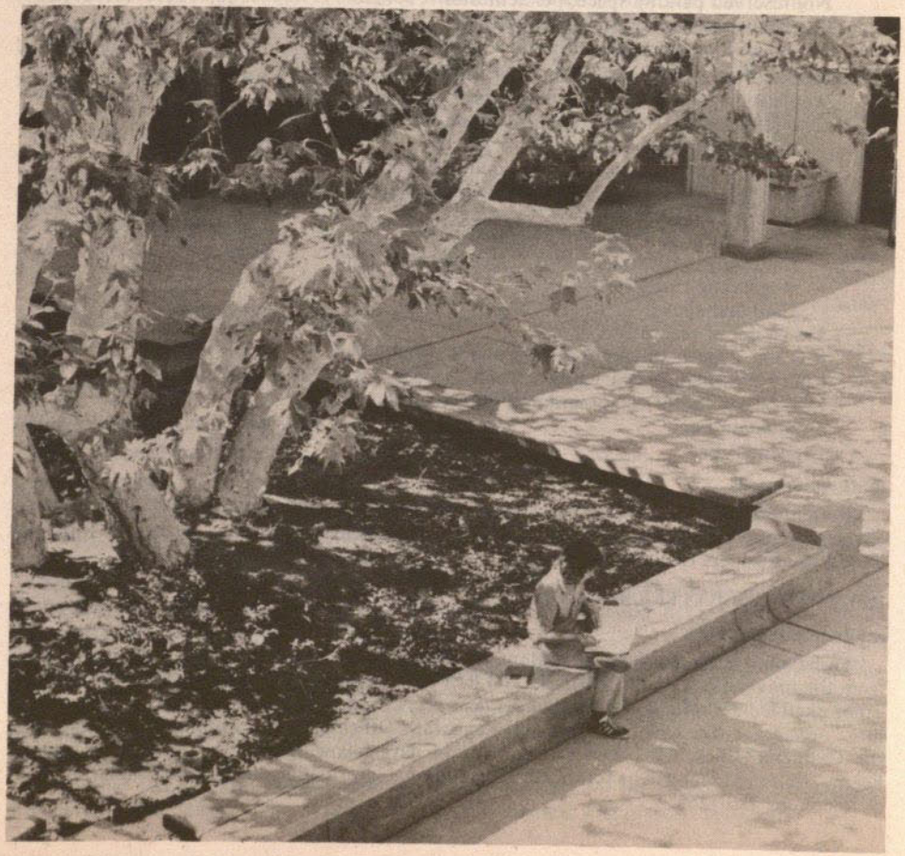
1975-1976 Academic Calendar

Summer Sessions, 1975	
June 2-20	Term I summer session (3 weeks).
June 23-August 1	Term II summer session (6 weeks).
August 4-22	Term III summer session (3 weeks).
Fall Semester, 1975	
August 1-31	Applications for admission or readmission to San Diego State University for the Spring semester 1976. Accepted after this only until enrollment quotas are met.
August 13, 15, 19, 22, 26, 27	Chemistry placement examinations for students planning to enter Chemistry 200A or 204A; Mathematics placement examinations for students planning to enroll in Mathematics 103, 104, 119, 120, 121, 140, 150; or Economics 142.
August 18-29	Testing, advising and registration.
August 25	Opening date of the academic year.
September 1	Holiday—Labor Day.
September 2	First day of classes.
September 16, 17, 25, 26, October 15 and 16, November 5 and 6	Reading Comprehension test for transfer students entering elementary or kindergarten-primary education.
September 15	Last day to apply for refunds.
September 16	File application for admission to elementary teacher education assembly.
September 19, 22, 27 and November 14	English Proficiency Examination for students entering secondary education.
September 19	Last day to file application for bachelor's degree for mid-year graduation.
September 29	Last day to withdraw from class or change program.
October 10	Holiday—Columbus Day.
November 1-30	Application for admission or readmission to San Diego State University for the Fall semester 1976. Accepted after this date only until enrollment quotas are met.
November 11	Holiday—Veterans Day.
November 27-30	Thanksgiving Recess.
December 1	Last day to file application for the bachelor's degree for June or summer graduation.
December 12	Last day of classes before final examination.
December 13	First day of final examinations.
December 22	Winter recess begins.
December 31	Grades due. Last day of fall semester.
Spring Semester, 1976	
August 1-31	Applications for admission or readmission to San Diego State University for the Spring semester 1976. Accepted after this date only until enrollment quotas are met.
January 8, 14, 16, 19 and 20	Chemistry placement examinations for students planning to enter Chemistry 200A or 204A; Mathematics placement examinations for students planning to enroll in Mathematics 103, 104, 119, 120, 121, 140, 150; or Economics 142.
January 12-23	Testing, advising and registration.
January 12	First day, second semester.
January 26	First day of classes.
January 27	File application for admission to elementary teacher education assembly.

January 29, 30, February 6, 10, March 13, April 20	English Proficiency examination for students entering secondary education.
January 29 and 30, February 4 and 5, March 10 and 11, April 21 and 22	Reading Comprehension test for transfer students entering elementary or kindergarten-primary education.
February 9	Last day to apply for refunds.
February 12	Holiday—Lincoln's Birthday.
February 13	Holiday—Washington's Birthday.
February 24	Last day to withdraw from class or change program.
April 10	Last day of classes before spring recess.
April 12-18	Spring Recess.
April 19	Classes resume.
May 12	Last day of classes before final examinations.
May 13-14	Study and Consultation.
May 15-22	First day of final examinations.
May 23	Commencement.
May 31	Holiday—Memorial Day.
June 1	Grades due. Last day of spring semester.
Summer Session, 1976	
June 1-18	Term I summer session (3 weeks).
June 21-July 30	Term II summer session (6 weeks).
July 5	Holiday—Independence Day.
August 2-20	Term III summer session (3 weeks.)



Schedule of Fees

Fees are subject to change by The Trustees of the California State University and Colleges.

FEES MUST BE PAID AT TIME OF REGISTRATION. CHECKS ACCEPTED FOR EXACT AMOUNT OF FEES. (IF YOUR CHECK IS RETURNED BY THE BANK FOR ANY REASON, YOUR REGISTRATION WILL BE CANCELED AND YOU WILL BE BILLED $15.00.)

Fees for Student Services—All Students: on basis of units carried. (auditors pay same fees as students carrying courses for credit.)

0 units—3.9 units	$73.00
4 units—7.9 units	79.00
8 units—11.9 units	85.00
12 or more units	94.00

The above fees also include a student activity fee of $10.00, a student union fee of $9.00 and a nonrefundable facilities fee of $3.00.

Tuition for Nonresident Student (Foreign and Domestic)

(In addition to Student Services and activity fees.)

Nonresident student enrolled for 15 units or more	$650.00
Nonresident student enrolled for less than 15 units or fraction thereof—per unit	$43.00

(For fee-paying purposes, zero unit courses are counted as one unit.)

Health Insurance (mandatory for foreign students)	approximately $33.00

Parking Fees

Nonreserved parking space, per semester	$15.00
Car Pool—see cashier at registration.	
Less than four-wheeled, self-propelled vehicle	$3.75

Miscellaneous Fees (Fees payable when service is rendered.)

Application for admission or readmission (nonrefundable)	$20.00
Late registration (Refer to class schedule for dates when this fee will be assessed.)	5.00
Failure to meet administratively required appointment or time limit	2.00
Photo-Identification Card (One-time cost to new students at time of registration)	2.00
Lost Identification Cards/ Stickers	
Card only	2.00
Registration sticker only	2.00
Card and sticker	4.00
Transcript of record	1.00
R.O.T.C. deposit (unexpended portion is refundable)	10.00
Check returned for any cause	5.00
Loss or damage of equipment and library books	cost
Graduation Fee	6.00
Credential Fee	20.00

BankAmericards

Students may use California BankAmericards (the first four digits must be 4019 or 4024) to pay registration fees up to and including $100. Amounts over $100 must be cleared with the University Cashiers Office in CLS-108.

REGULAR SESSION FEE REFUNDS

Student Services Fees

To be eligible for a refund of student services fees, a student must completely withdraw from the university. **THERE WILL BE NO REFUND FOR A REDUCTION OF UNIT LOAD.** To be eligible for a refund of a student services fee, a student withdrawing from the university must obtain a withdrawal card from the Registrar's Office and file a refund application with the Cashier's Office, CL-108, not later than 14 days following the day the academic term begins. All but $15.00 will be refunded. For additional information contact the Cashier's Office or telephone 286-5253.

Nonresident and Foreign Student Tuition

Tuition paid for a course scheduled to continue for an entire semester may be refunded in accordance with the following schedule, if application is received by the Cashier's Office within the following time limits:

Time Limit	*Amount of Refund*
(1) Before or during the first week of the semester	100 percent of fee
(2) During the second week of the semester	90 percent of fee
(3) During the third week of the semester	70 percent of fee
(4) During the fourth week of the semester	50 percent of fee
(5) During the fifth week of the semester	30 percent of fee
(6) During the sixth week of the semester	20 percent of fee

Parking fee

This schedule of refunds refers to calendar days, commencing on the date of the term when instruction begins.

Nonreserved space per semester:

Period	*Amount of Refund*
1—30 days	75 percent of fee
31—60 days	50 percent of fee
61—90 days	25 percent of fee
91—end of term	None

For a refund, the parking sticker must be removed from the vehicle by a University Police Officer. The refund application is obtained from the Cashier's Office, CL-108.

The late registration fee is not refundable. The Cashier's Office should be consulted for further details.

SUMMER SESSION FEES

Tuition, each session	(per unit) $30.00
Activity Fee:	
Term I	1.00
Term II	2.00
Term III	1.00
Student Union Fee:	
Term I	2.00
Term II	3.50
Term III	2.00
Parking Fees (nonreserved spaces):	
Entire summer period	10.00
Six-week session	6.00
Three-week session	4.00

EXTENSION COURSE FEES

Lecture or discussion course	(per unit) $28.00

EXEMPTIONS

Students under Public Law 894, 87-815, California state veterans' dependents, or state rehabilitation programs will have fees paid for tuition and materials and service under provisions of these respective programs.

No fees of any kind shall be required of or collected from those individuals who qualify for such exemption under the provisions of the Alan Pattee Scholarship Act.

STUDENT SERVICES FEE

The Student Services Fee for 1975-76 was recently established by the Trustees of The California State University and Colleges in lieu of the Material and Services Fee; however, the fee level was maintained at $144 (for 12 or more units for the Academic Year). It is intended that this new fee will provide financing for the following student services programs not covered by state funding:

(1) Social and Cultural Development Activities: provides for the coordination of various student activities, student organizations, student government and cultural programs.

(2) Counseling: includes the cost of counselor's salaries and clerical support plus operating expenses and equipment.

(3) Testing: covers the cost of test officers, psychometrists, clerical support, operating expenses and equipment.

(4) Placement: provides career information to students and faculty for academic program planning and employment information to graduates and students.

(5) Financial Aids Administration: includes the cost of the counseling and business services provided in connection with the financial aid programs.

(6) Health Services: provides health services to students and covers the cost of salaries of Medical Officers and Nurses plus related clerical and technical personnel as well as operating expenses and equipment.

(7) Housing: includes the cost of personnel providing housing information and monitoring housing services provided to students.

(8) Student Services Administration: covers 50 percent of the cost of the Dean of Students Office which has responsibility for the overall administration of student services.

Prior to 1975-76 the Student Services Fee was known as the Materials and Service fee and not only covered the above expenditures but covered the cost of Instructional and Audio Visual supplies and contractual services. A Task Force recommended that responsibility for financing these expenditures be transferred to the State and that the basis for this fee be more adequately communicated to students and campus staff. It should be noted that the 1975-76 Student Services Fee is subject to change by future Board of Trustees action made necessary by budget actions of the Executive and Legislative branches of government.

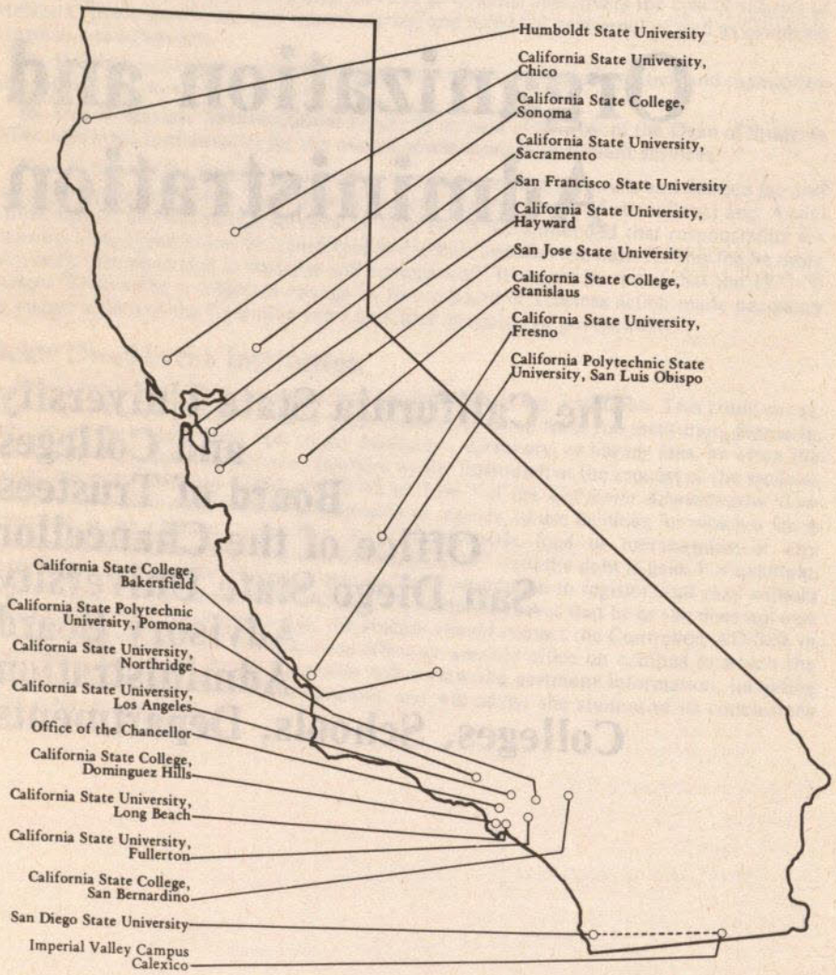
Debts Owed to the Institution

From time to time the student may become indebted to the institution. This could occur, for example, when the student fails to repay money borrowed from the institution. Similarly, debts occur when the student fails to pay institution, dormitory, or library fees, or when the student fails to pay for other services provided by the institution at the request of the student. Should this occur, Sections 42380 and 42381 of *Title 5* of the *California Administrative Code* authorize the institution to withold "permission to register, to use facilities for which a fee is authorized to be charged, to receive services, materials, food or merchandise or any combination of the above from any person owing a debt" until the debt is paid. For example, under these provisions the institution may withhold permission to register, and may withold other services, such as grades and transcripts. If a student believes that he or she does not owe all or part of a particular fee or charge, the student should contact the Controller, AD-320, in the campus business office. The business office, or another office on campus to which the student may be referred by the Controller will review the pertinent information, including information the student may wish to present, and will advise the student of its conclusions with respect to the debt.

Organization and Administration

The California State University and Colleges
Board of Trustees
Office of the Chancellor
San Diego State University
Advisory Board
Administration
Colleges, Schools, Departments

The California State University and Colleges



The California State University and Colleges

The individual California State Colleges were brought together as a system by the Donahoe Higher Education Act of 1960. In 1972 the system became the California State University and Colleges and fourteen of the nineteen campuses received the title *University*.

The oldest campus—San Jose State University—was founded in 1857 and became the first institution of public higher education in California. The newest campus—California State College, Bakersfield—began instruction in 1970.

Responsibility for The California State University and Colleges is vested in the Board of Trustees, whose members are appointed by the Governor. The Trustees appoint the Chancellor, who is the chief executive officer of the system, and the Presidents, who are the chief executive officers on the respective campuses.

The Trustees, the Chancellor and the Presidents develop systemwide policy, with actual implementation at the campus level taking place through broadly based consultative procedures. The Academic Senate of The California State University and Colleges, made up of elected representatives of the faculty from each campus, recommends academic policy to the Board of Trustees through the Chancellor.

Academic excellence has been achieved by The California State University and Colleges through a distinguished faculty, whose primary responsibility is superior teaching. While each campus in the system has its own unique geographic and curricular character, all campuses, as multipurpose institutions, offer undergraduate and graduate instruction for professional and occupational goals as well as broad liberal education. All of the campuses require for graduation a basic program of "General Education—Breadth Requirements" regardless of the type of bachelor's degree or major field selected by the student. A limited number of doctoral degrees are offered jointly with the University of California.

Presently, under the system's "New Approaches to Higher Education," the campuses are implementing a wide variety of innovative programs to meet the changing needs of students and society. Among pilot programs under way are instructional television projects, self-paced learning plans, minicourses, and credit-by-examination alternatives. *The Consortium of The California State University and Colleges* fosters and sponsors local, regional and statewide external degree and certificate programs to meet the needs of individuals who find it difficult or impossible to attend classes on a campus.

Enrollments in fall 1974 totaled approximately 292,000 students, who were taught by a faculty of 16,000. Last year the system awarded over 57 percent of the bachelor's degrees and 36 percent of the master's degrees granted in California. Over 465,000 persons have been graduated from the nineteen campuses since 1960.

Average Annual Costs and Sources of Funds per Full-time Equivalent* Student in The California State University and Colleges

The nineteen campuses of The California State University and Colleges are financed primarily through funding provided by the taxpayers of California. For the 1974-75 year, the total cost of operation is $603 million, which provides continuing support for 231,295 full-time equivalent (FTE*) students. This results in an average cost per FTE student of $2,608 per year. Of this amount, the average student pays $254. Included in this average student payment is the amount paid by nonresident students. The remaining $2,354 in costs are funded by state and federal taxes.

Averages do not fit all students alike or even any specific student. To arrive at an average figure that is meaningful, the costs outlined above exclude "user fees" for living expenses, housing, and parking, as well as costs for extension and summer session work. Computations are based on full-time equivalent students, not individuals, and costs are prorated by system totals, not by campus. The average costs for a full-time equivalent student in the system are depicted in the following chart:

1974-75 Projection of Total Costs of Campus Operation

(Including Building Amortization)

Enrollment: 231,295

Source	*Amount*	*Average Cost Per Student (FTE)**	*Percentage*
State Appropriation (Support)	$488,163,528	$2,111	81.0
State Funding (Capital Outlay)**	28,615,000	124	4.8
Student Charges	58,806,800	254***	9.7
Federal (Financial Aids)	27,456,316	119	4.5
Total	$603,041,644	$2,608	100.0

* For budgetary purposes, full-time equivalent (FTE) translates total head count into total academic student load. The term assumes that a full-time student in The California State University and Colleges is enrolled for 15 units of academic credit. Some students enroll for more than 15 units; some students enroll for fewer than 15 units.

** The system's more than 14,000 acres of land and the wide range of facilities and equipment on the 19 campuses are currently valued at approximately $1.2 billion. Amortized over a 40-year period, they are valued at $125 per FTE student.

*** The average costs paid by a student include the student services fee (formerly called the materials and services fee), health facilities fee, college union fee, student body fee, and the nonresident tuition. This amount is derived by taking the total of all student fees and dividing by the total full-time equivalent student enrollment. Individual students may pay more or less than $254 depending on whether they are part-time, full-time, resident or nonresident students.

Trustees of The California State University and Colleges

Ex Officio Trustees

Hon. Edmund G. Brown, Jr. ..... State Capitol
Governor of California — Sacramento 95814

Hon. Mervyn Dymally ..... State Capitol
Lieutenant Governor of California — Sacramento 95814

Hon. Leo McCarthy ..... State Capitol
Speaker of the Assembly — Sacramento 95814

Hon. Wilson C. Riles ..... 721 Capitol Mall
State Superintendent of Public Instruction — Sacramento 95814

Dr. Glen S. Dumke ..... 5670 Wilshire Blvd.
Chancellor of The California State University and Colleges — Los Angeles 90036

Appointed Trustees

Appointments are for a term of eight years expiring March 1 of the years in parentheses. Names are listed in order of appointment to the Board.

Charles Luckman (1982)
9200 Sunset Blvd., Los Angeles 90069

Daniel H. Ridder (1975)
604 Pine Ave., Long Beach 90801

Karl L. Wente (1976)
5565 Tesla Road, Livermore 94550

W. O. Weissich (1977)
1299 4th St., San Rafael 94901

Rovert A. Hornby (1978)
810 South Flower St., Los Angeles 90017

Wendell W. Witter (1979)
45 Montgomery St., San Francisco 94106

Mrs. Winifred H. Lancaster (1977)
P.O. Drawer JJ, Santa Barbara 93102

Gene M. Benedetti (1978)
8990 Poplar Ave., Cotati 94952

Robert F. Beaver (1976)
254 East 27th St., Los Angeles 90011

Roy T. Brophy (1980)
2160 Royale Rd., Suite 20, Sacramento 95815

Mrs. C. Stewart Ritchie (1980)
1064 Creek Dr., Menlo Park 94025

Frank P. Adams (1981)
235 Montgomery St., San Francisco 94104

Richard A. Garcia (1979)
P.O. Box 2073, Glendale 91209

Dean S. Lesher (1981)
P.O. Box 5166, Walnut Creek 94596

Dr. Claudia H. Hampton (1982)
450 North Grand, Rm. G353, Los Angeles 90012

Mrs. Yvonne W. Larsen (1975)
1405 Savoy Circle, San Diego 92107

Officers of the Trustees

Governor Edmund G. Brown, Jr.
President

William O. Weissich
Vice Chairman

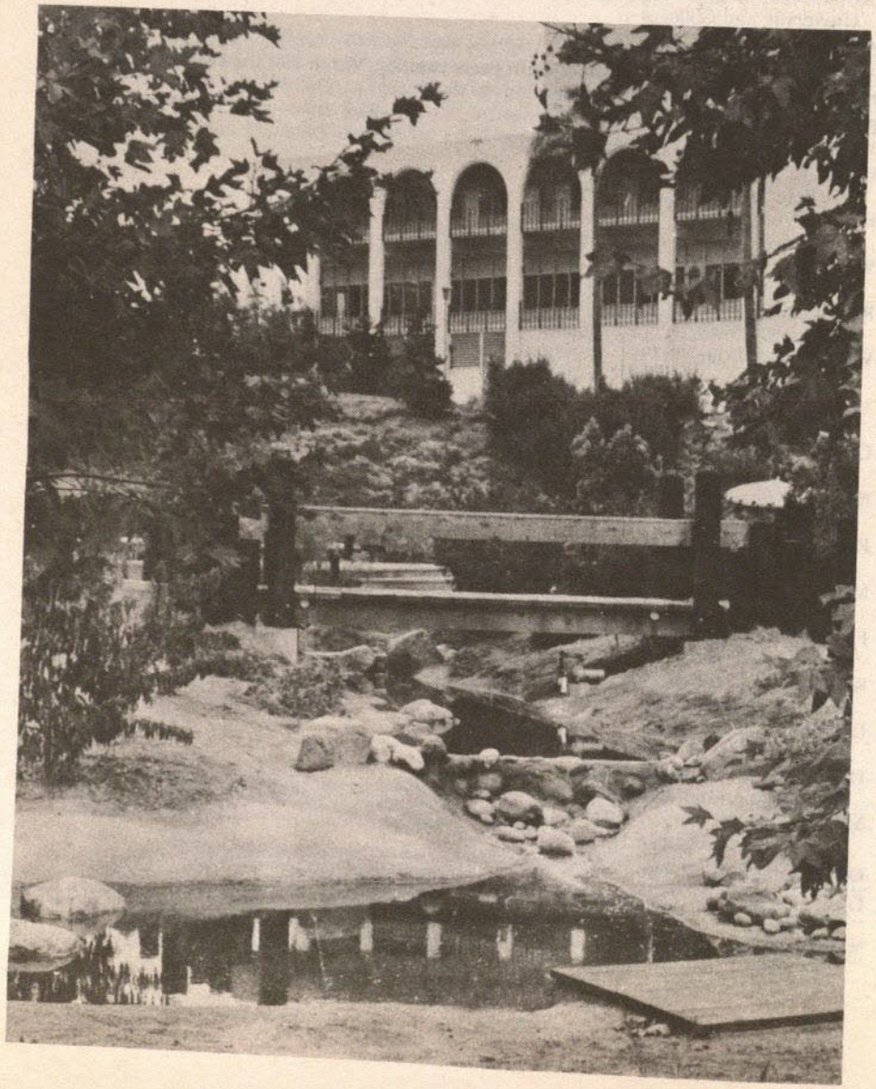
Robert A. Hornby
Chairman

Chancellor Glenn S. Dumke
Secretary-Treasurer

Office of the Chancellor
The California State University and Colleges

5670 Wilshire Boulevard
Los Angeles, California 90036
(213) 938-2981

Glenn S. Dumke ..... Chancellor
H.E. Brakebill ..... Executive Vice Chancellor
Norman L. Epstein ..... Vice Chancellor and General Counsel
D. Dale Hanner ..... Vice Chancellor, Business Affairs
Harry Harmon ..... Vice Chancellor, Physical Planning and Development
C. Mansel Keene ..... Vice Chancellor, Faculty and Staff Affairs
Alex C. Sherriffs ..... Vice Chancellor, Academic Affairs



The California
State University and Colleges

California State College, Bakersfield
9001 Stockdale Highway
Bakersfield, California 93309
Jacob P. Frankel, President
(805) 833-2011

California State University, Chico
1st & Normal Streets
Chico, California 95926
Stanford Cazier, President
(916) 895-5011

California State College Dominguez Hills
1000 E. Victoria Street
Dominguez Hills, California 90747
Leo F. Cain, President
(213) 532-4300

California State University, Fresno
Shaw and Cedar Avenues
Fresno, California 93740
Norman A. Baxter, President
(209) 487-9011

California State University, Fullerton
Fullerton, California 92634
L. Donald Shields, President
(714) 870-2011

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- Business Manager ..... Harvey J. Goodfriend

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- Family Studies and Consumer Sciences ..... David Fulcomer

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Test Officer ..... Michael A. Irwin
IMPERIAL VALLEY CAMPUS ..... Joseph A. Rodney, Dean
Associate Dean ..... Elmer D. Baldwin
Assistant to the Dean ..... Alma Tabor
Coordinator, Extended Services ..... Alan C. Smith

General Information

General Information

San Diego State University

San Diego State University traces its antecedents to a two-year Normal School which was established on March 13, 1897 for the training of elementary school teachers. The seven faculty and ninety-one students of the School's first class met initially on November 1, 1898 in temporary quarters downtown while the first unit of the campus was under construction at Park Boulevard where El Cajon Boulevard begins.

The curriculum was limited at first to English, history and mathematics, but it broadened rapidly under the guidance of Samuel T. Black, who left his position as State Superintendent of Public Instruction to become the first President (1898-1910).

Under the vigorous administration of Edward L. Hardy (1910-1935), the School was reorganized as a four-year State Teachers' College in 1921, and supervision was transferred from a local Board of Trustees to the State Board of Education. In the same year, the two-year San Diego Junior College, the antecedent institution of the present Community Colleges, was incorporated as a branch of State, where it remained through 1946.

By the time its first four-year bachelor's degree was granted, it became clear that San Diego State Teachers' College would soon outgrow its 17-acre site, and a campaign was begun to build a new campus. The Legislature agreed, provided the city furnish a new site and buy the old one. In 1928 the present site, on what was then the far eastern outskirts of the city, was approved by the electorate.

In February, 1931, the college relocated in the seven mission-style buildings surrounding what is now called Main Quad. In 1935, the Legislature dropped the word "Teachers'" from the title and permitted the expansion of degree programs into areas other than teacher preparation. Walter R. Hepner was appointed President (1935-1952) and the institution began a period of slow growth.

At the end of World War II there were fewer students enrolled than there are presently faculty members. In the quarter-century since, the College grew phenomenally under the direction of President Hepner and his successor, Malcolm A. Love (1952-1971), until it is now one of the three most populous campuses in California. In 1960, the College became a part of the newly organized State College System under a statewide Board of Trustees and a Chancellor. In 1971, following a campaign spearheaded by President Love, the Legislature renamed the system The California State University and Colleges, and San Diego State College became California State University, San Diego.

Donald E. Walker, now President of Southeastern Massachusetts State University, served as Acting President for 1971-1972, and Brage Golding, President of Wright State University in Ohio, became the School's fifth President in 1972. Dr. Golding, a Chemical Engineer, is the first President to come from a background other than teacher education, drawing to a close the University's "Normal School" and "Teachers' College" primary emphasis. After a spirited campaign by the Alumni Association, legislation was passed in 1973 which changed the institution's title to that overwhelmingly preferred by the community: San Diego State University.

In recent years a number of new buildings have been added to accommodate the 30,000 students who attend, notably: Aztec Center, the first student union in the system; Dramatic Arts, with the finest theater in the county; Music, incorporating a Recital Hall; and the striking Malcolm A. Love Library, which has more floor space than all seven original buildings combined. A new Health Services building was opened in late 1974, and new Art and Humanities classroom buildings have been budgeted for construction this year.

The curriculum is a far cry from that of 1898, although English, history and mathematics—joined now by psychology and sociology—still provide the greatest number of instructional hours. Students may now work toward a bachelor's degree in sixty-six areas, a master's in fifty-one, and the doctorate in three. A remarkable eighty-eight percent of the permanent teaching faculty possess the doctorate in those disciplines where it is the standard terminal degree.

A measure both of the distance San Diego State has come and of the stature it has achieved may be taken from the fact that the University was granted a charter for a chapter of the national honor society Phi Beta Kappa, the first of the System's nineteen campuses to be so honored.

University Library

The centrally located Malcolm A. Love Library, with its open stacks, adjoining study areas, and many individual carrells, has been designed to facilitate study, research and reading. It has spaces for some three thousand readers and will ultimately accommodate over a million volumes.

Presently the collection comprises some 870,000 volumes including books, bound periodicals, and government documents. Additional resources include some 963,000 microfiche and microopaque cards, 38,000 reels of microfilm, 12,000 college catalogs, 61,000 items of curriculum materials, 25,000 scientific reports, 290,000 archival papers, and 1600 phonograph records. The library receives some 10,000 periodical and serial titles, exclusing government documents. It is a depository for United States and California government publications. It receives all United Nations and Organization of American States publications, as well as many publications of other national and international bodies.

Significant research collections in the social sciences and humanities are business, medieval history, American history, Civil War history, Latin American History, colonial French African history, English literature (sixteenth and eighteenth centuries), music of the Middle Ages and the nineteenth century, medieval philosophy, American philosophy, and public administration. Strong research and special collections in the sciences are the history of science, paleontology, biology, orchidology, astronomy, the history of astronomy, mathematics, chemistry, geology, the geologic history of Pacific Ocean invertebrate fauna, and the geology of San Diego County and Baja California.

The library provides a general and a specialized reference service in the social sciences and humanities, as well as separate reference services for sciences and engineering, government publications, and educational resources. Reference librarians assist students and faculty in their research and study, and librarians with advanced degrees in particular subject areas are available for reference consultation.

Among the conveniences provided the users of the library are locational information desks in the main lobby, the periodicals reading room, and the microforms and listening center; numerous inexpensive photocopying machines including one for microfiche and microfilm; and inexpensive multiple-copy duplicating machine; several typing rooms with coin-operated electric and manual typewriters; coin-operated electronic calculators; listening equipment for cassettes, open-reel tape, and phonographic records; and most of the required textbooks at the limited-loan (reserve) room of the library.

Accreditation

San Diego State University is a member of the following educational associations:
American Assembly of Collegiate Schools of Business
American Association of Colleges for Teacher Education
American Association of Schools and Departments of Journalism
American Home Economics Association
Association for University Business and Economic Research
Council of Graduate Schools in the United States
Council on Social Work Education
Engineers' Council for Professional Development
National Association of Schools of Music
National League for Nursing
Western Association of Graduate Schools
Western Association of Schools and Colleges

San Diego State University's accreditation is validated through membership in the above associations. San Diego State University is also accredited by the National Council for Accreditation of Teacher Education, the California Commission for Teacher Preparation and Licensing, and by the California State Board of Education. The journalism-news-editorial sequence is accredited by the American Council on Education. The clinical services area of speech pathology and audiology is accredited by the American Speech and Hearing Association. It is on the approved list of the American Chemical Society and is approved by the Veterans Administration.

The university has four professional schools: business administration, education, engineering and social work. See the descriptions of their programs in the section, Professional Curricula.

In addition, high quality preparation for many other professions is provided. It is suggested that the student refer to the various courses of study listed in the catalog. The bachelor's degree is offered in 66 areas, the master's degree in 52 areas, and the Ph.D. in three areas. Some of its recent noteworthy innovative programs are in Afro-American studies, Asian studies, ecology, Jewish studies, Mexican-American studies, religious studies, and women's studies.

Degrees and Certificates

San Diego State University offers the following degrees and certificates:

Bachelor of Arts
Bachelor of Science
Bachelor of Vocational Education
Bachelor of Music
Doctor of Philosophy in Chemistry (with University of California, San Diego)
Doctor of Philosophy in Ecology (with University of California, Riverside)
Doctor of Philosophy in Genetics (with University of California, Berkeley)
Master of Arts
Master of Science
Master of Business Administration
Master of City Planning
Master of Public Administration
Master of Social Work

Nondegree programs leading to the Certificate in Criminal Justice Administration or the Certificate in Public Administration are offered by Public Administration and Urban Studies.

Types of Curricula Offered

San Diego State University offers the following types of curricula:

Undergraduate Curricula. Undergraduate curricula provide the following opportunities for study:

(1) Liberal arts and sciences: Curricula in the academic major fields, leading to the Bachelor of Arts degree in liberal arts and sciences.

(2) Applied arts and sciences: Curricula in major fields leading to the Bachelor of Science, Bachelor of Arts or Bachelor of Music degree in applied arts and sciences.

(3) Professional curricula: The School of Business Administration offers the Bachelor of Science degree in business administration with majors in seven fields; the School of Engineering offers the Bachelor of Science degree in engineering with specialization available in four fields; and the School of Education offers curricula in teacher education leading to graduate credentials at all levels of public school teaching.

(4) Preprofessional and nondegree curricula: Programs are offered in predentistry, prelegal, and premedical, leading to transfer to professional schools. Nondegree programs are offered in public service, leading to the Certificate in Criminal Justice Administration or the Certificate in Public Administration. The Air Force offers an ROTC program, leading to a commission in the Air Force Reserve.

Graduate Curricula. The Graduate Division offers curricula leading to the Master of Arts or Master of Science degree in a wide variety of fields, the Master of Business Administration, the Master of City Planning, the Master of Public Administration, the Master of Social Work, and joint-doctoral programs in chemistry, ecology and genetics.

Imperial Valley Campus

Faculty

Professors: Rodney (Dean), Baldwin (Associate Dean), Smith (Coordinator of Extended Services)

Associate Professors: Ayala, Franklin, Harmon, Polich, J., Spencer, Wilson

Assistant Professors: King, B., Polich, K. (Librarian), Rice

Lecturers: Alvarado, Banks, Brautigam, Buckner, Escalera, Farrar, Ferguson, Gutierrez, Hubbard, Huerta, Jones, Kane, E., Kane, T., King, I., Maranon, Nagel, Najarian, H., Najarian, M., Rosenblum, Stuckey, Swanson, Van Werlhof, Williams, Wong

Location and Function

The Imperial Valley campus is a division of San Diego State University. As such, it is fully accredited. Operating as a separate campus, its primary function is to provide collegiate instruction for the desert area of Southeastern California.

The campus is located at Seventh Street and Heber Avenue in Calexico, adjacent to Rockwood Plaza, a park near the center of the city. The buildings housing this campus are of early Spanish style architecture, complementing the geographic location which is within walking distance of Mexicali, Baja California, Mexico, a city of approximately 500,000 population. The campus is 120 miles east of San Diego via U.S. Interstate Highway 8. Its buildings are fully air-conditioned in the summer.

The program at this campus is an integral part of San Diego State University and is under the general jurisdiction of the Vice President for Academic Affairs. The curriculum includes the recommended upper division and postgraduate program of courses leading to a bachelor's degree and/or the California Teaching Credentials. In addition to its regular program, the campus assists in the administration of extension courses for the area.

A major function of this campus is to foster better understanding and relations between Mexico and the United States. Since the campus is located within walking distance of the Mexican metropolis of Mexicali, the student has a unique opportunity frequently to visit a foreign country and enjoy its educational, cultural and recreational attractions. Mexicali is linked by highway, bus, trains and airplane to the rich cultural heritage of Hermosillo, Guaymas, Mazatlan, Guadalajara and Mexico City.

The climate of Imperial Valley is dry and mild most of the college school year, with dune buggying, water skiing in the nearby Salton Sea, Gulf of California, Colorado River and golfing and hiking the year around.

The full-time faculty and many of the part-time faculty are regular members of the San Diego State University instructional staff. Serving at the Imperial Valley campus are full-time resident faculty members in the areas of anthropology, art, criminal justice administration, drama, economics, education, English, geography, history, mathematics, Mexican-American studies, music, philosophy, political science, psychology, sociology, and Spanish. More than eighty percent of the full-time faculty possess the doctoral degree. Part-time faculty, selected from outstanding educators and practicing professionals of Imperial Valley, augment the instructional programs of the Imperial Valley Campus.

Since the student-faculty ratio is low, personal student counseling can be provided. Each student is assigned a faculty adviser who assists him in arranging his program so that he is better able to realize his educational and occupational career goals.

Program

The program at the Imperial Valley campus is restricted to upper division and graduate students. The campus offers eleven majors leading to the bachelor's degree and also a program designed to complete the California teaching credentials. The programs are similar to those described in this catalog; however, not all majors and minors are available at Imperial Valley Campus.

The Imperial Valley Campus is structured to serve the needs of the following: (1) community college graduates, (2) transfer students who have satisfactorily completed two or more years of college work with an accredited college, (3) students working for the B.A. or B.S. degree, (4) persons now teaching, but who want to complete requirements for the bachelor degree and/or a teaching credential, (5) inservice teachers holding either a provisional

credential or a partial fulfillment of requirements credential, (6) other upper division or graduate students who wish to expand their academic preparation.

For those transfer students needing certain lower division college work in connection with their work at this campus, there are available in the area the Imperial Valley College, College of the Desert, Mt. San Jacinto College, Palo Verde College, and Arizona Western College. These are public community colleges offering the first two years (60 units) of college course work.

This campus has a limited experimental student exchange with the two Mexican higher educational institutions in Mexicali, Baja California. Qualified students may be selected to attend classes for elective credit at either CETYS or Universidad Autonoma de Baja California.

THE WEEKEND UNIVERSITY is a special program offered only at Imperial Valley Campus. Classes are offered Friday evening through Sunday, enabling students to earn up to 12 units of college credit each semester by attending classes on weekends. Imperial Valley Campus schedules classes in three-hour blocks, seven days a week, from 9:00 a.m. until 10:00 p.m., so commuting students may earn 9 to 12 units each semester by attending classes one or two days a week.

A schedule of classes, with instructions for registration, is published each semester and can be obtained on request from the Dean of the campus approximately six weeks before the dates of registration. All tests required for the programs offered at this campus are administered on campus. In addition, the Graduate Record Examination, National Teachers Examinations and other tests are scheduled in accordance with the nationally advertised test dates.

Registration and Commencement

Registration for all classes offered at Imperial Valley Campus is held at the beginning of each semester (Fall, Spring and Summer) at the Calexico campus. Continuing students, and those admitted or readmitted by the university, will be mailed detailed instructions for registration. All but continuing students need to file applications for admission with the Dean's office at Calexico. Currently enrolled and previously enrolled students at the San Diego campus, registering for courses at Imperial Valley Campus, should notify the Dean's office in Calexico and request the Registrar's office at the San Diego Campus to forward student records to Calexico.

Commencement exercises are held once a year in Calexico at the end of the spring semester. Students graduating at the midyear, June graduates, and students completing requirements for graduation in the summer session are invited to participate.

Physical Facilities: Offices, Classrooms, Student Union, Bookstore, Library

The campus consists of a cluster of eight large buildings set in an eight-acre landscaped area in the center of the city of Calexico. The buildings are of early traditional Spanish architecture, with thick plastered walls and red-tiled roofs.

The administration offices are located east of the central classroom building complex. All classrooms are large, comfortable and equipped with refrigerated or heated air conditioning to suit the season. Resident faculty members maintain offices on campus in two faculty office buildings located north and south of the administration offices.

The student union is entirely separate from the office and classroom areas. The large six-room building is furnished with television, sofas, lounge chairs, small tables, and easily movable chairs for readily arranged conferences, meetings and study areas. Snack facilities are available to students seven days a week. The Associated Student Body offices are located in the administration office building.

Books and other instructional materials may be purchased at the start of each semester at the campus bookstore. In addition to textbooks, paperback books on a variety of topics and supplies are available to students.

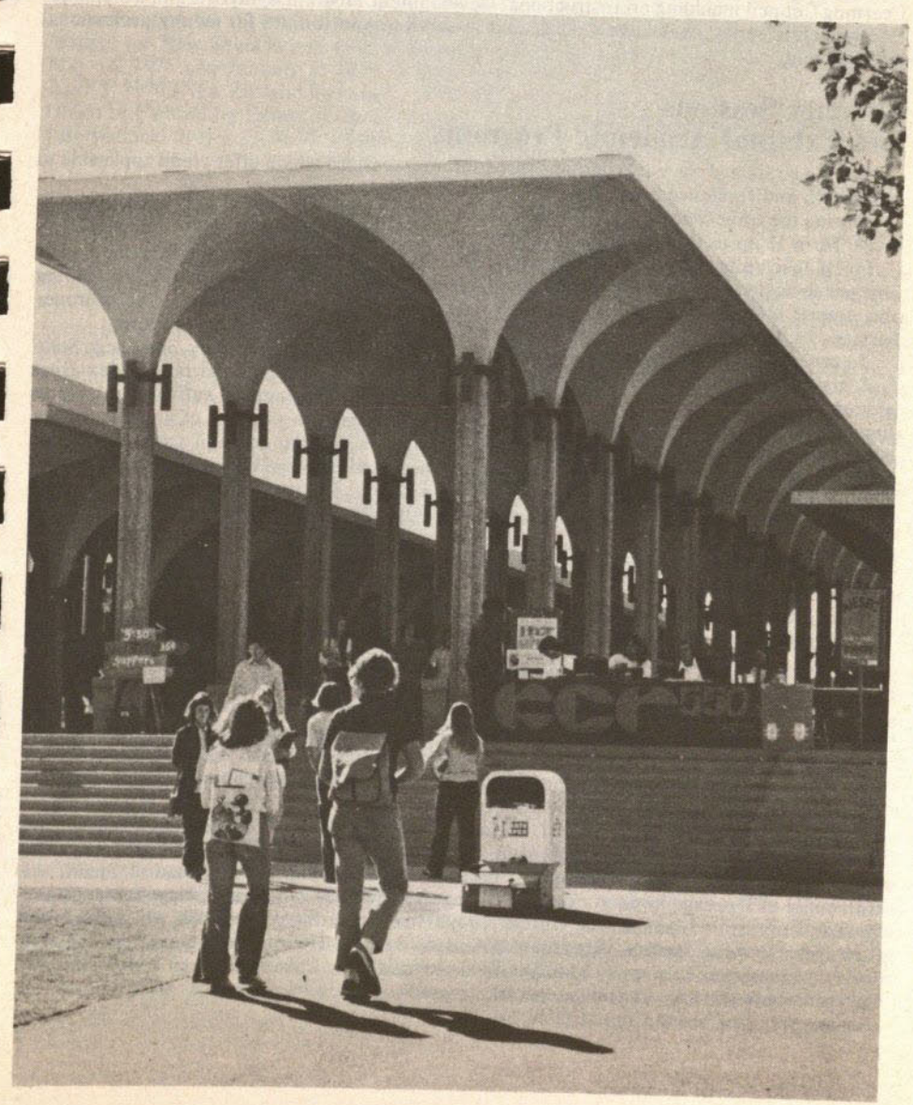
The Imperial Valley Campus library is housed in the south wing of the central building complex. It contains over 17,000 volumes, 200 periodical titles and a complete collection of California State approved texts. Additional loan privileges are available to students and faculty through the library at the San Diego Campus and the Southeastern California area public and school district libraries. Books and reference materials are also available from the two Mexican collegiate institutions located in Mexicali, Baja California, Mexico.

A good collection of audiovisual equipment is available for classroom use, including closed circuit TV and monitors. Films and other instructional materials are available to the staff and students through the Audiovisual Departments of the San Diego Campus and of the Imperial County Education Center. Films are also rented from outside sources as needed.

Placement, Employment and Information

The university provides a centralized placement service in cooperation with the School of Education. Students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Staff members maintain contact with local organizations and community leaders for employment opportunities for graduates of this campus.

Further information on admission, registration, programs and classes may be obtained by writing the Dean of the Campus, Imperial Valley Campus, San Diego State University, 720 Heber Avenue, Calexico, CA 92231, or calling 714-357-3721.



Special Programs and Services

Teaching and Learning Council

The Teaching and Learning Council, comprised of five faculty members, three students, and two administrators, was established in 1973 by the Faculty Senate. Its mission is to stimulate and facilitate the development of innovative, integrative, and interdisciplinary learning experiences for students at all levels. The Council is authorized to grant temporary approval for new courses that fulfill this mission.

The Council also sponsors a Teaching Improvement Program for faculty and awards Presidential Mini-Grants to faculty members for the development of courses and programs which hold promise of improving teaching and learning. Many of these projects involve faculty and students working in close collaboration.

A variety of special projects related to its mission are supported by the Teaching and Learning Council including an Instructional Development Program, symposia and workshops, faculty lecture series, evaluative studies, and in-service opportunities for faculty professional development.

Summer Sessions and External Academic Programs

San Diego State University conducts three summer sessions which offer credit applicable to graduation and residence requirements.

During the three-week Term I four semester units of credit may be earned; during the six-week Term II up to seven units of academic credit may be earned; during the three-week Term III four units of credit may be earned. Tuition for the summer sessions is based on the cost per semester unit. Write to the Dean of Continuing Education for information concerning the course offerings, special workshops, and requirements for admission. The Summer Sessions Bulletin is available in mid-March and is mailed free of charge upon request.

In order to serve the education needs of the community more adequately, San Diego State University cooperates with off-campus organizations and groups in arranging external academic programs in response to expressed needs when enrollment is sufficiently large to finance the instruction. Offerings are made each semester in a number of areas including education, business administration, public administration and the arts and sciences. Classes may be organized at various locations within San Diego and Imperial Counties. A minimum of 16 students is usually required in order to maintain a class. The usual class carries three units of credit and meets once a week, either in the late afternoon or evening. Some one-unit weekend workshops in various areas are also offered throughout the semester. These courses are listed in a special Extension Bulletin published each semester.

For limitations on extension credit, see the section of this catalog on Credit for Extension Courses. Refer to the index for page number. For information on organization of classes, current offerings, and eligibility for registration, communicate with the Office of Continuing Education.

International Programs

An overseas study program is offered by the California State University and Colleges International Programs in which students enroll for a full academic year simultaneously at their home campuses, where they earn academic credit and maintain campus residency, and at a distinguished foreign university or a special program center.

Cooperating universities abroad include the University of Provence, France; the Universities of Heidelberg and Tubingen, Germany; the University of Florence, Italy; the Universidad Ibero-Americana, Mexico; the Universities of Granada and Madrid, Spain; the University of Uppsala, Sweden; Lincoln College and Massey University, New Zealand; and Waseda University, Japan. In the United Kingdom, cooperating universities, which may vary from year to year, include Aberdeen, Dundee, Bangor, Heriot-Watt, Leicester, London, Oxford, Liverpool, Lampeter, and Sheffield. In addition, California State University and Colleges students may attend a special program in Taiwan, Republic of China, or an architectural program in Copenhagen, Denmark.

Eligibility is limited to students who will have upper division or graduate status during their year of participation, who have a 2.5 overall grade point average (3.0 for the United Kingdom program), who show ability to adapt to a new environment, and who, in the cases of France, Germany, Mexico and Spain, have completed two years of college level study (or the equivalent) in the language of instruction at the foreign university. Selection is made by a faculty committee on the student's home campus and by a statewide faculty committee.

The International Programs is supported by state funds to the extent that such funds would have been expended had the student concerned continued to study in California. Students assume costs for predeparture orientation, insurance, transportation, housing and meals. Home campus registration fees, tuition on the home campus for out-of-state students (if the student is not a California resident), and personal incidental expenses or vacation travel costs while abroad are also paid by the student. The Office of International Programs collects and administers funds for those items which the program must arrange or can negotiate more effectively, such as home campus fees, orientation costs, insurance, outbound transportation, and, in some centers, housing. Students accepted in the International Programs may apply for any financial aid available at their home campuses, except work-study.

Application for the 1976-77 academic year must be submitted before February 13, 1976 (except for New Zealand and United Kingdom applicants who must submit applications by May 16, 1975 and January 9, 1976, respectively). Applicants are notified of acceptance by April 1, 1976 (New Zealand by June 1, 1975). Detailed information may be obtained from the Office of Continuing Education or by writing to The California State University and Colleges International Programs, 5670 Wilshire Boulevard, Los Angeles, California 90036.

External Degree Programs

The California State University and Colleges System has established procedures for developing and offering specific programs leading to academic degrees through the Office of Continuing Education. These programs are typically made available to qualified students in the community without the requirement of matriculating in the University. At present two such degree programs are offered through San Diego State. One is a Bachelor of Science degree in Criminal Justice Administration, offered through the School of Public Administration and Urban Studies. For further information, write Ms. June Kaiser, Department of Criminal Justice. The second one is "Integrated Master of Arts and Superintendent's Administrator Credential Program" reserved for the present for a selected group of potential school administrators in the state of Texas. Further information can be obtained from the Department of Educational Administration in the School of Education.

In addition, a master's degree program in public administration is available through the statewide University Consortium. For information, contact the Director of Public Administration and Urban Studies.

Conferences and Professional Programs

In order to provide a wide range of continuing education experiences for organizations, agencies, institutions and professionals in many fields, the Office of Continuing Education will assist groups interested in planning and presenting educational programs on campus or in other convenient locations throughout San Diego or Imperial County.

Special Sessions and Travel Study Programs

The Office of Continuing Education administers a special academic program during the winter recess period titled, "The Wintersession." This special session provides students an opportunity to earn additional academic credit through participation in concentrated and interesting course work. In addition, the Office of Continuing Education sponsors a wide range of travel study experiences in foreign countries throughout the world. Travel/study programs earn academic credit and are available during the summer sessions and the wintersession.

Research Bureaus

Asian Studies

Alvin D. Coox, Director

The Center for Asian Studies is an interdisciplinary organization in the College of Arts and Letters. Drawing upon faculty members from many areas, it performs such services as (1) securing and administering grants and other support for research and development in Asian Studies; (2) coordinating and publicizing the activities of faculty engaged in Asian-centered Studies; (3) developing and administering the Asian Studies program and relevant curricula at the undergraduate and graduate levels; (4) responding to campus and community requests for information and services; (5) fostering campus and community interest in Asian Studies. The center's reading room and study facility, located in LE-469, contains Asian periodicals, books, pamphlets, dictionaries and maps.

Business and Economic Research

John B. McFall, Director

The Bureau of Business and Economic Research is a center for organized research activity serving the needs of the School of Business Administration. Operationally, it is a part of the School of Business Administration, with a director and staff, but serves in addition as a coordinating agency for studies which concern the university as a whole. Fiscal matters are coordinated through the San Diego State University Foundation.

The principal objectives of the bureau are to (1) conduct research in the areas of economics and business, with special reference to local and regional problems; (2) facilitate research in these areas by the faculty and students; (3) seek cooperative arrangements with outside individuals and organizations for conducting specific research projects; (4) analyze and interpret local and regional data; (5) publish the results of its investigations and aid faculty in publication of their research.

Graduate students and faculty are encouraged to make use of bureau facilities. The bureau is a member of the Association for University Business and Economic Research.

Counselor Education

Raymond Howard, Director

The Center for the Study of Counselor Education is an interdisciplinary task force under the administrative jurisdiction of the Dean of the School of Education; fiscal matters are coordinated through the San Diego State University Foundation. The Center is designed to draw together faculty members from relevant disciplines such as anthropology, economics, education, psychology, social welfare, social work, sociology, and the University Counseling Center for such purposes as (1) securing and administering grants and other support for research and development in counselor education and guidance and (2) conducting programs or rendering services related to counselor education and guidance through contractual agreements with public or private agencies or organizations.

Economics Research Center

Robert Barckley, Director

The Economics Research Center collects research materials, publishes occasional monographs, and encourages research of special interest to faculty and students in economics and related areas. The Center's facilities are currently utilized by the Economics Department for faculty seminars and economics conferences, by the Center for Research in Economic Development, by the Institute of Labor Economics, and by the local chapter of Omicron Delta Epsilon.

Bureau of Educational Research and Evaluation

Lester A. Becklund, Director

The Bureau of Educational Research and Evaluation operates within the School of Education. The objective of the bureau is to improve the quality of education through research by (1) assisting departments within the School of Education in their evaluation of courses and student performance, (2) serving faculty graduate advisers as a resource in research design and statistical techniques, (3) assisting the research activities of individual faculty members who wish to make use of its services, (4) assisting those directing cooperative studies

established between the School of Education and other educational communities, and (5) keeping faculty informed about current and potential bureau research activities and services.

European Studies Center

Ernest M. Wolf, Director

The European Studies Center coordinates and supports teaching and research related to the European area. It supervises the major in European Studies for the A.B. degree. It sponsors the annual San Diego State University Summer Seminar and Travel Study Tour to Europe. It administers the European Studies Center Laboratory in LE-470 which contains books, pamphlets, English and foreign language periodicals, and a slide collection on European art and geography. The laboratory room is open several hours each day for study and research by students and instructors in courses dealing with any aspect of European studies. The center also assists in the development of the university library's holdings in the European area and has created a special collection of library materials on European integration and unification which is being steadily and systematically expanded.

Institute of Labor Economics

Clinton Jencks, Director

The Institute of Labor Economics is a facility of the Department of Economics to encourage research by students and faculty in all phases of labor problems, collective bargaining, labor legislation and social security. The center is designed to complement the curricular and degree programs in the Department of Economics and to be of service to related disciplines. Publications are exchanged with 75 similar institutes at other universities. Research materials and facilities to assist research and publications in the area of labor economics are maintained in the Social Science Research Laboratory, located on the lower level of the West Commons. A technical assistant is available to help you from 8:30 A.M.—4:30 P.M., Monday through Friday.

Latin American Studies

Philip F. Flemion, Director

The Center for Latin American Studies seeks to encourage teaching and research related to Latin America. It has primary responsibility for the administration of the Latin American undergraduate and graduate degrees and the Mexican Summer School programs. The center sponsors a Latin American Lecture Series which provides the campus with public lectures given by guest speakers and members of the San Diego State University faculty who discuss a variety of Latin American topics. The center also assists in the development of the university library's Latin American holdings and has created a special collection of Latin American materials which is available in the center's reading room, LE-543.

Center for Marine Studies

Richard F. Ford, Director

The Center for Marine Studies was established to coordinate and represent the multidisciplinary marine studies programs offered by departments within the University, to aid in the development of instructional, research, and public services aspects of the program, and to provide special supporting services to those involved. The Center is operated as a special unit of the College of Sciences. Supporting services sponsored by the Center include advising students concerning marine studies, assistance to faculty and students in research and publication, a boat operations program, and the University Diving Safety Program. The Center is administered by a director, associate directors, and an executive committee consisting of faculty members elected from participating departments in the College of Sciences, the College of Arts and Letters, the College of Professional Studies, the School of Business Administration, and the School of Engineering.

Paleobiology Council

Jason A. Lillegraven, Chairman

An interdisciplinary research and teaching agency to explore the fossil record. Composed of faculty members from the departments of Geology, Physical Science and Zoology at San Diego State University in addition to professional paleontologists in other research and educational institutions in the greater San Diego area.

Public and Urban Affairs
W. Richard Bigger, Director

The Institute of Public and Urban Affairs is a part of Public Administration and Urban Studies, San Diego State University, organized to conduct research into community and governmental problems. It also sponsors institutes and conferences related to community and governmental activities. It is staffed by members of the faculty of San Diego State University. Closely associated with the institute is the Public Administration Center with a specialized and growing collection of research materials. The institute engages in cooperative or joint research efforts with the various departments of instruction, institutes, and research centers of the university.

Public Economics
George Babilot, Director

The Center for Public Economics is a facility of the Department of Economics to encourage research by students and faculty in all phases of nonmarket economic decision making, encompassing the following areas: (1) the functioning of federal, state and local fiscal systems, including the provision for and financing of public goods at each level; (2) the economic factors involved in environmental changes, in particular, their bearing on urban and local economic problems; (3) the economic dimensions of social decision making. The center is designed to complement the curricular and degree programs in the Department of Economics and to be of service to related disciplines. It maintains research materials and facilities to assist research and publications in the area of public economics. Fiscal matters are coordinated through the San Diego State University Foundation. Financial support in the form of student assistance is available for faculty research projects on subjects in public economics. The Center funds a number of student scholarships which are administered through the Scholarship Office. The Center for Public Economics is located in OL-307.

Regional Environmental Studies
Charles F. Cooper, Director

The Center for Regional Environmental Studies coordinates and encourages interdisciplinary research; educational and public service programs related to environmental quality and improved use of environmental resources. Physical, biological, social and institutional aspects of environmental problems are emphasized. The Center endeavors to serve as a point of contact between the University and governmental and private institutions concerned with environmental quality. Although the San Diego region receives primary attention, the Center's activities include statewide, national and international environmental programs.

Research in Economic Development
Murugappa Madhavan, Director

The Center for Research in Economic Development is part of the Economics Department's effort to encourage research by students as part of their education and by the faculty. The Center, temporarily located in the Economics Research Center in SS-340, provides material and aid for research in problems related to less developed countries.

Social Research
Douglas Kirby, Director

The Social Research Center is a facility of the Department of Sociology. It provides physical equipment and space for the planning and processing of sociological research in such areas of investigation as urban growth and development, demographic factors, and social surveys. Current plans include expansion of the center to include laboratories for experimental studies of social organization. The center is administered for the Department of Sociology by a director whose duties include consulting assistance in the designing and execution of studies and in the preparation of proposals to funding agencies.

Social Science Research Laboratory
Warner Bloomberg, Jr., Interim Director

The Social Science Research Laboratory houses the Economic Research Center, the Social Research Center, the Political Science Laboratory and the Map Library of the Geography Department, in addition to computer facilities for research and instruction in the social sciences.

Survey Research
Oscar Kaplan, Director

The Center for Survey Research has been established to encourage nonprofit research in the sample survey field. The Center is prepared to undertake surveys requested by government or nongovernment organizations, and to do field work on a local, state or national basis. Faculty members who wish to submit applications for off-campus support in survey research in the name of the Center may do so, upon approval of the project by the Center's Advisory Committee. The Center is administered by a director.

Computer Center

The Computer Center is established to encourage and support the use of computers in all instructional, research and administrative activities of the University. The present equipment includes a medium-size electronic digital computer—an IBM 360 Model 40 with 262,144 bytes of core storage, discs, tapes, a printer, card reader and punch. The supervisor is the Disc Operating System which supports the Assembler, COBOL, FORTRAN, PL/I and RPG languages. Remote job entry terminals are located in two buildings on campus. These terminals, consisting of a card reader and printer, are connected to the main computer in the Computer Center via telephone lines. A smaller digital computer, an IBM 1130, supports the APL and FORTRAN languages and has a plotting capability. Additional facilities include all necessary peripheral equipment to permit computer operation in the fields of scientific computation and commercial data processing. Timesharing terminals are strategically located throughout the campus and are tied by telephone lines to a CDC 3170 computer located at CSU, Northridge. Programming and data processing courses, and courses related to some specialized applications of computers are offered by several departments within the University.

San Diego State University Foundation

Research in all academic areas is carried on at San Diego State University, consistent with the Master Plan for Higher Education. San Diego State University also engages in projects such as federal educational contracts and institutes (both on campus and in foreign countries) other projects related to community and national goals. Research and educational project activities at San Diego State University are administered through the San Diego State University Foundation. Under general policies set down by the administration, San Diego State University has successfully maintained the balance, as envisioned in the Master Plan, between teaching and research, each complementing the other.

Audiovisual Center

In general the Center provides professional assistance in the application of educational technology to achieve maximum efficiency in instruction. These functions include: (1) consultation on selection, acquisition, preparation, utilization and evaluation of instructional media and equipment; (2) organizing, equipping and maintaining instructional media facilities and resources; (3) developing and operating a service to provide, maintain and circulate instructional media and equipment for instruction; and (4) preparing materials required for instruction but not conveniently available from other sources.

San Diego State University Press

The San Diego State Press operates under supervision of a publications board composed of representatives from each school and college. Financial assistance is coordinated through the San Diego State Foundation.

The Press publishes manuscripts and other works of both scholarly and practical educational value. In addition, it publishes syllabi prepared for specific classes.

Financial Aid

Cost of Living

Each student should plan his budget based on individual needs. The wide range of financial resources of students in a university as large as ours makes it difficult to give specific information on costs. At San Diego State University, it is possible to live simply and participate moderately in campus life on a modest budget. The following table is based on systemwide figures provided for the purpose of determining financial aid.

Estimated Expenses for the Academic Year

	Living on Campus	*Commuting*
Materials, service, student activity, student union fee, facilities fee	$187	$187
Books and supplies	180	180
Personal	450	400
Room, board, health	1350	- - -
Board, incidentals	- - -	500
Transportation, parking	- - -	450
Total	$2167	$1717

In addition, foreign students and out-of-state students pay an annual tuition of $1300. Typical expenses for married students without children average $4250 for a nine-month period.

Financial Aid

San Diego State University makes every effort to see that students who wish to attend are not prevented from doing so due to inadequate resources. Available funds, however, are limited. Financial aid in the form of loans, grants and part-time employment on or off the campus is made available to qualified applicants. In the majority of cases, a student will be offered a package financial aid plan which may include one or more of the types of aid.

Some loan programs—those for prospective teachers, nurses and law enforcement agents—provide for partial cancellation of the indebtedness if after graduation the recipient is employed full time in the designated area. Some interest-free loans of modest size are available for emergencies. Some outright grants can be made to students from low-income families who would not, but for such a grant, be financially able to pursue a course of higher education. Some grants are also available to full-time employees of certain law enforcement agencies. All financial aid funds are available only to U.S. citizens or permanent residents.

Applying for Aid

All these financial aid programs, as well as others not described here, are administered by the Financial Aid Office, room 122, Campus Laboratory School building. Interested persons should ask for the Financial Aid brochure. Counselors are available for guidance as to the most appropriate aid program for the individual.

A form titled "Preliminary Financial Aid Application for 1975-76" is contained as Part C in the Admissions Application booklet. However, additional information is required for evaluation and determination of financial need. Instructions and any required additional forms will be furnished to those students for whom space at San Diego State University has been reserved. All such additional forms or requested documentation must be returned to the Financial Aid Office.

A completed Financial Aid application includes a Parents' Confidential Statement (PCS) *or* a Student's Financial Statement (SFS). The PCS form may be obtained from your school counselor. It should be filed as soon as possible, in accordance with instructions therein. The SFS form is to be used by independent and married students; it may be obtained from your school counselor or from the Financial Aid Office. It, too, should be filed as soon as possible in accordance with instructions therein.

Alan Pattee Scholarship

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, are not charged fees or tuition of any kind at any California State University or College, according to the Alan Pattee Scholarship Act, *Education Code* Section 23762. Students qualifying for these benefits are known as Alan Pattee scholars.

Scholarships

The San Diego State University Scholarship Committee will administer approximately 350 scholarships for the 1975-76 academic year. The awards average about $300. These scholarships are donated by a number of individuals and organizations with the stipulation that the Scholarship Committee select the recipients. Selections are based on recommendations received from the various department chairmen and financial need. Information is available from the Scholarship Office, room 5G, Campus Laboratory School building. A similar program is anticipated for the 1976-77 academic year.

During the 1974-75 academic year about 650 students received scholarships, fellowships, grants or stipends totaling approximately $700,000 through the various departments. Federal, state and private industry support-programs of this nature are largely directed to students doing graduate work or to students preparing for some special field of work. Students who have decided on some particular area of study should check with an adviser in the department of their major to determine what scholarship, fellowship, grant or stipend support might be available to them.

For the 1974-75 academic year about 400 students received scholarships from donors who made their own selections and asked the university to administer the funds. These scholarships are generally from clubs and organizations who wish to help students who are studying in areas of interest to the club or organization. Students should ask if a club or organization of which they or members of their family are members sponsor scholarships.

In addition to the scholarships granted to students directly by organizations and individuals, the following scholarships are awarded through the Scholarship Committee.

Allstate Foundation
Altrusa Women's Club
American Business Women
American Institute of CPAs
American Society of Military Comptrollers
AMOCO Foundation
Amsden Memorial
Associated Students
Aztec Shops
Baronofsky, Dorothy Memorial
Beitner, Brenda Memorial
Biehl, Martha S. Memorial
Brooks, Baylor
Brown, Dr. Leslie P.
Burgener, Clair W.
California Assn. for Childhood Education
California Assn. of Teachers of Deaf & Hard of Hearing Children
California Fed. of Women's Clubs
California PTA
California Society CPAs-Women's Auxiliary
California State Assn. Emblem Clubs & Nevada-Hawaii Clubs
Cap and Gown - May Finney Marcy
Center for Public Economics (Anonymous)
Chi Omega
Cleater, Robert K.
Cooper, SamDora Memorial
Copley Newspapers
Country Friends
Cramer, Harry
Crossley, Sharon A.
Delta Delta Delta
Delta Kappa Gamma
Dorado Foundation
Downtown Optimist Club
Driver, Robert F. Co.
Earnest, Dr. Sue
East San Diego Lioness Club
Ellis, George William Memorial
Escobedo, R. J.
Evenson, Beatrice
Fleet Foundation
Fletcher Foundation
Fontaine, Amelie Memorial
Foster, Frank Memorial
Fox Foundation
Geldreich, Dr. Edward
General Dynamics
Gore, Bonnie Jean
Hashinger, Dr. Edward Memorial-Sigma Nu
Heartland Human Relations
Hess, Robert C. Memorial
Hodgetts, Mabel Memorial
IBEW, Women's Auxiliary
Institute on Government
Intelcom Rad Tech
Jones, Sybil Eliza
KFMB
Kappa Beta Nu
KGTV
Lake Park Women's Club
LaSalle, William Memorial
Linkletter, Art
Lodge, Catherine Yuhan
Mogilner, Samuel E. Family Foundation
Morrison, Alvin Memorial
Mortar Board Alumnae of San Diego
National Council of Jewish Women

Nuttall-Styris, Inc.
Olberg, Lottie E. Memorial
Pacific Beach Jr. Women's Club
Paine, Miriam
Pan American League of San Diego
Pfaff, Paul
Phi Alpha Theta
Phi Epsilon Phi
Philippine-American Community of San Diego
Pi Lambda Theta
Post, Foster Memorial
Post, Dr. Lauren C.
Public Relations Club of San Diego
Public Relations Society of America
San Diego-Imperial County Labor Council
San Diego Realty Board
San Diego State University Alumni
San Diego State University Memorial
Senn, Percie Belle
Shields, Robert Patterson Foundation
Sigma Alpha-Gamma Upsilon Chapter
Sigma Alpha Iota Alumnae-Margaret Swope Scott Memorial
Silvergate Lions Club
Silverman, Anna & David Memorial
Solar
Southern California First National Bank
SPEBSQSA
Spanish Village Art Center
Standard Oil Company of California
Stanton, Henry E. Fund
Stauffer, Paul C. Memorial
Stone, John Paul
Stott, Dorothy C. & Kenneth W.
Tait, Frank G. Memorial
Thompson, Terry Lynn Memorial
Thompson, Fred-Guadalajara National Philharmonic
Tripp Memorial
Trott, Wilmia Tyler
United Commercial Travelers-California Ladies
United Jewish Federation of San Diego
Union Oil Company
Ward, Lola
Weiss, Walter
Whitney, Guilford H. Foundation
Williams, DeWitt Bisbee
Zweck, Mr. & Mrs. John

Student Services

University Counseling Center

Located at 5630 Hardy Avenue, the Center is a place where enrolled students and other members of the University community come for a wide range of services designed to enhance the total educational experience at San Diego State. Among these are academic advising for students without a declared major, individual and group counseling on educational, vocational, personal or social matters.

In addition, counselors are involved in the teaching of courses, consultation with student groups, faculty and administration, and the supervision and training of graduate students in Counselor Education and Psychology.

The Center also offers experiences especially designed for various groups, for individuals having a difficult time with their studies, and for considering areas of special interest or concern.

Open 8:00 a.m. to 4:30 p.m. Monday through Friday, the Center provides immediate walk-in services or you may call for an appointment at 286-5218. Counseling is confidential and places a premium on understanding.

Counseling also is available on a walk-in basis at several locations around the campus as part of the decentralized focus on services. Among these locations are the residence halls and the Malcolm Love Library, Student Health Center, and selected academic departments.

Health Services

As a part of the program of student personnel services the University provides health services for the protection and maintenance of student health. These services are administered under the supervision of a medical director-administrator. A full-time physician staff is available to the students when school is in regular session for consultation, treatment of minor physical conditions, emergencies and counsel as to follow-up procedures. Full-time nurses and technologists are also on duty when school is in regular session. Special clinics are conducted in Family Planning, Ear, Nose and Throat, Dermatology, Gynecology and Orthopedics.

As a part of the admissions procedure a health history is required of all students. On the reverse side of the health history is a physical examination form to be completed by the private physician. Careful attention is given to students undergoing private remedial treatment, and those for whom a modified study load or a limited participation in physical education activities seems advisable. The physical examination should be completed as a condition to matriculation in accordance with Title 5, California Administrative Code, Paragraph 41200.

A student health insurance program sponsored by the Associated Students is currently in effect. This insurance, which covers hospitalization and specified medical and surgical services, may be purchased by the semester or the year through Aztec Shops, with enrollment open the first thirty days of each semester.

Career Planning and Placement Center

San Diego State University provides a centralized placement service in cooperation with the various departments of the institution. Students are aided in securing part-time, full-time and summer employment and cooperative education programs through this office.

Information concerning occupational trends is also provided. Counselors maintain constant liaison with schools, businesses and industries. These counselors, as well as special counselors to minority students, are available at the Career Planning and Placement Center.

Students should seek out the counselor appropriate to their academic and vocational goals early in their college careers.

Credit courses relating to career planning are offered by the Center.

Going to college is regarded as a full-time job. Students are normally expected to spend in class and study a total of three hours a week for each unit of college work. A normal 15-unit load, therefore, represents a 45-hour week. Students should consider this before accepting part-time jobs.

When ready to seek a full-time career position, the student registers with the Career Planning and Placement Center so that he is able to fully take advantage of all the services that are offered.

At the beginning of the student's last semester, one should come to the Career Planning and Placement Center to obtain the information necessary to start a career folder.

Vocational Rehabilitation Services

A student who has a physical or emotional disability which handicaps him vocationally may be eligible for the services of the State Department of Rehabilitation. These services include vocational counseling and guidance, training and job placement. He may qualify also for financial assistance for educational and medical needs and to meet living expenses.

For further information, students should apply to the department at its district office, 1350 Front Street, San Diego, or call 232-4361.

Audiology Diagnostic Center

The Audiology Diagnostic Center is a facility of the Speech Pathology and Audiology Department. It is located on the lower floor of the Education Building. The principal objectives of this center are to provide diagnostic information regarding hearing loss for faculty, students, staff and the community. A minimal fee is charged for diagnostic evaluations. This center operates throughout the school year. Referrals may be made through health professionals, agencies, school districts or as self-referrals.

Speech and Hearing Clinic

A speech and hearing clinic in which university students are trained in the application of: speech, hearing and language pathology techniques; speech, lipreading, auditory training and language development for the hard of hearing and deaf. Tutorial services are available for hearing impaired students during the school year. The clinic operates through the school year and Summer Session II. The clinic serves those with speech, hearing and language problems at all age levels. Because of limitations of staff, not all who apply can be admitted. A minimal fee is charged for diagnostic evaluation and therapy for outpatients but not for students enrolled at San Diego State University. Referrals may be made through agencies, school districts, health professionals, or as self-referrals.

Clinical Training Center

The Clinical Training Center prepares university students at the undergraduate and graduate levels to identify and diagnose children's and young adults' physiological and psychological difficulties, to teach and give remediation, and to test and counsel. Students from the departments of Education, Psychology, Social Work and Speech Pathology and Audiology receive a variety of carefully planned experiences, including an opportunity to work with children and youth under supervision on a one-to-one ratio or in very small groups. In addition, they take part in frequent staff meetings which utilize the interdisciplinary approach toward solution of children's problems. Meetings with parents of the children with whom they work is a regular function of the training program.

While the primary purpose of the Center is to train teachers and clinicians, a community service is offered to those who have problems with school achievement, speech, hearing, educational and vocational planning, and school adjustment. Referrals are ordinarily made by schools, other agencies, or individuals. Parents, for example, may make a referral either directly to the Center or through their child's school. In general, preference would be given to the child who might profit best by specialized help and who meets the needs of training college students. There are specific criteria of selection of children for each strand of the total program.

Student Information and Resource Center

Located in the Campus Laboratory School, room 107, the Student Information and Resource Center has a staff trained to answer general questions from building locations to complex University procedures. This office, open from 8:00 a.m. to 4:30 p.m., weekdays, also has information about campus events, community resources, academic requirements, and student organizations.

Aztec Center

San Diego State University was the first of the California State University and Colleges to build and operate a permanent university center. The Aztec Center story started in the mid-1930's when students and faculty began accumulating funds for construction. In 1956, the Associated Students Council set aside a permanent portion of the Activities Fee for the building fund. Students voted to assess themselves a mandatory fee for the further development of the project in 1963. Two years later the U.S. Department of Housing and Urban Development extended a 40-year loan of $2.9 million to enable construction to begin. The student union fee will be used to retire this indebtedness; no public tax money is involved. The furnishings and equipment were paid for with student funds and contributions from Aztec Shops, Ltd. From inception to the finalities of interior furnishings, students and faculty have shared alike in all phases of its planning and development. Financed by a student union fee, it is a nonprofit, self-sustaining, self-liquidating, non-tax supported, student-financed operation. Government of the Center is by the Aztec Center Board, composed of nine students and one faculty member. Anyone is welcome to the meetings, which are open and frequent.

Use of the Center facilities is the privilege of San Diego State University students, faculty, staff, alumni and their guests. It provides a pleasant background for many cultural, social and recreational activities. Its name reflects its unifying nature: a dynamic, enriching focal point for the social life of members of the campus community.

The 120,000 square foot structure houses a portion of the activities program and includes several lounges, conference rooms, bowling lanes, billiards, table tennis, an information booth, contract Post Office, ticket office, lost and found, barber shop, student government center, a snack bar (Monty's Den), general store, a large hall (Montezuma Hall) for lectures, movies and concerts, Wilderness Center (backpacking information and equipment), and the Backdoor—San Diego State's Concert Club.

The Center also operates several satellite facilities under the umbrella structure of the Aztec Center program:

Scripps Cottage and Park. A quiet relaxing lounge on the west side of campus, complimented by Scripps Park.

Aquatics Center. Located on Santa Clara Point, Mission Bay. Classes (noncredit) and recreational opportunities are available in the areas of sailing, waterskiing, surfing, scuba and sweep rowing. Over 55 boats are available for student use.

Crafts Center. 5828 Hardy Avenue (just adjacent to campus). A complete crafts center offering instruction and use of materials in a wide range of crafts activities. Crafts materials may also be purchased.

Child Care Center Program

The Associated Students Child Care Center, operated under the concept of parent participation and control of all facets of its program, is located on the Campus Laboratory School playground across from the Business Administration building. The Center is open during the academic year from 7:30 a.m. to 5:00 p.m., Monday through Friday. Children of SDSU students between two and five years of age in good health are eligible for enrollment with first priority given to families with the greatest financial need; faculty/staff children are accepted on a limited basis.

Tuition ranges from 20¢ to 60¢ per hour based on family income, plus a small snacks and milk fee for those children scheduled during mealtimes and a diaper fee for those children not yet toilet trained.

The program is staffed by four paid employees, volunteers, and parent participants. Parents make a weekly contribution of time as teachers in the program and a monthly contribution to a working committee. They also have the opportunity to run for the parent governing board. The program is designed to develop and strengthen the child's sense of self and feeling of competency in a safe, healthy, stimulating environment.

Applications can be obtained by writing to the AS Child Care Center, San Diego State University, San Diego, California 92182.

Aztec Shops

Aztec Shops, Ltd. is a nonprofit campus auxiliary organization serving San Diego State University exclusively. The primary purpose of Aztec Shops is to provide bookstore and food services to the campus. Other services of the Shops include check cashing, free notary service, ticket sales, lost and found, a contract post office and a copy center.

The bookstore provides required textbooks, assigned class materials, reference works and offers a large selection of general interest books and supplies.

The copy center provides xerox copying, poster printing, binding and collating.

Food services operates East Commons, West Commons and Monty's Den cafeterias. In addition, a meal ticket program is available to any enrolled student with 19-, 14- and 10-meal options.

Alumni Association

The Alumni Association seeks to maintain a continuing and congenial relationship between the University and its former students.

The primary purpose of the association is the promotion of the welfare of the University. The association carries on this purpose through fund-raising activities. Contributions are turned over to the University to assist in the funding of scholarships, faculty chairs, equipment and building programs along with other worthy causes when needed. Secondary purposes of the association are the dissemination of educational information, in behalf of the University, to members of the association and, upon occasion, the association serves the University administration as a sounding board to collect information or opinions from the alumni regarding programs and policies.

The association publishes a monthly Alumni News and the biannual El Campanario magazine to distribute news and information about the University to its members.

Membership in the association is open to any former student who was in regular attendance for at least a semester, as well as to past and present members of the faculty. Alumni House, at 5721 Lindo Paseo, is attractively furnished and has a garden area for outdoor events. Alumni and campus related groups are invited to use its facilities.

University Housing Services

Residence Halls

Accommodations for 1669 single students are available in six residence halls on campus. Each of the buildings is fireproof and air-conditioned throughout. Five red-brick halls accommodate 211 students each, with sleeping and study facilities on a two-students-per-room basis. The sixth residence, which is a high-rise building, accommodates 614 students. Study hours are agreed on by residents and staff. Participation in campus activities is encouraged. Student governments and hall staff in each of the halls recommend standards for basic behavior in the residence halls. Each of the residence halls is staffed by personnel reporting to the Director of Housing.

Currently, the cost for room, including linens, is approximately $300 to $400 per semester. Three food service plans (19, 14 or 10 meals per week) are offered in The Commons at additional charges presently ranging from approximately $230 to $310 per semester, on an optional basis.

IT IS THE RESPONSIBILITY OF EACH STUDENT TO CONTACT THE HOUSING OFFICE IF ONE WISHES TO OBTAIN ON-CAMPUS HOUSING. APPLICATIONS ARE GIVEN PRIORITY IN DATE ORDER AS THE DEMAND EXCEEDS THE NUMBER OF SPACES ON THIS CAMPUS. To apply for housing, the student should send a self-addressed envelope to the University Housing Service. When the application is completed, it should be accompanied with a $20 deposit, mailed to the Cashier's Office in the Campus Laboratory School. Your request for a space is confirmed when you receive a contract and your first payment is received thirty days before the halls open. A student may apply as early as a year in advance. Applications are taken in order of date received. Though consideration will be given to a student's request for an individual hall and roommate, a specific assignment cannot be guaranteed.

No application can be honored if the student is not accepted for admission into San Diego State University by August 18 (January 15, spring semester). Clearing residency is not the same as being fully admitted to the University. Nor does receipt of a housing contract mean that the University is committed to admitting the student. The deposit will be refunded if a student, after having submitted his housing application, is denied admission to the University.

During the Summer Sessions, rooms are available on a receipt-of-check date priority. A $20 refundable security deposit should accompany a request for reservation.

Off-Campus Housing

Adjacent to the campus is a nine-story privately owned and operated coeducational residence hall for San Diego State University students. Room and board are available for 568 students. For information apply directly to El Conquistador, 5505 Montezuma Road, San Diego 92115.

Listings of apartments, houses, rooms and students seeking roommates are available in the courtyard adjacent to the Housing Office. In addition, advice for students signing leases, with landlord conflicts, etc., is available in the Housing Office.

Greek Letter Groups

There are 10 national sororities at San Diego State University which provide housing accommodations for approximately 290 women. A formal rush program is held during the fall semester while informal rush continues throughout the entire year. For further information contact the Panhellenic Office, San Diego State University, San Diego, California 92182.

The 15 national fraternities invite students for membership throughout the academic year and summer months. Interested students may obtain further information by writing to the Intrafraternity Council in care of the University Housing Office.

Transportation and Parking

Bus line transportation to the University, connecting with all areas of the metropolitan area, is available daily, except Sundays and holidays. Route S operates north-south on College Avenue, between the campus and the College Grove Shopping Center at Ryan Road. Transfer points for connecting east-west bus lines are at Montezuma Road with Route E—Fletcher Hills, at El Cajon Boulevard with Route E, at University Avenue with Route 7, and at Streamview Drive with Route 5.

On-campus parking areas are provided for students, faculty and staff at $15 per semester. A visitor information booth is located at the entrance to the campus on Campanile Drive.

Educational Opportunities Program

This program is designed to assist undergraduate students from minority or low-income groups who wish to acquire a college education but have not been able to realize their potential because of economic, educational or cultural environments. In cooperation with various federal, state and local agencies, the program recruits and enrolls students and provides scholastic and personal counseling during their undergraduate careers. Financial aid is disbursed through the Financial Aid Office to those students who prove financial need in accordance with federal and state guidelines. EOP and its supportive services attempt to insure that each student shall have the opportunity to reach his or her fullest potential.

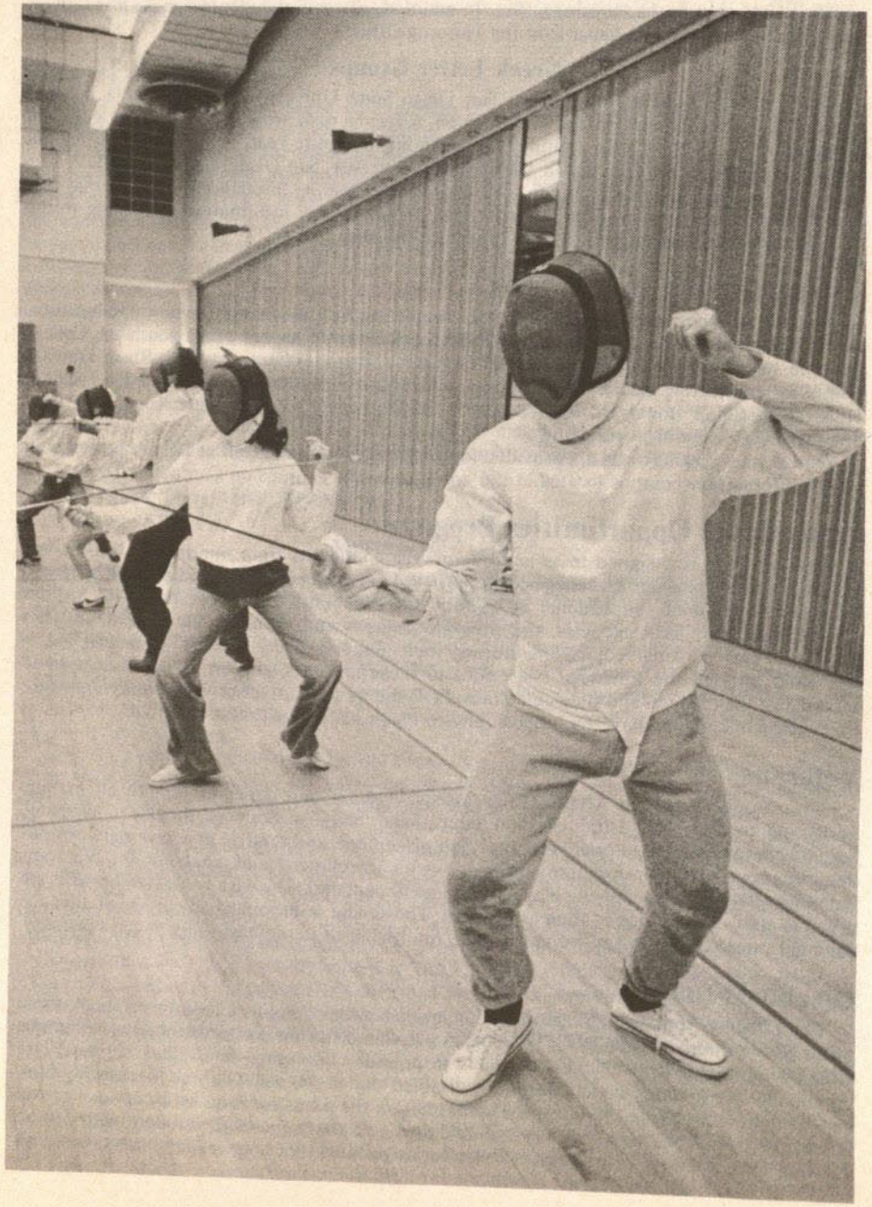
Veterans

The campus Veterans Affairs Office assists veterans and dependents with all matters pertaining to Veterans Administration educational benefits. Services include counseling, academic and personal, tutorial assistance, job placement, and referral to appropriate campus departments. Other services are assistance with enrollment and applying for Veterans Administration benefits. All eligible veterans and dependents who wish to receive benefits are urged to contact the office as soon as possible. Those who want to take advantage of advance payment must contact this office at least two months prior to the beginning of the semester.

Disabled Students

The Disabled Students Services Office is located in the Campus Laboratory School, room 110B; phone number is 286-6473. DSS acts as a liaison office for disabled students on campus at San Diego State University. The goal is to provide counseling—academic, personal and vocational—for students as they need it. A disabled student, as well as a student assisting him, has the right to preregister for classes. He may get on the preregistration list by contacting the Disabled Students Services Office and should also give the name of the student who will be assisting him. DSS acts as a referral service for attendants, housing, readers, notetakers and

typists. If there are problems with class schedules or classes assigned to rooms that are inaccessible, the DSS will help the student make arrangements to have the class rescheduled in an accessible classroom. A transportation service offered through the DSS consists of three specially modified vans to enable students who are unable to drive to get to and from campus and field work. A golf cart is also available for those students who need help in mobility around the campus. Special parking facilities (authorized by the Disabled Students Services and the Health Services) is among services offered. For further information concerning special orientation to campus, special maps, accessible restrooms or information about inaccessible classrooms, please contact the Disabled Students Services, CL-110B; phone number, 286-6473.



Regulations

Admission and Registration
General Regulations
Graduation Requirements

Admission and Registration

Admission to the Campus

Requirements for admission to San Diego State University are in accordance with Title 5, Chapter I, Subchapter 3, of the *California Administrative Code*. A prospective applicant who is unsure of his status under these requirements is encouraged to consult a high school or college counselor or the Admissions Office. Applications may be obtained from the Admissions Office at any of the campuses of The California State University and Colleges or at any California high school or community college.

Undergraduate Application Procedures

Prospective undergraduates, whether applying for part-time or full-time programs of study, in day or evening classes, must file a complete application including all the required forms and fees as described in the application booklet. The $20 nonrefundable application fee should be in the form of a check or money order payable to The California State University and Colleges. Undergraduate applicants may file only at their first choice campus. Alternate choice campuses and majors may be indicated on the application, but *an applicant should list as alternate campuses only those campuses of The California State University and Colleges that he will attend if his first choice campus cannot accommodate him.* Generally, alternate degree majors will be considered at the first choice campus before an application is redirected to an alternate choice campus. Applicants will be considered automatically at the alternate choice campus if the first choice campus cannot accommodate them. *Transcripts and other supporting documents should not be submitted until requested by the campus.*

Category Quotas and Systemwide Impacted Programs

Application category quotas have been established by some campuses, in some majors, where the number of applicants is expected to exceed campus resources. All applications received in the initial filing period will receive equal consideration for such categories. A small number of programs are impacted throughout the 19-campus system, and applicants to such programs are expected to meet supplementary admission criteria for admission to these programs. These programs are identified and announced each fall. Applicants will receive from the campuses further information about the supplementary admission criteria to be used and how and when applicants can meet them. Applicants to impacted programs must apply during the initial filing period.

Postbaccalaureate Application Procedures

All applicants for any type of postbaccalaureate status (e.g., master's degree applicants, those seeking credentials, and those interested in taking courses for professional growth, etc.) must file a complete application within the appropriate filing period. *Second baccalaureate degree aspirants should apply as undergraduate degree applicants.* A complete application for postbaccalaureate status includes all of the materials required for undergraduate applicants plus the supplementary graduate admissions application. Postbaccalaureate applicants who completed undergraduate degree requirements and graduated the preceding term are also required to complete and submit an application and the $20 nonrefundable application fee. Since applicants for postbaccalaureate programs may be limited to the choice of a single campus on each application, redirection to alternative campuses or later changes of campus choice will be minimal. In the event that a postbaccalaureate applicant wishes to be assured of initial consideration by more than one campus, it will be necessary to submit a separate application (including fee) to each. Applications may be obtained from the Graduate Studies office of any California State University or College campus in addition to the sources noted for undergraduate applicants.

Application Filing Periods

Term	Initial Filing Period	Extended Filing Period
Summer	the previous February	March until filled
Fall	the previous November	December until filled
Winter	the previous June	July until filled
Spring	the previous August	September until filled

Admission to the university is not required for summer session attendance at San Diego State University except in special summer master's degree programs. Summer session applications are included in the Summer Sessions Bulletin which is available in mid-March from the Office of Continuing Education. For information on master's degree programs in summer sessions, consult the Graduate Division.

All applications postmarked or received during the initial filing period will be given equal consideration within established enrollment categories and quotas. There is no advantage in filing before the initial filing period. Applications received before the initial filing period may be returned, causing a delay in processing. With the exception of the impacted undergraduate program areas (architecture, natural resources, nursing, and physical therapy), most campuses will be accepting applications well into the extended filing periods until quotas are filled.

Space Reservations

Applicants who apply during the initial filing period and who can be accommodated will receive a space reservation notice. A space reservation notice is not a statement of admission but is a commitment by San Diego State University to admit the student once eligibility has been established. The space reservation directs the applicant to arrange to have appropriate records forwarded promptly to the Office of Admissions. Applicants should not request that any records be forwarded until they have received a space reservation notice.

Hardship Petitions

There are established procedures for consideration of qualified applicants who would be faced with extreme hardship if not admitted. Prospective hardship petitioners should contact the Admissions Office regarding specific policies governing hardship admission.

Filing of Records

File Official Transcripts. The applicant must file the following official transcripts with the Admissions Office:

(1) Transcript from high school of graduation or last in attendance (not required of the graduate student who holds a bachelor's degree from an accredited institution, but is required of the student who holds a bachelor's degree from a nonaccredited institution).

(2) Transcripts from EACH college attended (including extension, correspondence, summer session, or evening courses). Graduate students must file transcripts *in duplicate* if they plan to enter the master's degree program.

(3) Photostat or true copy of the military separation form DD-214 (or equivalent) if applicant has had active military service. (Not required of graduate students.)

A transcript will be considered official and accepted to meet the regulations governing admission only if forwarded directly to San Diego State University by the institution attended. All records or transcripts received by the university become the property of the university and *will not be released nor will copies be made.*

Completion of Required Tests

Admissions Tests

(1) *College Aptitude Test.* The American College Test (ACT) or the Scholastic Aptitude Test (SAT) is required for matriculation of entering freshmen and transfer students with less than 56 units. Applicants should consult the high school counselor or the San Diego State University Test Office for dates and places where tests are given.

(2) *Writing Competency Test.* All undergraduate students are required to demonstrate competency in written English prior to graduation. A test of writing competency is administered on campus several times during the academic year. New students, both freshmen and transfer, are expected to take the test during their first semester on campus. Those who score below the minimum passing level are required to enroll in Study Skills 101, a 3-unit course designed to assist students in achieving competency in English composition. Enrollment in the course should begin no later than the first year of attendance at the University, and shall continue until competency is achieved. Dates and times for the composition test will be announced by the Test Office.

(3) *Test of English as a Foreign Language.* Applicants whose native language is not English must attain satisfactory scores on the Test of English as a Foreign Language (TOEFL). For further information see the section of this catalog on Admission of Foreign Students.

Teacher Education Tests

Assembly Bill 122, commonly known as the Ryan bill, has caused vast changes in credential requirements, including those for admission to programs. Refer to Admission to Teacher Education in the section of this catalog on the School of Education.

Qualification Tests

Chemistry Placement Examination. Required of students before enrollment in Chemistry 200A or 204A. This examination must be taken before registration. Reservation for the examination is not required. Refer to the calendar in the Class Schedule for examination dates.

Mathematics Placement Examination. Required of students before enrollment in any of the following courses: Mathematics 103, 104, 119, 120, 121, 140, 150; and Economics 142. These examinations may be taken before registration. Reservations for the examinations are not required. Refer to the calendar in the Class Schedule for examination dates.

Graduate Aptitude Tests. This test is required of all graduate students who intend to enroll in a master's degree program. May be taken before registration. Also given during the regular semester. Make reservations for this test at the Test Office, Old Library. Refer to the Graduate Bulletin for full information and test dates.

Undergraduate Admission Requirements

First-time freshman eligibility is governed by an eligibility index. The index is computed using the high school grade point average on all course work completed in the last three years of high school, exclusive of physical education and military science; and the ACT composite, or the SAT total score. The full table of grade point averages, with corresponding test scores and the equation by which the index is computed, is reproduced on page 49. Test results of either the CEEB Scholastic Aptitude Test (SAT) or the American College Testing Program examination (ACT) are acceptable in establishing eligibility.

Registration forms and test dates for either test may be obtained from school or college counselors, from the addresses below, or from the campus testing offices. For either test, submit the registration form and fee at least one month prior to the test date.

ACT Address
American College Testing Program, Inc.
Registration Unit, P.O. Box 168
Iowa City, Iowa 52240

SAT Address
College Entrance Examination Board
P.O. Box 1025
Berkeley, California 94770

First-Time Freshmen (California high school graduates and residents). An applicant who is a graduate of a California high school or a legal resident for tuition purposes must have an eligibility index which places him among the upper *one-third* of California high school graduates. The minimum acceptable index for applicants using the SAT score is 3072; using the ACT score, 741.

First-Time Freshmen (high school graduates from other states and U.S. possessions). The admissions requirements for nonresident applicants are more restrictive than those for California residents. An applicant who is a nonresident for tuition purposes and is a graduate of a high school outside California must have an eligibility index which places him among the upper *one-sixth* of California high school graduates. The minimum acceptable index for nonresident applicants using the SAT score is 3402; using the ACT score, 826.

High School Students. Students still enrolled in high school will be considered for enrollment in certain special programs if recommended by the principal and if preparation is equivalent to that required of eligible California high school graduates. Such admission is only for a given program and does not constitute the right to continued enrollment.

First-Time Freshmen (graduate of secondary schools, etc., in foreign countries). An applicant who is a graduate of a secondary school in a foreign country or who has equivalent preparation in a foreign country, may be admitted as a first-time freshman if his preparation and ability are such that in the judgment of the appropriate campus authority, the probability of his academic success at the campus is equivalent to that of eligible California high school graduates.

First-Time Freshmen (high school nongraduates). An applicant who is over 18 years of age, but who has not graduated from high school will be considered for admission only when preparation in all other ways is such that the campus believes promise of academic success is equivalent to that of eligible California high school graduates.

Eligibility Index

The following chart is used in determing the eligibility of graduates of California high schools (or California legal residents) for freshman admission to a CSUC campus. Grade point averages are based on work completed in the last three years of high school, exclusive of physical education and military science. Scores shown are the SAT total and the ACT composite. Students with a given G.P.A. must present the corresponding test score. Conversely, students with a given ACT or SAT score must present the corresponding G.P.A. in order to be eligible.

The minimum eligibility index is: SAT = 3072 and ACT = 741. The index is computed either by multiplying the grade point average by 800 and adding it to the total SAT score, or multiplying the grade point average by 200 and adding it to 10 times the composite ACT score.

G.P.A.	A.C.T. Score	S.A.T. Score	G.P.A.	A.C.T. Score	S.A.T. Score	G.P.A.	A.C.T. Score	S.A.T. Score	G.P.A.	A.C.T. Score	S.A.T. Score	G.P.A.	A.C.T. Score	S.A.T. Score
(—)[1]	--	---	2.96	15	704	2.71	20	904	2.47	25	1096	2.22	30	1296
3.20	11	512	2.95	16	712	2.70	21	912	2.46	25	1104	2.21	30	1304
3.19	11	520	2.94	16	720	2.69	21	920	2.45	26	1112	2.20	31	1312
3.18	11	528	2.93	16	728	2.68	21	928	2.44	26	1120	2.19	31	1320
3.17	11	536	2.92	16	736	2.67	21	936	2.43	26	1128	2.18	31	1328
3.16	11	544	2.91	16	744	2.66	21	944	2.42	26	1136	2.17	31	1336
3.15	12	552	2.90	17	752	2.65	22	952	2.41	26	1144	2.16	31	1344
3.14	12	560	2.89	17	760	2.64	22	960	2.40	27	1152	2.15	32	1352
3.13	12	568	2.88	17	768	2.63	22	968	2.39	27	1160	2.14	32	1360
3.12	12	576	2.87	17	776	2.62	22	976	2.38	27	1168	2.13	32	1368
3.11	12	584	2.86	17	784	2.61	22	984	2.37	27	1176	2.12	32	1376
3.10	13	592	2.85	18	792	2.60	23	992	2.36	27	1184	2.11	32	1384
3.09	13	600	2.84	18	800	2.59	23	1000	2.35	28	1192	2.10	33	1392
3.08	13	608	2.83	18	808	2.58	23	1008	2.34	28	1200	2.09	33	1400
3.07	13	616	2.82	18	816	2.57	23	1016	2.33	28	1208	2.08	33	1408
3.06	13	624	2.81	18	824	2.56	23	1024	2.32	28	1216	2.07	33	1416
3.05	14	632	2.80	19	832	2.55	24	1032	2.31	28	1224	2.06	33	1424
3.04	14	640	2.79	19	840	2.54	24	1040	2.30	29	1232	2.05	34	1432
3.03	14	648	2.78	19	848	2.53	24	1048	2.29	29	1240	2.04	34	1440
3.02	14	656	2.77	19	856	2.52	24	1056	2.28	29	1248	2.03	34	1448
3.01	14	664	2.76	19	864	2.51	24	1064	2.27	29	1256	2.02	34	1456
3.00	15	672	2.75	20	872	2.50	25	1072	2.26	29	1264	2.01	34	1464
2.99	15	680	2.74	20	880	2.49	25	1080	2.25	30	1272	2.00	35	1472
2.98	15	688	2.73	20	888	2.48	25	1088	2.24	30	1280	(—)[2]		
2.97	15	696	2.72	20	896	----	----	----	2.23	30	1288			

[1] Students earning grade point averages above 3.20 are eligible for admission.
[2] Students earning grade point averages below 2.0 are not eligible for admission.

Undergraduate Transfers (resident and nonresident)

Beginning fall term *1974*, transfer eligibility is based on *transferable* college units attempted, rather than on *all* college units attempted. The California Community College transfer should consult his college counselor for information on transferability of courses. An applicant in good standing at the last college attended may be admitted as an undergraduate transfer if he meets either of the following requirements:

1. He was eligible for admission in freshman standing (see First-Time Freshmen requirements) and has earned an average grade of "C" (2.0 on a scale where A = 4.0) or better in all transferable college units attempted.
2. He has completed at least 56 transferable semester units or 84 transferable quarter units with an average grade of "C" (2.0 on a scale where A = 4.0) or better if a California resident. Nonresidents must have a G.P.A. of 2.4 or better.

Evaluation of Transfer Credits

Native speakers from foreign countries who have finished high school or the equivalent in that country, with the exception of Spanish, will not be given credit for taking the elementary courses offered in that particular language. They will not be given credit for conversation courses in their native tongue.

Other Applicants

Applicants not admissible under one of the above provisions should enroll in a community college, or other appropriate institution. Only under the most unusual circumstances will such applicants be permitted to enroll. Permission is granted only by special action.

San Diego State University offers a special program designed to expand educational opportunity for capable young people who, for a variety of reasons, have not previously had the opportunity. For detailed information regarding admission to this program, refer to the section of this catalog on the Educational Opportunities Program.

Admission of Postbaccalaureate and Graduate Students

All students holding a baccalaureate degree who desire to enroll at San Diego State University for postgraduate study must apply for admission to San Diego State University through the Office of Admissions. In making the application, they must observe the procedures outlined above.

Postbaccalaureate Standing (Unclassified)

For admission to unclassified postbaccalaureate standing, a student must: (a) hold an acceptable baccalaureate degree from an institution accredited by a regional accrediting association or have completed equivalent academic preparation as determined by an appropriate campus authority; (b) have attained a grade point of at least 2.5 (on a five-point scale) in the last 60 semester (90 quarter) units attempted; and, (c) have been in good standing at the last college attended. Admission to a State University or College with postbaccalaureate unclassified standing does not constitute admission to graduate degree curricula.

Postbaccalaureate Standing (Classified)

A student who is eligible for admission to a State University or College in Unclassified standing may be admitted to Classified postbaccalaureate standing for the purpose of enrolling in a particular postbaccalaureate credential or certificate program; provided, that such additional professional, personal, scholastic, and other standards, including qualifying examinations, as may be prescribed for a particular program by the appropriate campus authority are satisfied.

Graduate Standing (Conditionally Classified)

A student who is eligible for admission to a State University or College under Unclassified postbaccalaureate standing above, but who has deficiencies in prerequisite preparation which in the opinion of the appropriate campus authority can be met by specified additional preparation, including qualifying examinations, may be admitted to an authorized graduate degree curriculum with Conditionally Classified Graduate Standing.

Graduate Standing (Classified)

A student who is eligible for admission to a State University or College in Unclassified or Conditionally Classified Standing may be admitted to an authorized graduate degree curriculum of the campus as a classified graduate student if s/he satisfactorily meets the professional, personal, scholastic, or other standards for admission to the graduate degree curriculum, including qualifying examinations, as the appropriate campus authority may prescribe. Only those applicants who show promise of success and fitness will be admitted to graduate degree curricula, and only those who continue to demonstrate a satisfactory level of scholastic competence and fitness shall be eligible to proceed in such curricula.

Admission as an International (Foreign) Student

The admission of international (foreign) students is governed by separate requirements. Prospective applicants from abroad should consult the individual campus catalogs and international (foreign) student informational brochures available from the campuses. Health insurance coverage is mandatory for international (foreign) students. Present acceptable health insurance is available on campus at $33 per year or $20 per semester. Applicants for admission as either graduates or undergraduates whose education has been in a foreign country should file an application for admission, official certificates and detailed transcripts of record from each secondary school and collegiate institution attended several months in advance of the opening of the semester in which the applicant expects to attend. International students from outside the United States will be considered for admission only for the fall semester. Only those foreign students already in the United States will be considered for the spring semester. Students applying to transfer from a college or university in the United States must have completed a full year at that institution. If certificates and transcripts are not in English, they should be accompanied by certified English translations. Credentials will be evaluated in accordance with the general regulations governing admission to San Diego State University.

An applicant whose education has been in a language other than English must take the Test of English as a Foreign Language (TOEFL). This test is administered in most foreign countries and test scores must be received by the university before admission to the university can be granted. Information as to the time and place at which this test is given may be obtained by writing to: Educational Testing Service (TOEFL), Princeton, New Jersey, 08540, U.S.A. Upon arrival at San Diego State University, a further test of English will be given for the purpose of placing students in an English language program commensurate with their linguistic ability in English, and for use by advisers to assist students in planning an appropriate course of study. All students, undergraduate and graduate, are required to take one or more of the following courses, depending upon performance on the placement test: Study Skills 131, 132, 133, or English 100. These courses must be taken in consecutive semesters, with first required course being taken during the student's first semester at San Diego State University. Foreign students transferring from another U.S. college may be required to take an English placement test.

Arrangements for housing should be completed before the student's arrival on the campus. Detailed information regarding housing may be obtained from the Director of Housing, San Diego State University. Scholarship aid for entering students is limited; no scholarships are specifically reserved for students from another country. Further information regarding scholarships will be found in the section of this catalog on Financial Aid.

Upon arrival at San Diego State University the student should obtain an appointment as early as possible with the Coordinator of Foreign Student Admissions.

Limitation of Enrollment

Admission to a state university or college must be restricted in relation to the number of students for whom an adequate college education can be provided by the staff and facilities available. The Trustees have authority on this matter.

Registration

After a student has been admitted to the University, his first basic step is to register for classes. Registration at San Diego State University is held prior to the beginning of each semester and each summer session. The dates for registration are announced in the Class Schedule, which is issued each semester. Schedules are obtainable at the University bookstore,

just before registration. They contain general information on registration, a listing of the times students are permitted to register, the courses offered for the term, and a listing of the fees required for registration. Fees are payable at the time of registration and depend on the number of units selected. Students who cannot be present at registration may have another person register for them at their scheduled time. The person designated must have his alternate's ID card and must pay his fees. He will also be required to provide necessary data on the student information card. Late registration at San Diego State University is possible only in cases of genuine emergency. This involves petition action and additional fees and in no case is permitted beyond the first week of class.

Determination of Residence for Nonresident Tuition Purposes

New and returning students of The California State University and Colleges are classified for the purpose of determining the residence of each student for nonresident tuition purposes. The Residence Questionnaire and, if necessary, other evidence furnished by the student is used in making these determinations. A student may not register and enroll in classes until his Residence Questionnaire has been received by the Admissions Office.

The following statement of the rules regarding residency determination for nonresident tuition purposes is not a complete discussion of the law, but a summary of the principal rules and their exceptions. The law governing residence determination for tuition purposes by The California State University and Colleges is found in *Education Code* Sections 22800-22865, 23763.1, 23754-23754.4, 23758.2 and 23752, and in Title 5 of the *California Administrative Code*, Article 4 (commencing with Section 41901) of Subchapter 5 of Chapter 1, Part V. A copy of the statutes and regulations is available for inspection at the campus Admissions Office.

Legal residence may be established by an adult who is physically present in the state while, at the same time, intending to make California his permanent home. Steps must be taken at least one year prior to residence determination date to evidence the intent to make California the permanent home with concurrent relinquishment of the prior legal residence. Some of the relevant indicia of an intention to establish and maintain California residence are registering to vote and voting in elections in California; satisfying resident California state income tax obligations on total income; ownership of residential property or continuous occupancy or letting of an apartment on a lease basis where one's permanent belongings are kept; maintaining active resident memberships in California professional or social organizations; maintaining California vehicle plates and operator's license; maintaining active savings and checking accounts in California banks; maintaining permanent military address and home of record in California if one is in the military service, etc.

The student who is within the state for educational purposes only does not gain the status of resident regardless of the length of his stay in California. In general, the unmarried minor (a person under 18 years of age) derives legal residence from his parents, or, in the case of permanent separation of the parents, from the parent with whom the minor maintains his place of abode. The residence of a minor cannot be changed by act of the minor or that of the minor's guardian, so long as the minor's parents are living.

A man or a woman may establish his or her residence; marriage is not a governing factor.

The general rule is that a student must have been a California resident for at least one year immediately preceding the residence determination date in order to qualify as a "resident student" for tuition purposes. A residence determination date is set for each academic term and is the date from which residence is determined for that term. The residence determination dates for the 1975-1976 academic year are September 20, 1975 and January 25, 1976. If you have any questions regarding the applicable date, the campus Admissions Office can give you the residence determination date for the term for which you are registering.

There are several exceptions for nonresident tuition. Some of the exceptions provide for:

1. Persons below the age of 19 whose parents were residents of California but who left the state while the student who remained was still a minor. When the minor reaches age 18, the exception continues for one year to enable the student to qualify as a resident student.
2. Persons below the age of 19 who have been present in California for more than a year before the residence determination date, and entirely self-supporting for that period of time.
3. Persons below the age of 19 who have lived with and been under the continuous direct care and control of an adult, not a parent, for the two years immediately preceding the residence determination date. Such adult must have been a California resident for the most recent year.

4. Dependent children and spouses of persons in active military service stationed in California on the residence determination date. This exception applies only for the minimum time required for the student to obtain California residence and maintain that residence for a year. The exception, once attained, is not affected by transfer of the military person directly to a post outside the 50 states and District of Columbia.
5. Military personnel in active service stationed in California on the residence determination date for purposes other than education at state-supported institutions of higher education. This exception applies only for the minimum time required for the student to obtain California residence and maintain that residence for a year.
6. A student who is an adult alien is entitled to residence 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; provided, however, that the student has had residence in California for more than one year after such admission prior to the residence determination date. A student who is a minor alien shall be entitled to residence classification if both the student and the parent from whom residence is derived have been lawfully admitted to the United States for permanent residence in accordance with all applicable laws of the United States, provided that the parent has had residence in California for more than one year after acquiring such permanent residence prior to the residence determination date of the term for which the student proposes to attend the University.
7. Certain credentialed, full-time employees of school districts.
8. Full-time State University and Colleges employees and their children and spouses. This exception applies only for the minimum time required for the student to obtain California residence and maintain that residence for a year.
9. Certain exchange students.
10. 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.
11. A person in continuous full-time attendance at an institution who had resident classification on May 1, 1973, shall not lose such classification as a result of adoption of the uniform student residency law on which this statement is based, until the attainment of the degree for which is currently enrolled.

Any student, following a final decision on campus on his residence classification, may make written appeal to:

The California State University and Colleges
5670 Wilshire Boulevard
Suite 1260
Los Angeles, California 90036

within 120 calendar days of notification of the final decision on campus of his classification. The Office of General Counsel may make a decision on the issue, or it may send the matter back to the institution with instructions for a further review on campus. Students classified incorrectly as residents or incorrectly granted an exception from nonresident tuition are subject to reclassification as nonresidents and payment of nonresident tuition in arrears. If incorrect classification results from false or concealed facts, the student is subject to discipline pursuant to Section 41301 of Title 5 of the *California Administrative Code*. Resident students who become nonresidents, and nonresident students qualifying for exceptions whose basis for so qualifying changes, must immediately notify the Admissions Office. Applications for a change in classification with respect to a previous term are not accepted.

The student is cautioned that this summation of rules regarding residency determination is by no means a complete explanation of their meaning. The student should also note that changes may have been made in the rate of nonresident tuition, in the statutes, and in the regulations between the time this catalog is published and the relevant residence determination date.

Advising

Provision is made during orientation week for each new student to obtain assistance from a faculty adviser in arranging a program. Each student should thereafter schedule a conference with his adviser at least once during each semester.

General Regulations

Student Responsibility for Catalog Information

Students are held individually responsible for the information contained in the catalog. Failure to read and comply with university regulations will not exempt a student from whatever penalties he may incur.

The Board of Trustees of The California State University and Colleges, in Section 43800 of Title 5 of the *California Administrative Code*, has reserved the right to add, amend, or repeal any of its regulations, rules, resolutions, standing orders, and rules of procedures, in whole or in part, at such time as it may choose. None shall be construed, operate as, or have the effect of an abridgment or limitation of any rights, powers, or privileges of the Trustees. The Chancellor reserves the right to add, amend or repeal any of his Executive Orders, at such time as he may choose, and the President of San Diego State University reserves the right to add, amend, or repeal provisions of this catalog and rules of the University, including handbooks, at such time as he may choose. No Executive Order shall be construed, operate as, or have the effect of an abridgment or limitation of any rights, powers, or privileges of the Chancellor nor shall any catalog provision or rule of the University be construed, operate as, or have the effect of an abridgment of limitation of any rights, powers, or privileges of the President.

Every effort has been made to assure the accuracy of the information in this catalog. Students are advised, however, that such information is subject to change without notice. Therefore, they should consult the appropriate instructional departments, schools, or administrative offices for current information.

Grades

At the end of each semester or summer session in which a student is enrolled, a report of courses taken, showing units and grades earned, is sent to the student. Grades and grade points per unit used in reporting are as follows: Grade of A (outstanding achievement), 4 points; B (commendable), 3 points; C (satisfactory), 2 points; D (passing), 1 point; F (failure), 0 points; I (incomplete), counted as units attempted after one year, 0 points; SP (satisfactory progress), not counted in the grade point average; W (withdrawal), not counted in the grade point average; Audit, no credit earned and not counted in the grade point average; Cr (credit), signifying units earned, but not counted in the grade point average; NC (no credit), no credit earned and not counted in the grade point average.

Undergraduate Student Options on Grading

An undergraduate student may elect to be graded credit/ no credit in particular courses, subject to the following conditions:

1. Courses graded credit/ no credit (Cr/ NC), whether taken at this or at another institution, may not be used to satisfy requirements for the student's major except for those courses identified in the course listing as graded "Cr/ NC."
2. No more than 24 units graded credit/ no credit may be offered in satisfaction of the total units required in a bachelor's degree program, except that all units accepted as transfer credit from another institution at the time of the student's admission may be used. If 24 or more units graded credit/ no credit are transferred, the student may offer no additional courses graded credit/ no credit to satisfy total units required for a bachelor's degree. Exceptions to this rule will be made if a student is required to take a course on a Cr/ NC basis only.
3. If for any reason (change of major or transfer from another institution) courses graded credit/ no credit are offered to satisfy requirements in the major, the student may be required by the major department to pass competency examinations at an acceptable level or take prescribed alternate courses before being allowed to continue in the major.
4. Selection of the grading basis (A through F or credit/ no credit) is made at the time of registration for the course. Change of grading basis may be made by informing the Registrar on or before the last date on which a student may withdraw from a class or change program.
5. A grade of "Credit" is awarded for work equivalent to A, B, C; "No Credit" is awarded for work equivalent to D or F.

Grades for Classified Graduate Students

Graduate courses graded on the credit/no credit basis are limited to courses 796, 797, 798, 799 and certain 600- and 700-numbered courses in the School of Education. No 500-numbered courses graded credit/ nocredit are acceptable on a master's degree program. No undergraduate courses graded credit/ no credit may be assigned to the deficiences and/ or foreign language option(s) of a master's degree program. At least 70% of the units used to fulfill the minimum requirements on a master's degree program shall be graded on an A, B, C, D, F basis.

Grade Point Average

To compute the grade point average, one divides the total number of grade points earned by the number of units attempted. Units earned with a Cr (Credit) are not included in the computation nor is an incomplete until one year has elapsed. The minimum GPA for a bachelor's degree is 2.0 (C); in other words, the student must have earned at least twice as many grade points as units attempted.

Incomplete Grade

An Incomplete signifies that a portion of required course work has not been completed and evaluated in the prescribed time period due to unforeseen, but fully justified, reasons and that there is still a possibility of earning credit. It is the responsibility of the student to bring pertinent information to the instructor and to reach agreement on the means by which the remaining course requirements will be satisfied. A final grade is assigned when the work agreed upon has been completed and evaluated.

An Incomplete must be made up within one calendar year immediately following the end of the term in which it was assigned. This limitation prevails whether or not the student maintains continuous enrollment. Failure to complete the assigned work within one calendar year will result in an Incomplete being counted as equivalent to an "F" (or an "NC") for grade point average and progress point computation.

A candidate for graduation with the baccalaureate degree whose record carries a grade of Incomplete will be graduated provided he is otherwise eligible for graduation. However, the Incomplete cannot be made up after the degree has been granted. If the student does not wish to be graduated with the grade of Incomplete on his record, he must cancel officially his application for graduation.

Satisfactory Progress Grade

The "SP" symbol is used in connection with courses that extend beyond one academic term. It indicates that work is in progress and has been evaluated and found to be satisfactory to date, but that assignment of a precise grade must await completion of additional work. Cumulative enrollment in units attempted may not exceed the total number applicable to the student's educational objective. Work is to be completed within a stipulated time period. This may not exceed one year except for graduate degree theses for which the time may be up to two years, but may not exceed the overall time limit for completion of all master's degree requirements. Any extension of time limit must receive prior authorization by the Dean of the University College (for undergraduate courses) or the Dean of the Graduate Division and Research (for graduate courses).

Uncompleted Theses

A student who registers for Course 799A, Thesis, but does not complete the thesis by the end of the semester or summer session in which he registers for it will, upon the recommendation of the Thesis Committee Chairman, receive an SP (satisfactory progress) grade. This grade symbol will remain on the student's record until the thesis is completed or up to two calendar years from the end of the semester or term of registration in the course, whichever occurs first. If, at the end of two years, the thesis is not completed the grade NC (no credit) will be recorded on the student's record, unless extension of time for completion, due to extenuating circumstances, has been recommended in advance by the Thesis Committee Chairman and the Department Chairman, and is approved by the Dean of Graduate Studies. *A second registration in Course 799A, Thesis, is expressly prohibited.*

A student who has been assigned the grade symbol SP for the thesis is required to register for Course 799B (0 units, Cr/NC) in any semester or term (within the two-year period, as outlined above) in which the student expects to use the facilities and resources of the university; also he must be registered in the course when the completed thesis is granted final approval.

Courses

Except as permitted in general education requirements, a course cannot be used to satisfy more than one requirement.

Numbering Courses

Courses numbered 100 through 299 or by letters (A, B, C, etc.) are in the lower division (freshman and sophomore years); those numbered 300 through 499 are in the upper division and intended primarily for undergraduates, those numbered 500 through 599 are in the upper division and are also acceptable for advanced degrees in the major area (junior and senior years); and those numbered 600 through 799 are strictly graduate courses. Courses number X-900—X-999 are those offered exclusively in the extension program to meet the professional needs of specific community groups. These courses are not acceptable on advanced degree programs.

Auditing

A student who does not wish to take a course for credit may, with the consent of the instructor, enroll as an auditor during the regular change of program period. Students may not enroll in courses for audit at registration. An auditor must meet all admissions requirements and pay the same fees required of students taking the course for credit. No change from regular registration to audit, or from audit to regular registration, will be permitted during the semester. An auditor is not held for examinations and does not receive credit or a final grade in the course.

Repeated Course

A student who has received a grade of D, F or Incomplete in a course may repeat that course. While the original grade will remain on the transcript, only the results of the last attempt will be used in computation of grade point average.

Final Examinations

No final examination shall be given to individual students before the regular time. Any student who finds it impossible to take a final examination on the date scheduled must make arrangements with the instructor to have an incomplete grade reported and must take the deferred final examination within the time allowed for making up incomplete grades.

Academic Credit Through Course Work

Credit for Upper Division Courses

Normally, only juniors, seniors and graduate students enroll in upper division courses (numbered 300 and above). However, a freshman or sophomore may enroll in an upper division course for upper division credit if the instructor consents.

Community College Credit

A maximum of 70 semester units earned in a community college may be applied toward the degree, with the following limitations: (a) no upper division credit may be allowed for courses taken in a community college; (b) no credit may be allowed for professional courses in education taken in a community college, other than an introduction to education course.

Concurrent Master's Degree Credit

A senior who is within 12 units of completing requirements for the bachelor's degree and whose overall grade point average is 3.0 or above may petition the Graduate Council to take for concurrent master's degree credit 500-numbered courses listed in the Graduate Bulletin as acceptable for master's degree programs, and certain 600- and 700-numbered courses approved by the department, with the remaining requirements for the bachelor's degree. Petitions must be submitted before the end of the fourth week of classes (or the first week of summer term II) of the semester (or term) in which the concurrent credit is earned. The bachelor's degree must be completed at the end of the semester or term in which the concurrent credit is earned. The maximum number of units which may be earned as concurrent master's degree credit is determined by the difference between the number of units remaining for the bachelor's degree and 15. No more than three units in 600- and 700-numbered courses will be accepted toward the minimum unit requirements for the master's degree.

Concurrent Postgraduate Credit

A senior who is within seven units of completing requirements for the bachelor's degree and who has been admitted to teacher education may petition the Dean, School of Education, to take a maximum of 12 units of 500-numbered courses for concurrent postgraduate credit with remaining requirements for a bachelor's degree to apply toward the minimum unit postgraduate requirements for a teaching credential. The bachelor's degree must be completed at the end of the semester in which the concurrent postgraduate credit is earned. Extension courses are not acceptable for postgraduate credit.

Credit for Extension Courses

The maximum amount of extension and correspondence credit which may be accepted toward the minimum requirements for the bachelor's degree is 24 semester units. Extension and correspondence credit do not count in satisfaction of the minimum residence requirement. A maximum of six units in extension courses at San Diego State University may be accepted as part of the requirements for the master's degree, subject to limitations described in the Graduate Bulletin.

Extension courses offered by departments are of two kinds. The first includes regular courses listed in the General Catalog which are available for use by students in meeting college credit requirements of various kinds, and are usually at the upper division level. A second kind is offered by some departments at the X-900 level and serves to meet the needs of specific community groups. Courses at the X-900 level are designed to meet professional needs, and any credit toward degrees or credentials or other objectives is determined by the colleges and universities concerned. These courses will not be applicable toward graduation requirements at San Diego State University unless otherwise specified in the course description. Courses at the X-900 level are not acceptable on advanced degree programs.

Academic Credit Through Examination

Credit by Examination

Approval to receive credit-by-examination is granted at the discretion of the appropriate college authorities and under the following conditions:

1. The student must be matriculated, in good standing (not on probation), be registered in at least one regular course (not Extension) at the time credit-by-examination is authorized, and pay for additional units if cost exceeds fees already paid. Application for credit by examination must be made within the time limits for filing a change of program as listed in the Academic Calendar each semester. In summer sessions the total units earned for courses and examinations cannot exceed the limit authorized by the Education Code.
2. Concurrent approval of the chairman of the department concerned and the Dean of the University College is required prior to taking the examination. Forms for approval may be obtained from the Evaluations Office.
3. Credit-by-examination is restricted to regular undergraduate courses listed in the general catalog; does not include 600- and 700-numbered, or Extension courses; cannot exceed 30 units as applicable to graduation; and does not count as residence credit.
4. Credit-by-examination is not treated as part of the student's study load and, therefore, is not considered for Selective Service purposes or by the Veterans Administration in the application of their respective regulations; and is not always accepted as transfer credit between collegiate institutions.

Credit for Advanced Placement Examinations

San Diego State University grants credit toward its undergraduate degrees for successful completion of examination of the Advanced Placement Program of the College Entrance Examination Board. Students who present scores of three or better will be granted six semester units (nine quarter units) of college credit.

High school students who intend to participate in this program should make the necessary arrangements with their high schools and should indicate at the time they take the Advanced Placement Examinations that their test scores be sent to San Diego State University. To obtain credit and advanced placement, the student should contact the Office of the Dean of the University College.

Students may earn 3-10 semester units of credit toward their bachelor's degree for each Advanced Placement Examination satisfactorily passed while in high school. The chart below indicates the score necessary, the units earned and the course equivalents for each of the examinations offered.

Examination	Score	Semester units credit allowed toward degree	SDSU course equivalents*	Remarks
American History	3, 4, 5	6	History 110A-110B (6)	Satisfies American history/institutions and ideals requirement
European History	3, 4, 5	6	History 105A-105B (6)	
English	3, 4, 5	6	English 100 and 101 (6)	
French	3	6	French 201 and 211 (6)	
	4, 5	6	French 202 and 212 (6)	
Classics: Vergil	3, 4, 5	5	Latin 202 (3)	If more than one examination is satisfactorily passed, 3 additional units credit will be provided
Latin Prose	3, 4, 5	5	Latin 202 (3)	
Latin Lyric	3, 4, 5	5	Latin 202 (3)	
German	3	6	German 203 and 210 (6)	
	4, 5	6	German 204 and 211 (6)	
Spanish	3	6	Spanish 203 and 210 (6)	
	4, 5	6	Spanish 204 and 211 (6)	
Biology	3, 4, 5	6	Biology 100 and 100L (4)	+ Biology 300 (2)
Chemistry	3, 4, 5	10	Chemistry 200A-200B (10)	
Mathematics				
Calculus AB	3, 4, 5	6	Mathematics 150 (5)	+ Mathematics 300 (1)
Calculus BC	3, 4, 5	9	Mathematics 150 (5)	+ Mathematics 151 (4)
Physics				
B	3, 4, 5	8	Physics 124A-124B (6)	+ Physics 125A-125B (2)
C	3, 4, 5	8	Physics 195A-195B (8)	
Art History	3, 4, 5	6	Art 258 and 259 (6)	
Studio Art	3, 4, 5	6	Art 100, 200 or Art 101, 201 (6)	
Music	3, 4, 5	6	Music 102, 151 (6)	

*Credit may not be earned at SDSU for courses which duplicate credit already allowed for examinations as listed under SDSU course equivalents.

Credit for College Level Examination Program (CLEP)

San Diego State University will consider the granting of credit to those students who have attained a score at or above the 50th percentile on each test of the General Examinations of the College Level Examination Program exclusive of English. Scores should be forwarded to the Admissions Office for evaluation.

Academic Credit for Military Service

The university is guided by the recommendations of the American Council on Education in granting undergraduate credit toward the bachelor's degree for military service. Postgraduate credit is not granted.

To obtain credit for military service, the student must be fully matriculated and enrolled for admission to the university.

Student Classification

A matriculated student is one who has complied with all requirements for admission to the university and has received his official Notice of Admission. All students taking courses in any regular semester must be matriculated students. Only in summer sessions or in extension courses may a student who has not matriculated be accepted for enrollment.

Each student who enrolls in one or more summer session classes shall be classified as a summer session student. Each student who enrolls in one or more extension classes shall for his extension class work be classified as an extension class student. Such students need not be matriculated students as a prerequisite for enrollment in classes.

Freshman. A student who has earned a total of fewer than 30 semester units.

Sophomore. A student who has earned a total of 30 to 59 semester units, inclusive.

Junior. A student who has earned a total of 60 to 89 semester units, inclusive.

Senior. A student who has earned a total of 90 semester units or more.

Graduate. A student who has completed a four-year college course with an acceptable baccalaureate degree from an accredited institution. For information on classification of graduate students, see the Graduate Bulletin.

Student Program and Records

Transcripts of Record

A student may obtain an official transcript of his record by filing an application at the Registrar's Office. A fee of $1 is charged for all transcripts and must be paid in advance. One week should be allowed for the processing and mailing of the transcript. Transcripts from other schools or colleges become the property of this university and will not be released or copied.

Change of Program

San Diego State University provides for change of program beginning the first week of classes every term. Change of program includes: withdrawal from a class, adding a class, dropping a class, adding or reducing units of a class for which the student is already registered, changing a section of the same class, or changing grading options.

The student is responsible for every course on his official study list filed at registration. If a student does not attend the first class meeting of the semester and is not present at the start of the second meeting, the professor may give his place to another student; however, if this occurs, the student must still take the necessary formal drop action himself. Changes of program cannot be effected by nonattendance in class; nonattendance without consequent formal drop action will result in a failing grade.

Change of program is permitted without effect on record or grade and with no restriction or penalty beginning the first week of class and ending the third week of classes.

Withdrawals from class after the 20th day of instruction and prior to the last three weeks of instruction are permissible only for serious and compelling reasons. Permission to withdraw during this period is granted only with the approval of the instructor and the Department Chairman, and approvals are made in writing on prescribed forms. Withdrawals are not permitted during the final three weeks of instruction, except in cases such as accident or serious illness where the cause of withdrawal is due to circumstances clearly beyond the student's control and the assignment of an Incomplete is not practicable. Ordinarily, withdrawals in this category will involve total withdrawal from the campus, except that credit, or an Incomplete, may be assigned for courses in which sufficient work has been completed to permit an evaluation to be made. Requests to withdraw under such circumstances must be approved by the Dean of the University College or his designee.

Change of Major or Curriculum

At the time of admission to the university, each undergraduate student is assigned to a major field or curriculum, or is designated as an undeclared major. After registration, any student wishing to change his major or curriculum must make application at the Evaluations Office.

Veterans using veteran benefits must obtain appropriate approval from the Veterans Administration for necessary changes in letters of eligibility.

Withdrawal, Leave of Absence, Readmission, and Evaluation

Withdrawal. Students who wish to withdraw from the university must initiate action formally through the Registrar's Office. Failure to file will result in a failing grade in all courses. Under certain circumstances, complete withdrawal is possible up to three weeks preceding the last day of instruction; however, refunds are obtainable only for the first 14 days after the term begins. A student withdrawing during the refund period is no longer considered a continuing student and is required to apply for readmission.

A course will not appear on the permanent record if withdrawal occurs before the end of the third week of classes. For complete information about withdrawals after the first three weeks of the term, refer to change of program.

Unofficial Withdrawal. A student withdrawing unofficially from class or from the university will receive failing grades in all courses which he stops attending. An unofficial withdrawal is one in which a student stops attending classes without filing official withdrawal forms within the established deadlines.

Veterans unofficially withdrawing will have veteran's allowances immediately suspended and will be subject to full repayment of allowances received after date of unofficial withdrawal.

Withdrawal to Enter Military Service. Under certain conditions, a student withdrawing from the university to enter military service is entitled to apply for refund of materials and service fees or for partial credit (but not both). To qualify under this regulation, the student must (a) be a civilian who, because of his own initiative, receives orders to immediate extended active duty, or (b) be a civilian who receives orders to immediate extended active duty by government action, or (c) be a reservist called to immediate extended active duty. (Not applicable to other military personnel enrolled in the university.)

Entrance upon extended active military duty must be without unreasonable and unnecessary delay (normally within 30 days) after the date of withdrawal from the university to qualify the student for refund or partial credit. Verification of entry upon extended active duty is required and must be by written statement of the commanding officer or by official copy of orders. Application for withdrawal from the university may be made by the student in person, or by telephone or mail. Forms for withdrawal will also be sent to the student if requested by a person designated by the student as his representative in making the request.

If the student is passing in courses at the time of withdrawal from the university, partial credit may be granted in undergraduate courses at the rate of one-third credit for completion of the first six weeks of the semester, or two-thirds for the first 12 weeks. The university does not wish to influence the student in choosing between partial credit and refund of fees; however, it should be pointed out that partial credit in a course may not satisfy some specific requirement for which that course may be needed, and if the course is later repeated by the student the partial credit will be lost as "repeated" work.

Educational Leave of Absence. Students are permitted to take a total of two semesters of approved leave of absence during their matriculation at San Diego State University if it can be clearly established that the leave will contribute to a student's educational objective. Students are not penalized for taking leaves, and retain their priority numbers without change. No fees are involved.

At least five weeks prior to registration period for the semester during which he wishes a leave, a student must file application for the leave at the Registrar's Office. Deadlines for filing may be obtained at that office. Requests will be reviewed by appropriate officials designated by the Vice President for Academic Affairs. Leaves cannot be revoked once granted, and no student will be permitted to register for a semester for which he has filed application for leave.

Approval for leaves of absence will not be granted to students who have been admitted but will not have completed at least one semester before the leave of absence period, or to students who are disqualified. To be eligible for leave an undergraduate must be eligible to return as an undergraduate; students qualifying for change in status from undergraduate to graduate are not eligible.

Readmission. A student who withdraws from the university must file application for readmission if a full semester elapses between his withdrawal and his return. A $20 application fee for readmission is required if the applicant was not regularly enrolled in either of the two semesters immediately preceding the semester for which the application is submitted, or if the student was enrolled at another institution subsequent to the last attendance at San Diego State University.

Evaluation. An evaluation is a summary of college work completed and of requirements to be completed for a bachelor's degree or credential. To be eligible for an evaluation, a student must have completed at least 56 units of acceptable college work and be qualified for full matriculation. Authorization for more than one evaluation during any one semester or one evaluation in nine weeks of summer session requires special permission.

A student who has earned 56 semester units or more, who has not received an evaluation, should apply at the Evaluations Office for an official evaluation. The evaluation is made on the regulations in effect at the time the student entered this university, except as otherwise provided in the *California Administrative Code*, Chapter 5, Section 40401, Election of Regulations. (Further information is given in the section of this catalog on Graduation Requirements.)

After an interval of five years from the time an evaluation is made, courses in education to be applied toward a teaching credential are subject to reevaluation.

Credit and Study List Limits

A unit or credit hour represents 50 minutes of lecture or recitation combined with two hours of preparation per week throughout one semester of 18 weeks. Two hours of activity (as in physical education) or three hours of laboratory (as in the sciences) are considered equivalent to one hour of lecture.

At registration time, no student will be permitted to enroll for more than 18 units. After registration he may add additional units, if desired, by means of the add-drop process, though if he is employed outside of college he is strongly advised to undertake a modest college program. Going to college is properly a full-time job. Normally a student can expect to spend in class and study a total of three hours per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week.

Scholastic Probation and Disqualification

Undergraduate Students

Progress toward the bachelor's degree is monitored in terms of progress points per unit attempted. Progress points are as follows: A, four progress points; B, three; C and Cr, two; D, one; F and NC, zero progress points. An undergraduate student will be placed on academic probation if at any time his cumulative grade point average in all college work attempted or his cumulative grade point average at this institution falls below 2.0 or if during any term while he in enrolled he fails to earn at least two times as many progress points as all units attempted.

An undergraduate student shall be removed from academic probation when his cumulative grade point average is 2.0 or higher in all college work attempted or in all work attempted at this university and when he earns at least twice as many progress points as all units attempted in a term.

An undergraduate student on academic probation is subject to academic disqualification:

A. As a lower-division student (less than 60 semester hours of college work completed) if he falls 15 or more grade points below a 2.0 (C) average on all units attempted or in all units attempted at this campus.
B. As a junior (60-89 semester hours of college work completed) if he falls nine or more grade points below a 2.0 (C) average on all units attempted or in all units attempted at this campus.
C. As a senior (90 semester hours of college work completed) if he falls six or more grade points below a 2.0 (C) average on all units attempted or in all units attempted at this campus.
D. Regardless of class level or cumulative grade point average, if in any term while he is on probation he fails to earn at least twice as many progress points as units attempted.

   Probation will be lifted when he has attained a C average or better on all college work attempted at San Diego State University.

A disqualified student may be reinstated when conditions causing his poor performance have been alleviated. Application for reinstatement should be made at the Admissions Office.

Administrative Academic Probation

An undergraduate or graduate student may be placed on administrative academic probation by action of appropriate campus officials for any of the following reasons:

A. Withdrawal from all or a substantial portion of a program of studies in two successive terms or in any three terms.
B. Repeated failure to progress toward the stated degree or objective or other program objective (when such failure appears to be due to circumstances within the control of the student).
C. Failure to comply, after due notice, with an academic requirement or regulation which is routine for all students or a defined group of students (example: failure to take placement tests, failure to complete a required practicum).

Administrative Academic Disqualification

A student who has been placed on administrative academic probation may be disqualified from further attendance if:

A. The conditions for removal of administrative academic probation are not met within the period specified.

B. The student becomes subject to academic probation while on administrative academic probation.
C. The student becomes subject to administrative academic probation for same or similar reason for which he has been placed on administrative academic probation previously, although not currently in such status.

Graduate Students

The regulations governing probation and disqualification of graduate students are determined by the Board of Trustees of The California State University and Colleges and are stated in Section 41300 of the *California Administrative Code* as follows:

"Probation and disqualification of graduate students are subject to criteria established by each campus; provided, that criteria of probation and disqualification may not be less than those established for undergraduate students.

"A student disqualified for scholarship deficiency may not enroll in any regular session of the university without permission from the appropriate university authority, and may be denied admission to the summer session."

A. Standards for Placing Graduate Students on Scholastic Probation
   1. A graduate student will be placed on scholastic probation at the end of a semester if his grade point average on all work attempted at San Diego State University, subsequent to his admission to the campus as an unclassified graduate student, falls below 2.5.
   2. A graduate student who is on probation during a given semester will be continued on probation at the end of that semester if (a) his overall graduate grade point average, including the semester in question, remains below 2.5 *and* (b) his grade point average on work taken during the semester is 3.0 or above.

B. Standards for Removing Graduate Students from Scholastic Probation.
   A graduate student who is on probation during a given semester will be removed from scholastic probation at the end of any semester in which his overall graduate grade point average is 2.5 or higher.

C. Standards for Scholastic Disqualification of Graduate Students.
   A graduate student may be disqualified from the University for scholastic reasons at the end of any semester during which he is on probation if at the end of that semester (1) his overall grade point average, including the semester in question, is below 2.5 *and* (2) his grade point average for work taken during that semester is below 3.0.

A graduate student disqualified from the University under the foregoing regulations, may be readmitted to the University by the Board of Admissions. Application for readmission must be made on forms available at the Office of Admissions.

Student Discipline and Grievances

Sections 41301 and 41302 of the *California Administrative Code*, Title 5, read as follows:

41301. Expulsion, Suspension and Probation of Students. Following procedures consonant with due process established for the campus of which he is a student, any student of a campus may be expelled, suspended, placed on probation or given a lesser sanction for one or more of the following causes which must be campus related:

(a) Cheating or plagiarism in connection with an academic program at a campus.
(b) Forgery, alteration or misuse of campus documents, records or identification, or knowingly furnishing false information to a campus.
(c) Misrepresentation of oneself or of an organization to be an agent of a campus.
(d) Obstruction or disruption, on or off campus property, of the campus educational process, administrative process or other campus function.
(e) Physical abuse on or off campus property of the person or property of any member of the campus community or of members of his family or the threat of such physical abuse.
(f) Theft of, or nonaccidental damage to, campus property or property in the possession of, or owned by, a member of the campus community.
(g) Unauthorized entry into, unauthorized use of, or misuse of campus property.
(h) On campus property, the sale or knowing possession of dangerous drugs, restricted dangerous drugs, or narcotics as those terms are used in California statutes, except when lawfully prescribed pursuant to medical or dental care, or when lawfully permitted for the purpose of research, instruction or analysis.

(i) Knowing possession or use of explosives, dangerous chemicals or deadly weapons on campus property or at a campus function without prior authorization of the campus president.
(j) Engaging in lewd, indecent or obscene behavior on campus property or at a campus function.
(k) Abusive behavior directed toward, or hazing of, a member of the campus community.
(l) Violation of any order of the campus president, notice of which had been given prior to such violation and during the academic term in which the violation occurs, either by publication in the campus newspaper, or by posting on an official bulletin board designated for this purpose, and which order is not inconsistent with any of the other provisions of this Section.
(m) Soliciting or assisting another to do any act which would subject a student to expulsion, suspension or probation pursuant to this Section.
(n) For purposes of this Article, the following terms are defined:
   (1) The term "member of the campus community" is defined as meaning California State University and Colleges Trustees, academic, nonacademic and administrative personnel, students, and other persons while such other persons are on campus property or at a campus function.
   (2) The term "campus property" includes:
      (A) real or personal property in the possession of, or under the control of, the Board of Trustees of The California State University and Colleges, and
      (B) all campus feeding, retail or residence facilities whether operated by a campus or by a campus auxiliary organization.
   (3) The term "deadly weapons" includes any instrument or weapon of the kind commonly known as a blackjack, slingshot, billy, sandclub, sandbag, metal knuckles; any dirk, dagger, switchblade knife, pistol, revolver, or any other firearm; any knife having a blade longer than five inches; any razor with an unguarded blade, and any metal pipe or bar used or intended to be used as a club.
   (4) The term "behavior" includes conduct and expression.
   (5) The term "hazing" means any method of initiation into a student organization or any pastime or amusement engaged in with regard to such an organization which causes, or is likely to cause, bodily danger, physical or emotional harm to any member of the campus community; but the term "hazing" does not include customary athletic events or other similar contests or competitions.

41302. Expulsion, Suspension or Probation of Students: Fees and Notification. The President of the campus may place on probation, suspend, or expel a student for one or more of the causes enumerated in Section 41301. No fees or tuition paid by or for such student for the semester, quarter or summer session in which he is suspended or expelled shall be refunded. If the student is readmitted before the close of the semester, quarter or summer session in which he is suspended, no additional tuition or fees shall be required of the student on account of his suspension. In the event that a student who has not reached his eighteenth birthday is suspended or expelled, the President shall notify his parent or guardian of the action by registered mail to the last known address, return receipt requested.

Standards and procedures of discipline at San Diego State University are determined by these regulations.

If a student believes that a professor's treatment of him is grossly unfair or that a professor's behavior is clearly unprofessional, he may bring his complaint to the proper university authorities and official reviewing bodies by following the *Procedures for Handling Student Grievances Against Members of the Faculty*, adopted by the Faculty Senate. A copy of the procedures may be obtained from the Dean of Student Affairs (AD-231).

Graduation Requirements for the Bachelor's Degree

Candidates for a bachelor's degree from San Diego State University must satisfy the following requirements:

I. Unit requirements
II. Grade point average requirements
III. Competency requirements
IV. Foreign language requirement (Liberal Arts and Sciences)
V. Physical activities requirement
VI. Major and minor requirements
VII. American institutions requirement
VIII. General education requirements

The full statement of each requirement appears below.

I. Unit Requirements

A. Total unit requirement. The minimum number of units necessary for a bachelor's degree is as follows:

1. For the Bachelor of Arts degree in Applied Arts and Sciences 124
2. For the Bachelor of Arts degree in Liberal Arts and Sciences 124
3. For the Bachelor of Science degree (except engineering) 128
4. For the Bachelor of Science degree in Engineering 132
5. For the Bachelor of Music degree 132
6. For the Bachelor of Vocational Education degree 124

The degree which applies to a particular student is determined by the student's choice of major. Each student should therefore consult the statement of his or her major to establish the applicable degree. The full statement of each major can be found by consulting the Index.

The maximum number of units from community college courses, extension and correspondence courses, and credit/ no credit courses applicable to this requirement is as follows: (a) from community college courses, 70 units; (b) from extension and correspondence courses, 24 units; and (c) from credit/ no credit courses, 24 units. Units from courses in which grades of F, No Credit, and Incomplete were received cannot be used to satisfy this requirement.

The maximum number of units in Study Skills courses that apply to the bachelor's degree is six.

B. Upper division unit requirement. The minimum number of upper division units necessary for a bachelor's degree is as follows:

1. For the Bachelor of Arts degree in Applied Arts and Sciences 40
2. For the Bachelor of Arts degree in Liberal Arts and Sciences 45
3. For the Bachelor of Science degree (except engineering) 36
4. For the Bachelor of Science degree in Engineering 36
5. For the Bachelor of Music degree 40
6. For the Bachelor of Vocational Education degree 40

Courses offering upper division credit are those numbered 300 through 599. All units from upper division courses are applicable to the upper division unit requirement, including units from courses in the major and the minor, and from courses used to satisfy the American institutions and the general education requirements.

C. Units in one department.

1. **Bachelor of Arts degree in Liberal Arts and Sciences.** The maximum number of units in any one department, lower and upper division combined, which can be applied toward the Bachelor of Arts degree in Liberal Arts and Sciences is 48, except in journalism. Students majoring in journalism may not accumulate more than 36 units of credit in journalism courses.
2. **Bachelor of Music degree.** The maximum number of units in music courses, upper and lower division combined, acceptable toward the Bachelor of Music degree is 70.
3. **Bachelor of Science degree in Business Administration.** The minimum number of units in business administration and economics courses necessary for a Bachelor of Science degree in any of the seven business majors is 52 (40 percent of 128 units). In addition, the minimum number of units from departments outside of business administration and economics is likewise 52 (40 percent of 128 units).
4. **Other degrees.** The maximum number of units per department for other degrees is left to the discretion of the student, except the Bachelor of Arts degree in Applied Arts and Sciences with a major in Radio-Television in which no more than 48 units in telecommunications and film may be counted toward the total units required for graduation.

D. Residence requirement. A minimum of 24 units must be earned in courses taken at San Diego State University. Courses taken in extension and credit earned by credit-by-examination may not be used to fulfill this requirement. Twelve of the 24 units must be among the last 20 units needed for satisfying the degree requirements. In addition at least one-half of the upper division units required for the major must be taken at this institution unless specifically waived by the department.

II. Grade Point Average Requirements

Three averages, each 2.0 or higher, are required for graduation:

A. An average based on all courses completed at SDSU.
B. An average based on all courses completed at SDSU AND at other universities, liberal arts colleges, and community colleges.
C. An average based on all upper division courses completed in the major.

Information on the computation of averages can be found in the chapter, General Regulations, under these headings: Grade Point Average, Grades, Incomplete Grade, and Repeated Course.

III. Competency Requirements

Two competency requirements, one in mathematics and the other in writing must be satisfied for graduation.

A. Mathematics. The mathematics competency requirement can be satisfied in any of three ways: (1) by a score at the fiftieth percentile or higher on the mathematics section of either the Scholastic Aptitude Test or the American College Test; (2) by a passing score on the Mathematics Competency Test or the Mathematics Competency Retest administered by the SDSU Test Office; and (3) by passing a course in the Department of Mathematics numbered 103, 118 or above.

B. Writing. All undergraduate students are required to demonstrate competency in written English prior to graduation. A test of writing competency is administered on campus several times during the academic year. New students, both freshmen and transfer, are expected to take the test during their first semester on campus. Those who score below the minimum passing level are required to enroll in Study Skills 101, a 3-unit course designed to assist students in achieving competency in English composition. Enrollment in the course should begin no later than the first year of attendance at the University, and shall continue until competency is achieved. Dates and times for the composition test will be announced by the Test Office.

IV. Foreign Language Requirement (Liberal Arts and Sciences, A.B. degree only)

The Bachelor of Arts degree in Liberal Arts and Sciences requires competency (equivalent to that which is normally attained through three consecutive semesters of college study) in one foreign language as part of the preparation for the major. Such competency may be demonstrated by:

A. Successfully completing three college semesters of one foreign language;
B. Successfully completing four high school years of one foreign language;
C. Successfully completing a challenge examination in one foreign language.

Any combination of the preceding is also acceptable. For example, a student may combine two years of high school study, one semester of college study, and a challenge examination for one semester's work, all in the same language.

High school language courses can be used to satisfy this requirement, as follows: the first two years of high school language count as the equivalent of the first semester of a college language course; three years in high school count for two college semesters; and four high school years count for three college semesters.

The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

V. Physical Activities Requirement

A. Physical Activities. A minimum of two units of physical education activity courses, or equivalent monitored activities (including intercollegiate athletics), or a combination of courses and monitored activities are required for graduation. No more than one activity course or monitored activity in any one semester may be counted toward this requirement. An activity course taken in the summer session may be counted in lieu of one taken during the fall or spring semester. Any combination of activity courses and monitored activity may be used.

B. Exemptions or Postponement. Veterans who have served a minimum of one continuous year in the United States armed forces are exempted from the graduation requirement in physical education. Students over 25 years of age at the time of matriculation may also be exempted from the graduation requirement in physical education upon approval by the Vice President for Academic Affairs or duly authorized representative. For reasons of health, the Director of Health Services may postpone the enrollment of a student in a physical education activity course. Permanent postponement from the activity requirement will not be made and a postponement does not eliminate the graduation requirement.

VI. Major and Minor Requirements

A. Preparation for the Major. Every major requires a set of introductory and/or skills courses designed to prepare the student for upper division study in that field. Courses taken for this purpose can also be used to satisfy general education requirements, but not more than fifteen units can be used in this way.

B. Foreign Language. Students whose majors lead to the Bachelor of Arts degree in Liberal Arts and Sciences must complete a foreign language requirement. See item IV listed above.

C. Major. Completion of a departmental or an interdisciplinary major is required. A major is an area of specialized study into which the student probes more deeply than is normally true of other subjects. It consists of 24 or more upper division units for the Bachelor of Arts, Bachelor of Music, and Bachelor of Vocational Education degrees; and of 36 or more units for the Bachelor of Science degree. A summary list of all majors appears at the close of this chapter; the full statement of requirements for each major can be found through the Index. Courses taken in satisfaction of the major cannot be used to meet requirements in general education or a minor.

A student may wish to major in two departments. If so, the requirements for both majors must be satisfied. Units for courses which could satisfy the requirements in both majors can be counted only once. Only one diploma will be granted but the transcript will note the completion of each major.

D. Minor. Completion of a minor is necessary IF required by the major; the decision otherwise to have, or not to have, a minor is left with the student. A minor is an area of specialized study usually requiring about half as many units as a major; it generally consists of 15-22 units, at least six units of which must be in upper division courses. A summary list of all minors appears at the close of this chapter; the full statement of requirements for each minor can be found through the Index. Courses taken in satisfaction of the minor cannot be used to meet requirements in general education or the major. In addition, courses taken to satisfy the preparation for the major requirements may not be used as part of a minor.

VII. American Institutions Requirement

The American institutions requirement can be satisfied in any of four ways:

A. Examinations: By passing three examinations administered by the SDSU Test Office, one in American History, Institutions and Ideals (2 hours), a second in United States Constitution (90 minutes), and a third in California Government (60 minutes).

B. Courses: By passing any pair of courses from the following list.

Afro-American Studies 170A-170B
History 110A-110B
History 115A-115B
History 310A-310B
History 532A-532B
History 547A-547B
Mexican-American Studies 120A and 120B
Mexican-American Studies 141A and 141B
Political Science 110 and 210
Political Science 320 and 321
Political Science 320 and 505
Political Science 320 and 522
Political Science 321 and 505
Political Science 505 and 522

C. Examinations and courses: By passing any one or two of the aforementioned examinations AND course work appropriate to the remaining area or areas. Courses applicable to each area are listed below.

1. American History, Institutions and Ideals:
   Afro-American Studies 170A-170B; History 115A-115B, 537A-537B, 544A-544B, 545A-545B, 547A-547B; Mexican-American Studies 120A-120B, 141A-141B.
2. United States Constitution:
   Afro-American Studies 170A; History 110A, 115A, 532A, 545A, 545B, 547A; Mexican-American Studies 120A, 141A; Political Science 120, 320, 547A and 547B.
3. California State and Local Government:
   Afro-American Studies 170B; History 110B, 115B, 532B, 541B, 547B; Mexican-American Studies 120B, 141B; Political Science 120, 320, 321, 522.

D. Transfer credit: By providing evidence on a transcript or other official document from an accredited California university, liberal arts college, or community college that the requirement has been satisfied by the standards of that institution.

VIII. General Education Requirements

Important Note to Students: The General Education requirements have been substantially changed for the 1975-76 academic year. Students should read the following section carefully.

Changes in the Program. In past years, all students have fulfilled a State-mandated general education requirement of 40 units, either through course work at San Diego State University or at other institutions. However, students pursuing a Bachelor of Arts degree in **Liberal** (not Applied) Arts and Sciences were required to satisfy a number of "breadth requirements" in addition to the general education requirements.

Beginning in the fall semester, 1975, those additional "breadth requirements" are abolished, and all students will have a single set of general education requirements to fulfill, regardless of their major or the degree they are pursuing.

Students Affected by the Change. Students who entered the University prior to September 1975 may continue to adhere to the catalog in effect at the time they entered the University or to the catalog in effect upon declaring or changing their major. Students may, however, elect to change to the catalog in effect in the year in which they graduate, adhering to all requirements in that catalog.

Under no circumstances may a student elect a combination of requirements from catalogs issued in different academic years. Therefore, students who enter the University in the 1975-76 academic year, or who declare or change their majors during that year, will be subject to the requirements in the 1975-76 catalog. Students graduating in 1975-76 (including summer, 1976) may elect to adopt the requirements in that catalog upon applying for graduation. Changing or declaring one's major and applying for graduation are student-initiated procedures described elsewhere in this catalog.

Transfer Students. Transfer students who are certified by their previous (regionally accredited) institutions to have completed general education requirements will not be required to take additional general education courses at San Diego State University. Partial certification, involving completion of course work in major areas of general education, will also be accepted.

Course Work Excluded from General Education. The general education program has certain educational objectives not characteristic of other types of course offerings in the curriculum. Hence, certain types of courses are not acceptable for general education credit.

Types of courses that do **not** count for general education credit include:

A. Course work in a major or minor;
B. Courses in the Study Skills Center;
C. Course work in excess of 12 units in one department.

The General Education Program

The General Education program at San Diego State University is evolutionary in nature. A permanent committee of faculty and students reviews the program continuously and encourages the development of new courses, concepts and learning experiences. The program has several major objectives: (1) to promote the development in students of the intellectual capabilities necessary to the enterprise of learning; (2) to introduce students to the modes of thought characteristic of diverse academic disciplines; (3) to help them to understand the conditions and forces which shape their lives; and (4) to assist them in learning to apply critical and informed judgments to the cultural achievements of their own and other cultures.

The program consists of a minimum of 40 semester units, distributed as indicated below. Completion of the program is required of all undergraduate students, regardless of their major.

I. BASIC SUBJECTS

The inclusion of "Basic Subjects" in a general education program serves to establish the principle that there are common modes of expression and analysis which underlie the whole enterprise of learning. The most fundamental of these are written and oral communication in English, mathematical and (increasingly) statistical computation, and logical analysis.

All of these modes of expression are competencies which should be achieved by students during the first semester or year of college, if not before. Students who can demonstrate competency in one or more of these areas without formal course work may use the units released to explore other subjects in the general education program.

Course Work in Basic Subjects. A minimum of nine units, distributed in either of the following two ways:

3 units in English composition
3 units in oral communication
3 units in mathematics, statistics or logic;
OR
6 units in English composition
3 units in mathematics, statistics or logic.

II. FOUNDATIONS OF LEARNING

The basic subjects develop intellectual capabilities in students. Those capabilities must be focused and applied in systematic ways and this is a principal function of academic disciplines. The "Foundations of Learning" element in the general education program aims at providing students with opportunities to learn a variety of conceptual frameworks and methods of thought by which scholars in different fields approach their subject matter.

The purpose is not solely to introduce students to a discipline in preparation for advanced work in the area, but also, and especially, to initiate students into modes of thought characteristic of a discipline in order that they may apply those modes of thought to the varieties of human concerns which constitute the main subject matter of general education. The "Foundations of Learning" element in the program includes course work in the natural sciences, the social and behavioral sciences, and the humanities.

Course Work in the Foundations of Learning. A minimum of 22 units, distributed as follows:

1. **Natural Sciences.** A minimum of seven units to include:
   a. At least three units in one of the following departments:
      Biology (except 215)
      Botany
      Microbiology
      Zoology
   b. At least three units in one of the following departments:
      Astronomy
      Chemistry
      Geography (limited to 101 and 103)
      Geology
      Physical Science
      Physics
   c. One unit of laboratory, if not already included in one of the above courses.

2. **Social and Behavioral Sciences.** A minimum of six units to include a 3-unit course in two of the following areas:
   Anthropology
   Economics (except 142)
   Geography (except 101 and 103)
   Afro-American Studies (limited to 220 or 230)
   Mexican-American Studies (limited to 115 or 200)
   Political Science (except 140)
   Psychology (except 270)
   Sociology (except 160)
3. **Humanities.** A minimum of nine units to include a 3-unit course in three of the following four areas:
   a. Literature (in English or a foreign language)
   b. Music, Art, Drama (excluding predominantly performance or activity courses in each subject); Humanities, American Studies, Asian Studies, European Studies, Latin-American Studies.
   c. History, Classics
   d. Philosophy (excluding logic), Religious Studies

III. THE HUMAN EXPERIENCE

Course Work in the Human Experience: Courses for this new section of the general education program have not yet been developed. For 1975-76, students may satisfy this section by the following:

Nine units of elective courses, including:

At least one course from among the general education subjects listed in Sections I and II above.

Additional courses chosen from among all courses listed in the catalog (except courses indicated earlier as "Course Work Excluded from General Education").

Specific topics and courses for "The Human Experience" will be developed during the next year and will appear in a subsequent catalog. Studies in "The Human Experience" will build upon the students' course work in "Basic Subjects" and in the "Foundations of Learning." The purpose is to explore fundamental human concerns, especially as they affect contemporary men and women.

These concerns cannot be addressed solely from the perspective of the humanist, or the social scientist, or the natural scientist, but require the intellectual collaboration of scholars and teachers from many diverse academic areas. The faculty has created "The Human Experience" in order to encourage such collaboration and to provide students with the opportunity of achieving both depth and breadth in the study of a significant area of human concern.

Alternate General Education Program

Any student with a minimum grade point average of 3.25 at this institution, with a declared major, and with 15 units or more but not over 45 units of college work may submit to the Dean of the University College an alternate program, with supporting reasons, for fulfilling general education—breadth requirements, compatible with the requirements listed below. If approved, the proposed program will replace the standard provisions. A student with such an approved program may, at his option, elect to revert to the standard program in effect at the time of his graduation; any student who changes his major shall revert to the standard program or seek approval of a new proposal.

A. Natural Sciences, minimum of two courses;
B. Social Sciences, minimum of two courses;
C. Humanities, minimum of two courses;
D. Basic Subjects, minimum of two courses;
   for a total of 32 units.
E. Electives, maximum of eight units, to provide a total of 40 units.
F. Additional requirement, five upper division units excluding courses in the area of the student's major and minor.

Within the proposal, no courses in the student's major or minor may apply to the requirements, and not more than six units shall be applicable to preparation for the major.

Application for Graduation

Graduation is not automatic on the completion of requirements. The student who intends to graduate must take the initiative. When he believes that he is eligible, he should file an application with the Evaluations Office, Administration Building, not later than the end of the third week of classes in the fall if he wants to graduate in mid-year, and not later than the end of the eleventh week of classes in the fall if he wants to graduate in May or at the end of summer session. The Class Schedule each semester specifies the exact date. An application fee of $6.00, which is nonrefundable and nontransferable, is required. Failure to apply on or before the specified date will exclude the student from consideration for honors or distinction.

Election of Regulations for Graduation

A student remaining in continuous attendance in regular sessions and continuing on the same curriculum in any state university or college or in any of the California community colleges may, for purposes of meeting graduation requirements, elect to meet the graduation requirements in effect at San Diego State University either at the time of his entering the curriculum or at the time of his graduation therefrom, except that substitutions for discontinued courses may be authorized or required by the proper authorities.

Graduation With Honors and Distinction

Graduation with honors is granted to those students in each graduating class who have achieved high grade point averages by the beginning of the fall semester for mid-year graduates and by the end of the fall semester for May and summer session graduates. Excellence is recognized at three levels: highest honors (3.75 and above), high honors (3.50-3.74) and honors (3.25-3.49).

The grade point average is computed on work done at this institution, except that if the grade point average for work at other collegiate institutions is lower, those grades are included in the computation.

To be considered for computations relevant to honors or distinction, grades for removal of Incompletes and all other grade changes must be received in the Registrar's Office no later than the end of the fifth week of the semester in which the student plans to graduate and the student must file an application for graduation prior to the published deadline. After the degree is granted no changes can be made in the undergraduate record.

Upon recommendation of his major department, a student doing superior work in his major field may be graduated with distinction in that field.

Commencement

Commencement exercises are held once a year at the end of the spring semester for students who were graduated at mid-year, those graduating at the end of the spring semester, and students who expect to complete requirements for graduation in the summer session. The President of the University, by the authority of the Trustees and on recommendation of the faculty, awards the degrees.

Second Bachelor's Degree

A second bachelor's degree may be earned if the student has an excess of 24 units beyond the minimum requirements for the first bachelor's degree, makes a complete change in major, fulfills all requirements for the degree (including general education requirements) as required by this university, and has approval of the Dean of the University College.

Curricula

Summary

Summary of Curricula Offered

Majors	Arts and Sciences Curricula: Applied Arts and Sciences AB	Arts and Sciences Curricula: Applied Arts and Sciences BS	Arts and Sciences Curricula: Liberal Arts and Sciences AB	Professional Curricula: School of Business Administration BS	Professional Curricula: School of Engineering BS	Professional Curricula: School of Education	Graduate Curricula: Graduate Division MA	Graduate Curricula: Graduate Division MS
## Accounting				BS				MS
† Aerospace engineering								
Afro-American studies			AB					
** American studies			AB				MA	
Anthropology			AB				MA	
Art	AB		AB				MA	
** Asian studies			AB					MS
Astronomy	AB		AB				MA	MS
Biology	AB	BS	AB					
Botany		BS	AB				MBA	MS
† Business administration								
Chemical physics		BS					MA	MS
Chemistry	AB	BS	AB					%Ph.D.
** Child development		BS						MCP
¶† City planning								MS
† Civil engineering								
Classics			AB					
** Comparative literature			AB					MS
¶¶ Computer science	AB		AB					MS
† Counseling								MS
Criminal justice administration		BS					MA	
Drama	AB							Ph.D.
# Ecology							MA	
Economics			AB				MA	
† Education								MS
† Electrical engineering					BS			
Engineering			AB				MA	
English		BS						
†† Environmental health			AB					
** European studies				BS				
## Finance			AB				MA	
French								Ph.D.
§ Genetics			AB				MA	
Geography		BS						MS
Geology			AB				MA	
German		BS					MA	
Health science			AB				MA	
History	AB							MS
Home economics	AB						MA	
Industrial arts		BS						
Industrial technology				BS				
## Information systems				BS				
## Insurance			AB					
Journalism			AB				MA	
** Latin American studies	AB		AB					
** Liberal studies			AB				MA	
** Linguistics				BS				
## Management				BS				
## Marketing								MS
**† Mass communication	AB		AB				MA	MS
Mathematics								MS
† Mechanical engineering			AB					
Mexican-American studies								

Summary of Curricula Offered — Cont.

Majors	Arts and Sciences Curricula: Applied Arts and Sciences AB	Arts and Sciences Curricula: Applied Arts and Sciences BS	Arts and Sciences Curricula: Liberal Arts and Sciences AB	Professional Curricula: School of Business Administration BS	Professional Curricula: School of Engineering BS	Professional Curricula: School of Education	Graduate Curricula: Graduate Division MA	Graduate Curricula: Graduate Division MS
Microbiology		BS	AB					MS
Music	AB	BM					MA	
Nursing		BS						
Philosophy			AB				MA	
Physical education	AB		AB				MA	
Physical science	*AB						MA	
Physics		BS	AB				MA	MS
Political science			AB				MA	
Psychology			AB				MA	MS
Public administration	AB							MPA
† Radiological physics								MS
%% Radio-television	AB	BS					MA	
## Real estate				BS				
Recreation administration	AB							
† Rehabilitation counseling								MS
Religious studies			AB					
Russian			AB				MA	
** Russian and East European studies			AB					
** Social science	*AB		AB				MA	
● Social welfare	AB		AB					
† Social work								MSW MSSW
Sociology			AB				MA	
Spanish			AB				MA	
Speech communication	AB						MA	
Speech pathology and audiology	AB						MA	
¶¶ Statistics								MS
Vocational arts						BVE		
Zoology		BS	AB					

%% Offered by the Department of Telecommunications and Film.
* Limited to students in Teacher Education.
† For master's degree only (not an undergraduate major).
% Offered jointly with the University of California, San Diego.
§ Offered jointly with the University of California, Berkeley.
# Offered jointly with the University of California, Riverside.
A concentration with the B.S. in Business Administration.
** An interdisciplinary program.
¶ Offered by Public Administration and Urban Studies.
†† Offered by the Department of Microbiology.
● Offered by the School of Social Work.
¶¶ Offered by the Department of Mathematics.

SPECIAL CURRICULA

Preprofessional Curricula
Predental
Prelegal
Premedical

Curricula in Broad Field Areas
Humanities
Africa and the Middle East
Medical technology

Military Curricula
Aerospace studies (A.F.R.O.T.C.)

Certificate (nondegree) Programs
Certificate in criminal justice administration
Certificate in public administration

Teaching Credentials

Multiple subjects teaching credential
Single subject teaching credential
Restricted credential
Community College Instructor Credential (occupational)
Community College Instructor Credential (academic)

Minors for the Bachelor's Degree

Accounting
Aerospace studies
African studies
Afro-American studies
Anthropology
Art
Asian studies
Astronomy
Biology
Botany
Business management
Chemistry
Classical humanities
Classics
Comparative literature
Dance
Drama
Economics
Educational technology and librarianship
Employee relations
Engineering
English
Finance
French
Geography
Geology
German
Health Science
History
Home economics
Industrial arts
Information systems
Insurance
Italian
Jewish studies
Journalism
Linguistics
Marketing
Mathematics
Mexican-American studies
Microbiology
Middle East studies
Music
Philosophy
Physical education
Physical science
Physics
Political science
Portuguese
Production and operations management
Psychology
Public administration
Radio-television
Real estate
Recreation
Religious studies
Russian
Social welfare
Sociology
Spanish
Speech communication
Speech pathology and audiology
Zoology

Interdisciplinary Programs

Interdisciplinary Programs

For information on interdisciplinary programs in the areas of Africa and the Middle East, American Studies, Asian Studies, Environment, European Studies, Humanities, Latin American Studies, and Social Science consult the "Courses and Curricula" section of the catalog. Refer to the index for page number.

African Studies Minor

The minor in African Studies is offered by the College of Arts and Letters. Dr. David H. Johns, Department of Political Science, is adviser for this minor.

The minor in African Studies consists of a minimum of 15 units, twelve of which must be upper division, to include Humanities 158, History 575A and 575B; and 6 units from the following courses in any two departments: Anthropology 549, 579; Economics 469; Geography 335, 589; Political Science 564, 565; and Religious Studies 340.

Child Development Major

With the B.S. Degree in Applied Arts and Sciences

The major in Child Development is offered by Family Studies and Consumer Sciences.

Preparation for the major. Anthropology 101, Biology 100, Family Studies and Consumer Sciences 204 and 270; Family Studies and Consumer Sciences 135 or Social Welfare 130; Psychology 101, 260; Sociology 101; Sociology 160 or Psychology 270. (27 units)

Major. A minimum of 36 upper division units to include Biology 350; Family Studies and Consumer Sciences 335 and 371; Psychology 350 and 351; Sociology 440 or Psychology 340; and 18 units selected with the approval of the adviser, at least 12 and not more than 15 units of which must be in an area in which the student wishes to concentrate.

Jewish Studies Minor

The minor in Jewish Studies is offered by the College of Arts and Letters. Dr. Harry Ruja, Department of Philosophy, is adviser for this minor. It provides a balanced interdisciplinary study of Jewish contributions to world culture and history. It serves the needs of students who plan to (1) specialize in disciplines in which an understanding of Jewish contributions is essential, or (2) follow careers in teaching, community service, foreign service or the ministry. Students seeking a minor in Jewish Studies may want to consider combining it with a major in Social Science with an emphasis on Africa and the Middle East. Many courses relevant to this major are available in anthropology, Arabic language and literature, economics, geography, history, political science, and sociology.

The minor in Jewish Studies consists of 15 to 17 units to include Humanities 130 and 131, or Hebrew 101 and 102; and nine units selected from Comparative Literature 505 (English 505), 525, 526, 577 (Kafka); Philosophy 336, 535; Religious Studies 301 and 330.

Liberal Studies Major

With the A.B. Degree in Applied Arts and Sciences and in Liberal Arts and Sciences

The liberal studies major offers a general type of education leading to objectives not otherwise provided in the regular programs of the university. Students electing this major must declare it, as well as any option selected within it, prior to satisfactory completion of 90 semester units.

Option 1. Liberal Studies in Three Disciplines

The student elects three disciplines as associated with departments participating in the liberal studies program. The departments include those listed in the College of Arts and Letters, the College of Professional Studies, the College of Sciences, the School of Business Administration, the School of Education, the School of Engineering, and the Department of Social Welfare.

Preparation for the major. A minimum of a year course in each of the three disciplines selected in the major must be completed in the lower division as foundation for upper division courses, or whatever the participating departments require.

The student must secure approval of his program by the department chairman in each of the three disciplines involved and the Dean of the University College.

Major. A minimum of 36 upper division units selected from three disciplines, with no fewer than nine units from any one discipline. If two of the three fields selected are from majors offered only in liberal arts and sciences, the major is governed by the regulations required by that program. If two of the three fields are selected from those not exclusively in the liberal arts and sciences program (majors which satisfy requirements for the single subject teaching credential only do not apply), the major is governed by the regulations in applied arts and sciences.

Option 2. Liberal Studies in the Multiple Subjects Groups with the A.B. Degree in Applied Arts and Sciences

The student taking this option selects courses to extend his background in the four multiple subjects groups of knowledge identified as follows (not more than 30 units may be taken in any one department or area):

Group A: *English* (including courses in grammar, literature, composition) *and speech.* This group includes the following areas: (1) Afro-American Studies (English and speech only); (2) comparative literature; (3) English, i.e., American literature, British literature, and creative writing; (4) journalism; (5) linguistics; (6) Mexican-American Studies (English and speech only); (7) speech communication, plus (8) speech pathology and audiology.

Group B: *Mathematics and science* (physical sciences or life sciences). This group includes the following areas: (1) geography (101, 103, 104, 105 only); (2) the life sciences, i.e., biology, botany, microbiology, zoology; (3) mathematics; (4) the physical sciences, i.e., astronomy, chemistry, geology, oceanography, physical science, physics; (5) psychology.

Group C: *Social sciences.* This group includes social science courses only in the following areas: (1) Afro-American Studies; (2) anthropology; (3) economics; (4) family studies and consumer sciences; (5) geography; (6) health science and safety; (7) history; (8) Mexican-American Studies; (9) political science; (10) social welfare; (11) sociology; (12) women's studies.

Group D: *Humanities and fine arts* (including foreign languages). This group includes the following areas: (1) Afro-American Studies (humanities and fine arts only); (2) art; (3) drama; (4) foreign languages and literatures, i.e., classical and oriental, French and Italian, German and Russian, Spanish and Portuguese; (5) humanities; (6) Mexican-American Studies (humanities and fine arts only); (7) music; (8) philosophy; (9) religious studies; (10) women's studies (humanities and fine arts only).

Preparation for the major.*

Group A: Fifteen units of approved course work to include: a three-unit course in composition; a three-unit course in literature; a three-unit course in speech communication; a three-unit course in linguistics; and three additional units of course work selected from the areas listed under Group A above.

Group B: Fifteen units of approved course work to include: six units of mathematics**; three or more units of a life science***; three or more units of a physical science; and additional units from the areas listed under Group B for a minimum of fifteen units.

Group C: Fifteen units of approved course work to include: course work to satisfy "American Institutions" requirements; and additional units of course work selected from the areas under Group C.****

Group D: Fifteen units of approved course work to include: three units of art; three units of music*****; three units selected from drama, humanities, philosophy or religious studies; and additional units of course work selected from the areas under Group D.

Major. A minimum of 30 upper division units to include: a 15-unit concentration in one of the four groups; the additional 15 units distributed among the three remaining groups with no less than three units in each of the groups.

The Liberal Studies Major Option 2 is recommended for students who plan to enter elementary education. It meets all requirements for the multiple subjects/ diversified major as specified in the Ryan Bill. Students planning to enter elementary education must consult and secure program approval from an adviser in the Department of Elementary Education.

Other students who wish to take this major must consult the Dean of the University College to secure program approval.

*Includes all graduation requirements except physical education. (Students who plan to enter elementary education must take Physical Education 153 in lieu of one of the physical education activity units for General Education.)
**Mathematics 210A-210B is required for students who plan to enter elementary education.
***One course in either physical or life science must include a laboratory.
****Health science and safety is required for students who plan to enter elementary education.
*****Music 102 is required for students who plan to enter elementary education.

Middle East Studies Minor

The minor in Middle East studies is offered by the College of Arts and Letters. Dr. David H. Johns, Department of Political Science, is adviser for this minor.

The minor in Middle East studies consists of a minimum of 15 units, twelve of which must be upper division, to include Humanities 157 or 357; Religious Studies 340; 6 units from History 573A, 573B and 574; and 3 units from Anthropology 574; Art 566; Comparative Literature 535; Economics 469; Geography 335 and Political Science 563.

Native American Studies

Within the College of Arts and Letters, Native American Studies offers a program of courses relating to the American Indian. Mr. John C. Rouillard chairs this program. In cooperation with the departments of anthropology, English, sociology, history, and linguistics, and the College of Professional Studies, the attitudes, value systems, history, and cultural divergencies of the original Americans are examined. This program is of particular value to the student who intends to specialize in disciplines pertaining to the nation's ethnic minorities. Details of course offerings will be provided by Native American Studies.

Russian and East European Studies Major

With the A.B. Degree in Liberal Arts and Sciences

The major in Russian and East European studies is offered by the College of Arts and Letters. Dr. Vytas Dukas, Department of Germanic and Slavic Languages and Literatures, is adviser for this major.

Preparation for the major. Russian 101, 102, 203, 204, or equivalent. (16 units.) Lower division prerequisites for the upper division courses to be taken in the major. (3-9 units.)

Major. A minimum of 30 upper division units to include nine units from at least two departments in the humanities selected from Comparative Literature 513, 514, European Studies 330, 331, History 518A-518B; nine units from at least two departments in the social sciences selected from Economics 330, 468, Geography 336, 337, Political Science 558, 559; six units in Russian selected from 301A-301B, 311A-311B, 545, 555A-555B, 561A-561B, 563; and six units of electives selected with the approval of the adviser.

The University College

The University College

Objectives and Functions

The University College serves to provide coordination, evaluation, and stimulation to the undergraduate educational program at San Diego State University. It has general responsibility for the undergraduate curriculum, and for academic standards and regulations that affect undergraduate students.

The College has a special concern and responsiblity for academic programs of a University-wide character. Foremost among these is the general education program. The College, through its faculty-student Council, oversees the continuing development of the general education program and approves courses to be included in the program.

The College also administers the University Honors Program, the College Level Examination Program, the Advanced Placement Program and the preprofessional programs in medicine, dentistry and law. In addition, it offers special coursework in the General College series and sponsors the Liberal Studies major.

The furtherance of innovative and nontraditional education on the campus is a principal concern of The University College. Toward this end, it sponsors the Coordinated Freshman Studies Program, and supports and participates in the work of the Teaching and Learning Council and the Instructional Development Program. Special services are provided to students through the Test Office and the Study Skills Center, both of which are part of The University College.

The policy-making agency for the College is the University College Council, which is composed of faculty and student representatives and chaired by the Dean of the College. On significant matters of University-wide concern, the Council submits proposals to the Faculty Senate for consideration and action.

Above all, The University College exists to promote the quality, diversity and richness of the undergraduate educational program at San Diego State University. It does so through the active involvement of students and faculty in the programs of the College.

Coordinated Freshman Studies

Coordinated Freshman Studies, an innovative program under the aegis of The University College, is an attempt to establish a more effective approach to general education by providing an integrated experience for students in terms of both academic ideas and personal development.

The experimental community, first formed in fall 1970, was created to permit 70 incoming freshmen to share classes drawn from the basic general education requirements, and coordinated by means of common concepts, themes and materials. The range of cross-disciplinary concerns is illustrated by such topics as: the role of models and metaphores in man's creative thought; the problems of ecological balance; Freud's theories of personality and society; the nature of fact, data, fiction and faith.

The atmosphere provided by the small community encourages students to become more personally involved in their education through the exploration of values, perceptions and modes of thought, and permits a greater degree of self expression and of peer learning.

Students may apply to Coordinated Freshman Studies, The University College, by writing a letter (not more than 250 words) describing themselves and their interests, and explaining their reasons for application. The deadline for submitting an application for the 1975-76 Fall Semester is June 30, 1975.

Honors Program

Some departments offer Honors sections of selected courses. Normally, admission is by invitation, but any student interested should consult the *Class Schedule* for the name of the faculty member in charge and consult with him to establish eligibility.

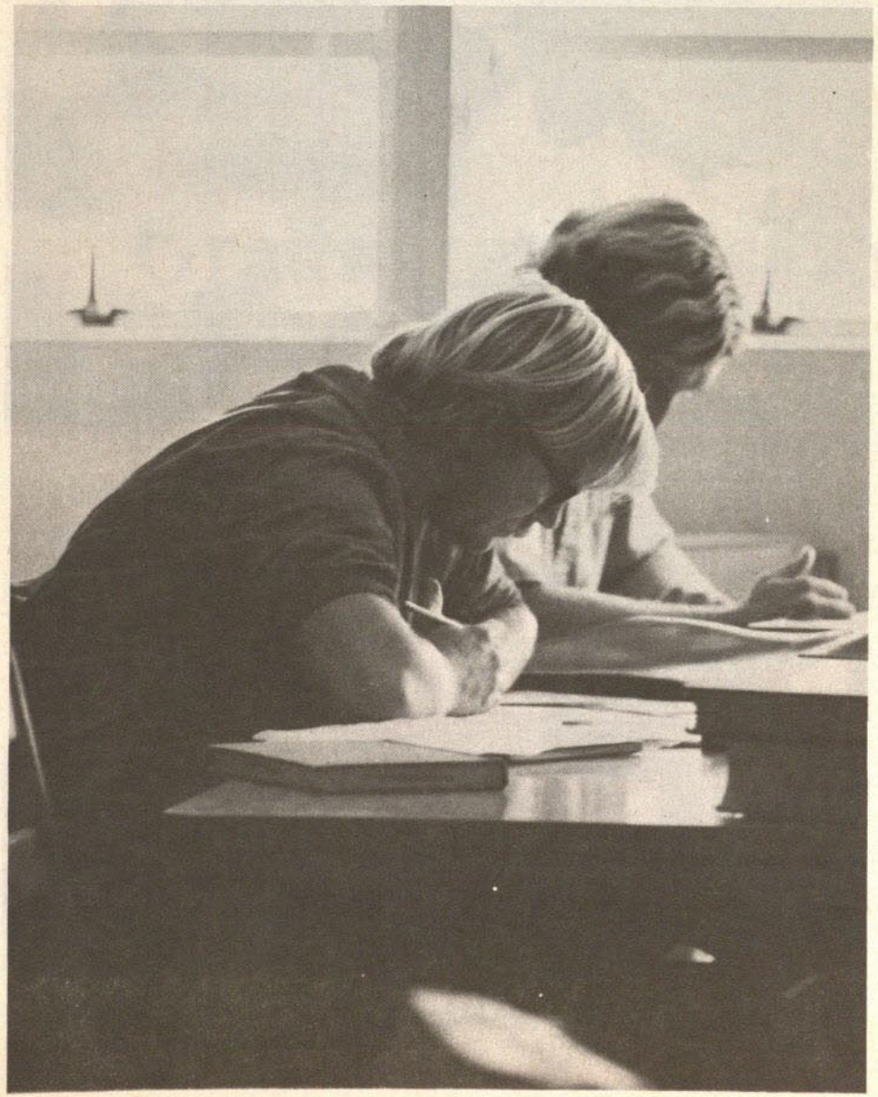
Study Skills Center

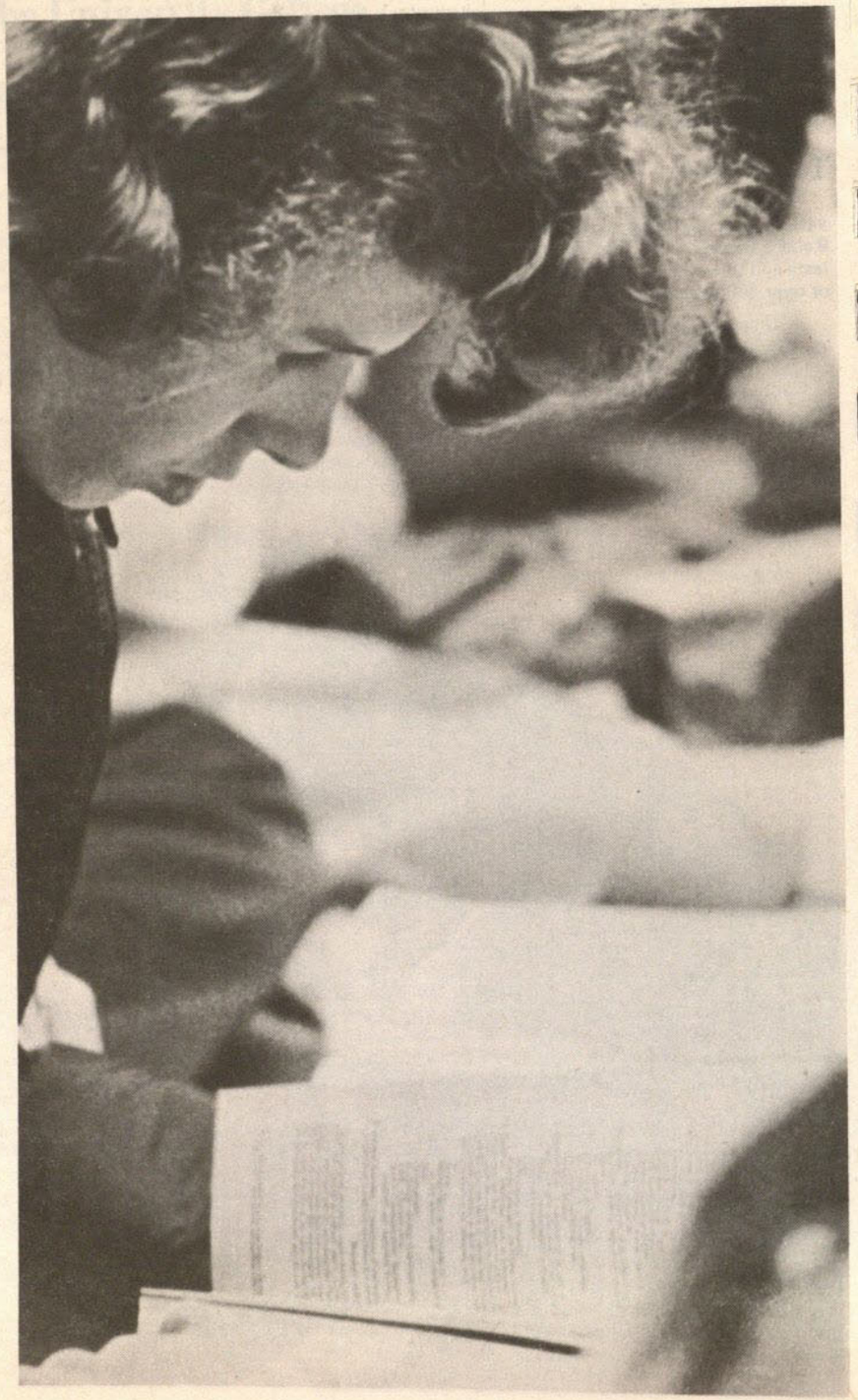
The Center offers assistance to all students at any university level, including bilingual and international students, who wish to improve reading or writing skills or to obtain help with study problems or writing projects, either remedial or advanced. Five-week, intensive mini-courses in a variety of learning-related topics are also offered by the Center. The Center's services are available on either an enrollment or a drop-in basis.

In addition, the Center assists students in completing the university Writing Competency requirement. The university requires students to demonstrate writing proficiency consistent with its established standards, and accordingly requires all entering students to pass the Writing Competency Test, or to enroll in a writing course in the Study Skills Center during their first semester at SDSU and to continue in that course until successfully completing it.

Test Office

The Test Office serves both students and faculty in administering and scoring a wide variety of tests, including placement tests, the Writing Competency Test and the Graduate Record Examination. The Test Office works closely with faculty members in developing new tests and in evaluating the results. It is located in the Old Library, where it maintains a library of over 800 different tests.





Graduate Division

Graduate Division

Organization and Administration

All graduate work leading to advanced degrees is under the jurisdiction of the Graduate Division and responsibility for all graduate curricula is delegated to a Graduate Council under the chairmanship of the Dean of the Graduate Division, who also serves as the administrative officer of the Graduate Division.

Under the provisions of Section 41001 of the Administrative Code (see the section of this catalog on Admissions), the Graduate Council, through the Graduate Division Office, admits all students to authorized graduate degree curricula, determines their eligibility to continue in such curricula, and, in the cases of unsatisfactory performance, requires students to withdraw from all graduate curricula.

The Graduate Council is the appropriate university authority for the administration of all matters related to graduate degree curricula, minimum requirements for which are specified in Section 40504 of the *California Administrative Code*.

Association Membership

San Diego State University is a member of the Western Association of Graduate Schools and the Council of Graduate Schools in the United States.

Degrees Offered

All master's degrees are conferred by the Trustees of The California State University and Colleges upon recommendation of the faculty of San Diego State University. These degrees are designed to provide instruction for graduate students in the liberal arts and sciences, in applied fields, and in the professions, including the teaching profession. Doctoral degrees are awarded jointly by the Board of Regents of the University of California and the Board of Trustees of The California State University and Colleges in the names of San Diego State University and the cooperating campus of the University of California.

Doctor of Philosophy

The Doctor of Philosophy degree in Chemistry is offered jointly with the University of California, San Diego.

The Doctor of Philosophy degree in Ecology is offered jointly with the University of California, Riverside.

The Doctor of Philosophy degree in Genetics is offered jointly with the University of California, Berkeley.

Master of Arts

The Master of Arts degree is offered in the following fields:

American studies
Anthropology
Art
Asian studies
Biology
Chemistry
Drama
Economics
Education
English
French
Geography
German
Health science
History
Industrial arts
Latin American studies
Linguistics
Mathematics
Music
Philosophy
Physical education
Physical sciences
Physics
Political science
Psychology
Radio and television
Russian
Social science
Sociology
Spanish
Speech communication
Speech pathology and audiology

Master of Science

The Master of Sicence degree is offered in the following fields:

Aerospace engineering
Astronomy
Biology
Business administration
Chemistry
Civil engineering
Computer science
Counseling
Criminal justice administration
Electrical engineering
Geology
Home economics
Mass communications
Mathematics
Mechanical engineering
Microbiology
Physics
Psychology
Radiological physics
Rehabilitation counseling
Social work
Statistics

Master of Business Administration

Master of City Planning

Master of Public Administration

Master of Social Work

Admission to Postbaccalaureate Study

Application Procedures

All applicants for postbaccalaureate study (e.g., advanced degree applicants, those seeking credentials, and those interested in taking courses for professional growth, etc.) must file a complete application within the appropriate filing period. **Second baccalaureate degree aspirants should apply as undergraduate degree applicants.** A complete application for postbaccalaureate study includes all of the materials required for undergraduate applicants plus the supplementary graduate admissions application. Postbaccalaureate applicants who completed undergraduate degree requirements and were graduated from this University the preceding term are also required to complete and submit an application and the $20.00 nonrefundable application fee. Since applicants for postbaccalaureate programs may be limited to the choice of a single campus on each application, redirection to alternative campuses or later changes of campus choice will be minimal. In the event that a postbaccalaureate applicant wishes to be assured of initial consideration by more than one campus, it will be necessary to submit a separate application (including fee) to each. Applications may be obtained from the Admissions Office or the Graduate Studies Office of any California State University or College campus.

General Admission Requirements

All applicants for any type of postbaccalaureate study at San Diego State University must: (a) hold an acceptable baccalaureate degree from an institution accredited by a regional accrediting association or have completed equivalent academic preparation as determined by the Dean of the Graduate Division; (b) have attained a grade point average of at least 2.5 (when A equals 4) in the last 60 semester (90 quarter) units attempted; and (c) have been in good standing at the last college attended. An applicant who does not qualify for admission under provisions (a) and (b) may be admitted by special action of the Dean of the Graduate Division if on the basis of other evidence he is judged to possess sufficient academic, professional, and other potential pertinent to his educational objectives to merit such action.

Admission Categories

All applicants seeking admission to postbaccalaureate study at San Diego State University must apply and be accepted in one of the following categories:

Postbaccalaureate Standing (Unclassified)

A student wishing to enroll in courses at the University with a personal or professional growth objective, but not necessarily with an objective of an advanced degree or credential, may be considered for admission with postbaccalaureate standing (unclassified) when he meets the criteria specified under General Requirements. Students admitted in this category may enroll in 500-numbered courses, but are ineligible to enroll in 600-numbered courses except with the permission of the instructor and concurrence of the Dean of the Graduate Division. Admission with postbaccalaureate standing (unclassified) does not constitute admission to, or assurance of consideration for admission to, advanced degree curricula.

Postbaccalaureate Standing (Classified)

A student wishing to be admitted to a program leading to a credential **only** (not an advanced degree) must meet the criteria specified under **General Requirements.** Such a student must also meet the professional, personal, scholastic and other standards prescribed by the appropriate department in the School of Education. The applicant should contact the department involved for information concerning specific admission requirements, and should submit a departmental application during the appropriate filing period. Admission with postbaccalaureate standing (classified) does not constitute admission to, or assurance of consideration for admission to, advanced degree curricula.

Graduate Standing (Classified)

A student wishing to be admitted to a program of study leading to an advanced degree must meet the criteria specified under **General Requirements,** and, in addition, must:

(a) Achieve a satisfactory score on the Graduate Record Examination Aptitude Test. (Students holding an advanced degree from an institution which is a member of the Council of Graduate Schools are exempted from this requirement; students applying to the School of Business Administration will take the Admission Test for Graduate Study in Business.)
(b) Have completed an undergraduate major appropriate to the field in which he desires to earn an advanced degree.
(c) Satisfy the special departmental or school requirements as stated in Part Four of the Graduate Bulletin under "Fields of Study and Courses of Instruction."
(d) Meet the professional, personal, and scholastic standards for graduate study established by the Graduate Council.

Students admitted with graduate standing (classified) are admitted to authorized advanced degree curricula and may enroll in 600-numbered courses. Such admission does not imply that a student will be advanced to candidacy for an advanced degree.

Conditional Graduate Standing (Classified)

A student wishing to be admitted to a program of study leading to an advanced degree and meeting the criteria specified under General Requirements but having deficiencies in the criteria for graduate standing (classified) may be granted conditional graduate standing (classified), if the deficiencies can be met by specific additional preparation, including qualifying examinations. Students admitted with conditional graduate standing (classified) are admitted to authorized advanced degree curricula and may enroll in 600-numbered courses. Once the conditions established by the department or school have been met, the student will be accorded full graduate standing (classified).

A student who is already enrolled in the University with postbaccalaureate standing may request acceptance into an advanced degree curriculum with graduate standing (classified). Applications for such continuing students are available at the Graduate Division Office.

Withdrawal and Reinstatement

A graduate student who has begun work on a graduate degree and who was not in attendance or on official approved leave of absence during the semester preceding the semester in which he wishes to enroll must apply for readmission to the university.

Any graduate student whose performance is judged to be unsatisfactory by the Graduate Council may be required to withdraw from all graduate degree curricula offered by San Diego State University.

Advanced Degree Curricula

Requirements for the Doctor of Philosophy

The requirements for the Doctor of Philosophy degree are stated fully in the Graduate Bulletin.

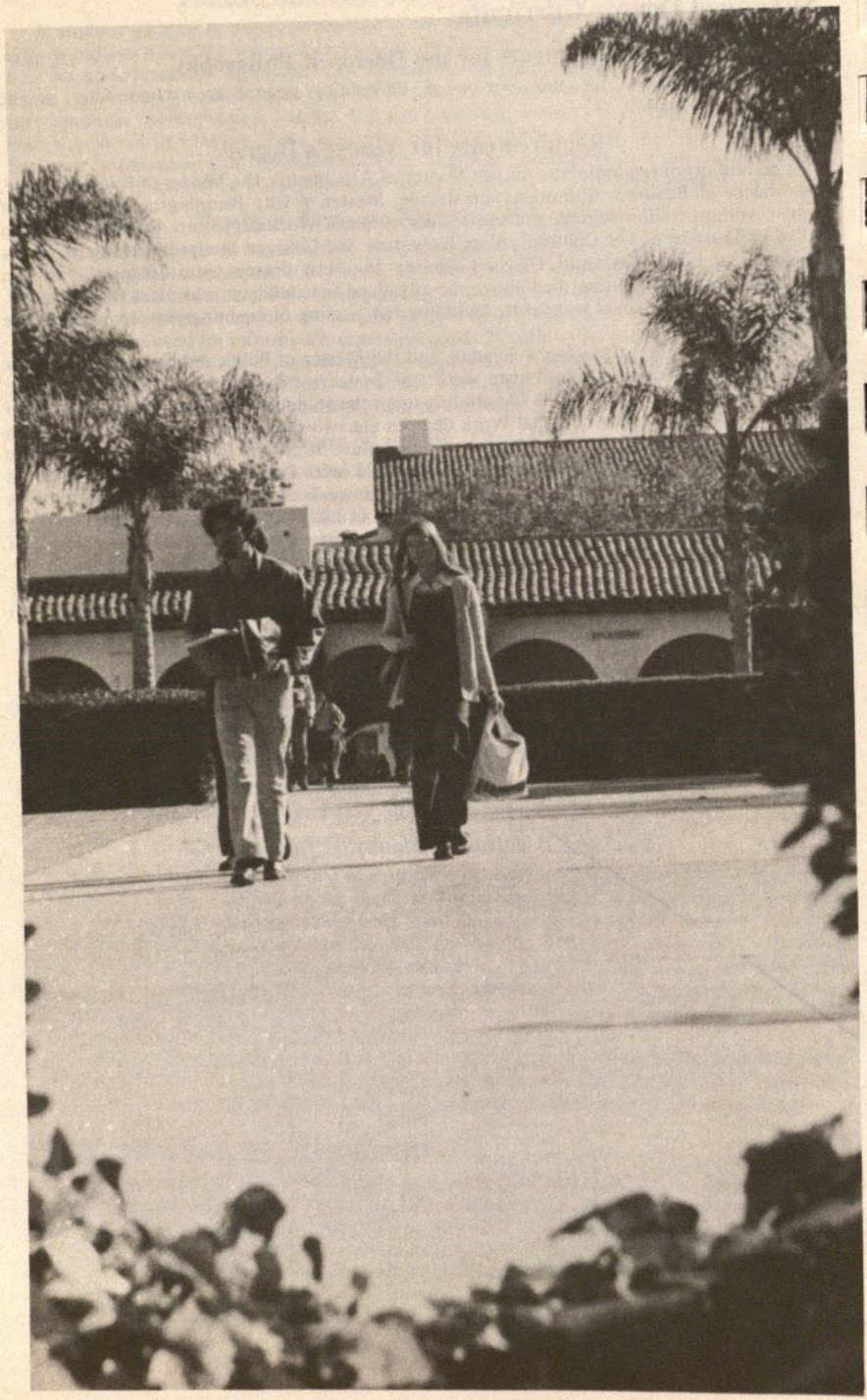
Requirements for Master's Degree

The minimum requirements for the Master of Arts degree, the Master of Science degree, the Master of Business Administration degree, Master of City Planning degree, Master of Public Administration degree, and the Master of Social Work degree are established by the Board of Trustees of The California State University and Colleges. Students seeking to enter a curriculum in the Graduate Division leading to these degrees must comply with the admissions procedures described above, be advanced to candidacy, and meet the scholastic, professional and personal standards, including the passing of examinations, required in the Graduate Division.

The Master of Arts, Master of Science, and the Master of Public Administration degrees require 30 semester units of graduate work; the Master of Business Administration degree requires between 30 and 60 units (depending upon the student's background); the Master of City Planning and Master of Social Work degrees are two-year degrees and each requires 56 units of graduate work. At least 30 units of work must be earned in residence at San Diego State University for the M.C.P. degree and at least 24 units for all other master's degrees. All acceptable credit must have been earned within seven years of the date when all requirements for the degree are completed. A grade point average of 3.0 (grade of B on a five-point scale) or better must be earned in (1) all programmed courses required for the removal of undergraduate deficiencies, (2) all programmed courses including courses accepted for transfer credit and courses taken concurrently with or subsequently to courses accepted for transfer, and (3) all numbered courses taken at San Diego State University concurrently with or subsequently to the earliest course listed on the official master's degree program.

Graduate Bulletin

Complete details on the operation and administration of these requirements, together with other administrative regulations on graduate study as determined by the Graduate Council, will be found in the Graduate Bulletin, which is available at the Graduate Division Office.



Nondegree Curricula

Preprofessional Programs

Preprofessional Programs

Entrance into professional schools is becoming increasingly competitive; therefore, it is imperative that students begin planning their curriculum at the earliest possible time in conjunction with the appropriate academic adviser.

Predental Curriculum

The predental program is pursued in conjunction with a degree program. Students ordinarily elect to concentrate in biology, chemistry or zoology, with a major in one area and selected course work in the others. Other departmental majors are permissible, however. Predental students must confer with a predental adviser prior to initial registration and at least once each semester regarding their progress, and to obtain approval for their program for the coming semester.

Regardless of the major predental students should include the following courses in their program: Biology 100, 100L, 215, 540; Zoology 503 or Biology 541; Chemistry 200A, 200B, 231, 431; Mathematics 150, 151; Physics 124A and 124B (with calculus basis), 125A and 125B or 195A, 195B, 195C.

In addition to the courses listed, the students must obtain specific course recommendations for predental students within the options of biology, chemistry or zoology. These can be obtained by writing the Office of the Assistant Dean of Student Affairs, College of Sciences, prior to registration at San Diego State University and preferably prior to completion of high school. The students are also expected to obtain information regarding the entrance requirements of the specific dental school he or she wishes to attend.

High school students planning to enter dentistry should include in their high school program the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics and two or three years of French or German.

Prelegal Curriculum

The prelegal program described here may be pursued in conjunction with a degree program. The recommended courses listed do not by themselves constitute a bachelor's degree, but they may serve to fulfill some graduation requirements. Students interested in the legal profession should inform themselves regarding the entrance requirements of the specific law school they hope to attend and choose courses specified by that college.

The following curriculum is designed to meet the requirements of standard American schools of law for a broad and liberal education, while at the same time providing desirable flexibility in the individual programs. There are two patterns of concentration which will usually be indicated for the prelegal student, either of which may be selected, in consultation with the adviser, to fit best the interests of the student. These are the major-minor pattern and the liberal studies major pattern. Subject to individual variation, the fields of economics, history, and political science should receive first consideration when choosing the pattern of concentration as being the most effective background for later professional study in law and for possible activities in the field of business.

The following courses of study are recommended. Lower division: Business Administration 210A-210B or 212, Economics 120 and 121, Political Science 110 and 120, and a year course in history. Upper division: In the junior and senior years students will plan their course with the counsel of their adviser in terms of the field of law in which they plan to work, but keeping in mind the entrance requirements and examinations for admission to schools of law. The following list should receive prime consideration by all prelegal students in the selection of courses, though it is to be thought of as flexible in accordance with student needs. Business Administration 323; Economics 370, 401, 490; History 521A-521B, 545A-545B; Political Science 501A-501B, 546, 547A. Additional: Economics 380, History 536 and 547A-547B, Political Science 348 and 547A.

In addition to the courses taken in the fields of concentration, upper division electives in English, philosophy, psychology, sociology, and speech communication are recommended. A mastery of English is essential. The approval of a prelegal adviser is required for all master plans. If the liberal studies major pattern of concentration is chosen, a copy of the master plan is to be filed with the Evaluations Office.

Premedical Curriculum

The premedical program is pursued in conjunction with a degree program. Students ordinarily elect to concentrate in biology, chemistry or zoology, with a major in one area and selected course work in the others. Other departmental majors are permissible, however, premedical students must confer with a premedical adviser prior to initial registration and at least once each semester regarding their progress, and to obtain approval for their program for the coming semester.

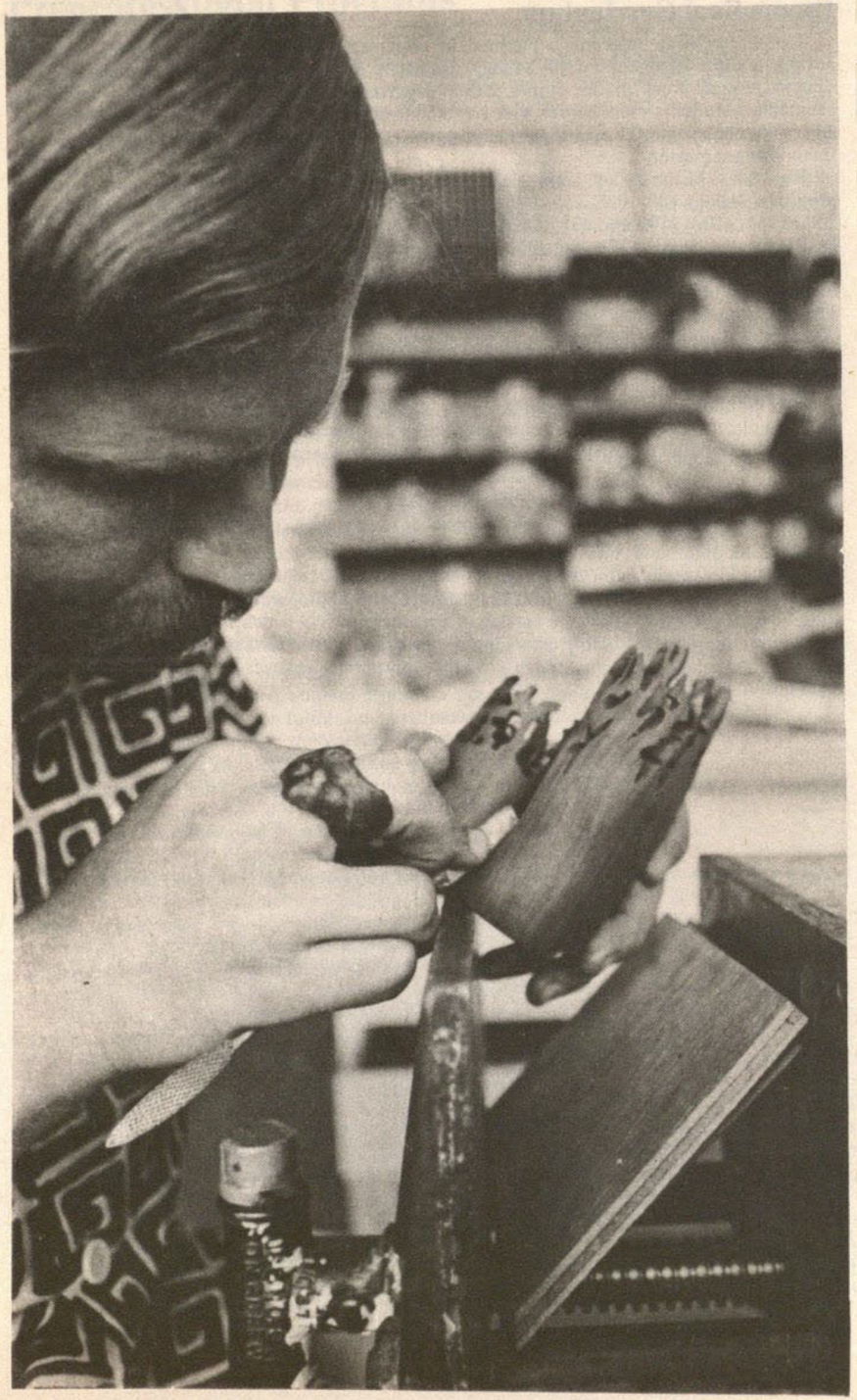
Regardless of the major, premedical students should include the following courses in their program: Biology 100, 100L, 215, 540; Biology 541 or Zoology 503; Chemistry 200A, 200B, 231, 250 or 251, 310A-310B and 431 or 410A-410B; Mathematics 150, 151; Physics 124A and 124B (with calculus basis), 125A and 125B or 195A, 195B, 195C.

In addition to the courses listed, the student should obtain specific course recommendations for premedical students within the options of biology, chemistry or zoology. These can be obtained by writing the Office of the Assistant Dean of Student Affairs, College of Sciences, prior to registration at San Diego State University and preferably prior to completion of high school. The students are also expected to obtain information regarding the entrance requirements of the specific medical school he or she wishes to attend.

High school students planning to enter medicine should include in their high school program the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics and two or three years of French or German.

Preparation for Other Professions

Full programs of professional study in other fields, such as agriculture, forestry, architecture, optometry, pharmacy, veterinary medicine and theology, are not available at San Diego State University. However, students who may wish to take some undergraduate work in liberal arts at this university can also begin coursework in preparation for such programs. The student is advised to consult the catalog of the university to which he expects to transfer to determine requirements before arranging the program. Further information may be obtained from the Assistant Dean of Students in the appropriate colleges or schools at San Diego State University.



Professional Curricula

School of Business Administration
School of Education
School of Engineering
School of Social Work

School of Business Administration

Departmental Organization

Five departments comprise the School of Business Administration: Accounting, Finance, Management, Marketing, and Information Systems. Each department offers its separate majors and minors.

Accreditation

The School is a member of the American Assembly of Collegiate Schools of Business.

Bureau of Business and Economic Research

The Bureau of Business and Economic Research is an organized research activity serving the needs of the School. Its chief purpose is to facilitate research by faculty and students in the areas of economics and business. For further information, see "Research Bureaus" in the catalog section, Introducing San Diego State University.

Courses in Business Administration

Courses in business administration are listed and described in the section of this catalog on Announcement of Courses.

The Master's Degree

The School of Business Administration offers the Master of Business Administration degree (a 30-60 unit program) and the Master of Science degree in business administration. Both degrees offer concentrations in ten areas. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

Departmental Majors and Minors

The following listed majors and minors are offered by the five departments in the School of Business Administration.

DEPARTMENT OF ACCOUNTING

Major in Accounting with the B.S. degree
Minor in Accounting

DEPARTMENT OF FINANCE

Majors with the B.S. degree in the following:
- Finance
- Insurance
- Real Estate

Minors in the following:
- Finance
- Insurance

DEPARTMENT OF MARKETING

Major in Marketing with the B.S. degree
Minor in Marketing

DEPARTMENT OF INFORMATION SYSTEMS

Major in Information Systems with the B.S. degree
Minor in Information Systems

DEPARTMENT OF MANAGEMENT

Major in Management with the B.S. degree
Minors in the following:
- Business Management
- Employee Relations
- Production and Operations Management

Graduation Requirements

The student must complete the requirements listed below for the bachelor's degree. (Refer to the section of this catalog on Graduation Requirements for specific information.)

1. A minimum of 128 semester units for the B.S. degree. No less than 40 percent of these units must be in business and economics, and no less than 40 percent must be in courses outside of the areas of business administration and economics.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 36 upper division units for the B.S. degree.
5. One major.
6. Satisfactory completion of competency tests in mathematics and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the university.
8. American institutions, to include competence in American history, institutions and ideals; U.S. Constitution; and California state and local government.
9. Forty units in general education exclusive of courses in the major.
10. Application for graduation.

The Major

Each major in business administration consists of a pattern of prescribed upper division courses. The minimum number of units required is stated in the description of each major.

Also required as preparation for the major are the lower division prerequisite courses. Some majors require additional courses in a prescribed pattern in areas other than the major.

Business administration majors are not required to complete a minor for the degree.

For information on general education and other degree requirements, refer to the section of this catalog on Graduation Requirements.

Any student majoring in Business Administration must make sure that 40 percent of the units counting toward graduation are taken outside of the fields of business and economics.

Majors

Accounting Major

With the B.S. Degree in Business Administration

Preparation for the major. Business Administration 140, 180, 210A-210B or 212, 290; Economics 120 and 121; Economics 142 or Mathematics 119 and Mathematics 120 or 150. (25-27 units.) Students who expect to use any course in Business Administration or Economics to meet general education requirements must complete compensating units in courses outside these areas.

Major. A minimum of 40 upper division units to include Business Administration 301 or 302, 310, 311, 312, 323, 350, 370, 410; Economics 320 or 321; and nine units selected from the following (must include one or more of listed accounting courses); Business Administration 314, 340, 411, 412, 414, 415, 417; and all upper division courses except those listed above in the Departments of Finance, Information Systems, Management, and Marketing.

In addition to units in general education and to upper division units in the major, nine upper division elective units outside of Business Administration and Economics are required. All courses in a foreign language are acceptable, but at least eight units must be taken in one language.

Finance Major

With the B.S. Degree in Business Administration

Preparation for the major. Business Administration 140, 180, 210A-210B or 212, 290; Economics 120 and 121; Mathematics 120 or 150; and Economics 142 or Mathematics 119. (25-27 units.) Students who expect to use any course in business administration or economics to meet general education requirements must complete compensating units in courses outside these areas.

Major. Forty upper division units to include Business Administration 301 or 302, 310, 323, 325, 327, 350, 370, 423; Economics 320, 321 and 490; at least three units selected from Business Administration 329 and 425; and three units of electives selected from business administration and economics courses with consent of the adviser. Fifty-two units (12 of which must be upper division) must be taken outside business administration and economics.

Information Systems Major

With the B.S. Degree in Business Administration

Preparation for the major. Business Administration 140, 180, 210A-210B or 212, 280 and 290; Economics 120 and 121; Economics 142 or Mathematics 119; Mathematics 120 or 150 (28-30 units.) Students who expect to use Economics 120 to meet general education requirements must complete compensating units in courses outside business administration and economics.

Major. A minimum of 34 upper division units to include Business Administration 301, 315, 323, 350, 360, 370, 380, 385, 480, 481 and 482; six units of electives selected from Business Administration 306, 327, 341, 352, 381, 390, 456 and 473.

General electives. In addition to the requirements for the major, the student must select 20 units to complete the required total; at least nine of the 20 units must be in upper division courses outside of business administration and economics.

Insurance Major

With the B.S. Degree in Business Administration

Preparation for the major. Business Administration 140, 141, 180, 210A-210B or 212, 290; Economics 120 and 121; Economics 142 or Mathematics 119 and Mathematics 120 or 150. (28-30 units.) Students who expect to use any course in business administration or economics to meet general education requirements must complete compensating units in courses outside these areas.

Major. Thirty-nine upper division units, to include Business Administration 301 or 302 and 323, 342, 346, 348, 350, 370, 441, 443; and 12 units selected from Business Administration 315 or 410, 325 or 327, 341 or 456, 344, 352, 385, 425, 445, 473 or 479, and Economics 490. Fifty-two units (12 of which must be upper division) must be taken outside of business administration and economics.

Management Major

With the B.S. Degree in Business Administration

The major in management is a flexible program which allows the student to either obtain a broad background in the nature of organizations, their operation, structure, behavior and environment; or concentrate in one of the areas of Human Resources Administration, Production and Operations Management, or Management Science. Students must complete all three of the following requirements.

(1) Professional Curriculum Within the Major Field

Preparation for the major. Business Administration 140, 180, 210A-210B or 212, 290; Economics 120 and 121; Mathematics 119 and 120 or 150. (25-27 units.)

Major. Business Administration 301 or 302, 315, 323, 350, 351, 352, 360, 370, 456, 459. (31 units.)

(2) Areas of Concentration Within the Major Field

Select 18 units from one of the areas below. No units taken in the major above may be included in these 18 units.

(a) Business Management: (1) Decision techniques—six units from Business Administration 301 or 302, 325, 380, 412, 460, 462, 463, 470, 480, 481, or Economics 447, and (2) Organization behavior—six units from Business Administration 452, 453, 461, 473, Psychology 320, 321, 325, 405, or Sociology 422, 432 or 548, 520, and (3) Organizational Environment—six units from Business Administration 329, 340, 341, 371, 373, 376, 423, 425, 458, 479; Economics 370, 380; History 535A-535B; Sociology 401, 404.

(b) Human Resources Administration: (1) Six units of Business Administration 452 and 453, and (2) six units from Business Administration 344, 461; Economics 380, 482 or 483; and (3) six units from Psychology 320, 326, 405, 452, 487; Sociology 520, 521.

(c) Production and Operations Management: (1) Six units of Business Administration 460 and either 461 or 462, and (2) six units from Business Administration 325, 374, 375, 412, 452, 474; Economics 380, and (3) six units from Business Administration 301 or 302, 380, 463, 480, 481; Economics 447, 476, 541.

(d) Management Science: (1) Six units of Business Administration 301 or 302, plus 463, and (2) six units from Business Administration 380, 412, 460, 462, 470, 480, 481, and (3) six units from Economics 447, 541; Mathematics 552, 553, 541A-541B, 550.

(3) Pattern Requirements Outside the Department of Economics and the School of Business Administration

A minimum of 16 units of pattern requirements must be taken. Courses taken to satisfy this requirement must be upper division courses except as listed below. All such courses are in addition to and may not be used to satisfy any requirements in general education nor may they be used to satisfy requirements in (1) and (2) above.

This requirement may be satisfied in any one of the following three ways:

(1) By taking a minimum of eight units in the areas of Life, Physical and Social Sciences as indicated in (a) below and a minimum of eight units in the areas of Humanities and Fine Arts as indicated in (b).

(a) Life science, physical science, and social science. A minimum of eight units, to be selected with the approval of the departmental adviser, from *one* department in the College of Sciences or the departments of Geography, Political Science, and Sociology. All upper division courses in the specified departments are suitable as well as the following lower division courses: Chemistry 200A-200B, 250 or 251; Mathematics 151 and 152; Physics 195A-195B-195C.

(b) Humanities and fine arts. A minimum of eight units, to be selected with the approval of the departmental adviser, from *one* department in the College of Arts and Letters (except Economics, Geography, Political Science, and Sociology) or the College of Professional Studies (except Aerospace Studies, Industrial Studies and Physical Education). All upper division courses and the following lower division courses are suitable: Art 157, 258, 259, 264, 265, Speech Communication 104 and 160. All courses in a foreign language are acceptable, but at least eight units must be taken in one language.

(2) A minor in a department outside of Business Administration and Economics consisting of at least 16 units (no more than six units of which may be lower division units).

(3) A pattern of courses outside Business Administration and Economics (at least 16 units) from a number of departments which fits the requirements of the individual student and is approved *in advance* by the student's adviser and filed with the Evaluations Office. (No more than six units may be in lower division courses.)

Marketing Major

With the B.S. Degree in Business Administration

Preparation for the major. Business Administration 140, 180, 210A-210B or 212, 290; Economics 120 and 121; Mathematics 120 or 150, and either Economics 142 or Mathematics 119. (25-27 units.) Students who expect to use any course in Business Administration or Economics to meet general education requirements must complete compensating units in courses outside these areas.

Major. A minimum of 37 upper division units to include Business Administration 301, 323, 350, 370, 371, 470, 471, and 479; nine units selected from Business Administration 372, 373, 374, 375, 376, 472, 473, 474, 475, and 476; and six units of electives selected from remaining upper division business administration courses. In addition to the upper division units in the major and in general education, 12 upper division elective units outside business administration and economics are required.

Real Estate Major

With the B.S. Degree in Business Administration

Preparation for the major. Business Administration 140, 141, 180, 210A-210B or 212, 231, 290; Economics 120 and 121; Economics 142 or Mathematics 119, and Mathematics 120 or 150. (31-33 units.)

Students who expect to use Economics 120 to meet general education requirements must complete compensating units in courses outside business administration and economics.

Major. A minimum of 36 upper division units to include Business Administration 301 or 302, 323, 331, 335, 350, 370, 433, 437; Public Administration and Urban Studies 320; and 12 to 13 units selected from Business Administration 315, 333, 342, 373, 410, 431, 435, 441; Economics 422, 490, 559; Geography 354, 559. Fifty-two units must be taken outside of Business Administration and Economics.

Minors

These minors are for students whose majors are outside of business administration. They all require Business Administration 210A-210B or 212.

Accounting: Fifteen units required of which 11 must be upper division, including Business Administration 310.

Business management: Nineteen units required, including Economics 120 and 121, Business Administration 210A-210B or 212, 350; and six units from Business Administration 351 or 352, 360, 456.

Employee relations: Nineteen units required, including Economics 120 and 121, Business Administration 210A-210B or 212, 350, 352, and three units from Business Administration 351, 452, or 453.

Finance: Sixteen units required, including Business Administration 210A-210B or 212, 323, 327, and 329; Mathematics 119.

Information systems: Nineteen units required, including Business Administration 180, 280, 380, 480, 481, and Mathematics 120 or 150.

Insurance: Fifteen units required, including Business Administration 140, 342, 348, 441 or 443, and three additional upper division units in business administration with consent of insurance adviser.

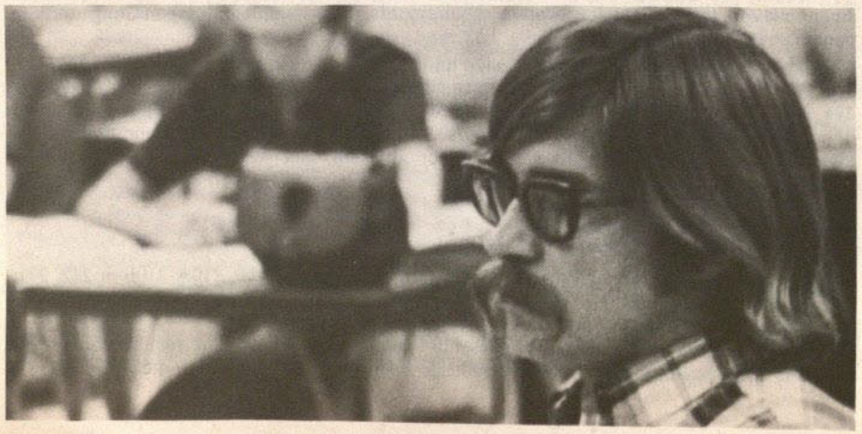
Marketing: Twenty-one units required, including Business Administration 370, 371, and 9 units selected from Business Administration 301, 372, 373, 374, 375, 376, 470, 471, 472, 473, 474, 475, 476, and 479; Economics 120 and 121.

Production and operations management: Nineteen units required, including Business Administration 210A-210B or 212, 350, 360, and Economics 120 and 121, and three units from Business Administration 460, 461, or 462.

Business Major

For the Single Subject Teaching Credential

All candidates for the Single Subject teaching credential in business must complete all requirements for the applicable specialization as outlined in this section of the catalog on the School of Education. Students must complete the requirements of a major in one of the five departments within the School of Business Administration. In consultation with the Coordinator of Teacher Education in the School of Business Administration, undergraduate students shall develop programs which fulfill the State credential requirements.



School of Education

Accreditation

The School is a member of the American Association of Colleges for Teacher Education. It is fully accredited by the California Commission for Teacher Preparation and Licensing, the California State Board of Education and the National Council for the Accreditation of Teacher Education.

Bureau of Educational Research and Evaluation

The Bureau of Educational Research and Evaluation is an organized service and research activity of the School of Education. Its chief purposes are to facilitate research by faculty and students in the area of education and to provide services to schools and colleges in the field of education. For further information, see "Research Bureaus" in the catalog section, Special Programs and Services.

Courses in Education

Courses in education are described in the section of this catalog on Courses and Curricula.

Degrees

Master's Degree

The Master of Arts degree in education with concentrations in 11 areas and a Master of Science degree in counseling and a Master of Science degree in rehabilitation counseling are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

Bachelor's Degree

Graduation Requirements. Requirements for graduation with a bachelor's degree are outlined in the section of this catalog on Graduation Requirements.

Bachelor of Vocational Education Degree. The Bachelor of Vocational Education degree is currently offered to vocational teachers of California who are recommended by the Board of Examiners for Vocational Education.

New Credentials

Assembly Bill 122 (Ryan Bill) has changed the credential structure in the State of California. Students who did complete credential requirements by September 14, 1974, should consult with departmental advisers in order to determine their status and needed requirements. Information on these new credentials is available in the offices of the several departments of the School of Education. The multiple subjects credential (elementary), and the single subject credential (secondary), together with the specialist credentials listed below, have been approved by the Commission for Teacher Preparation and Licensing.

Specialist Credentials*
Early Childhood
Bilingual/ Cross-Cultural
Special Education
Reading Specialist

Services Credentials*
Administrative Services

The following credentials are in a stage of development:
Library Services
Pupil Personnel Services

*These credentials may be obtained only after completion of the single subject or multiple subjects credential.

Credentials

Anyone wishing to teach or provide other types of professional service in the public schools of California must hold a valid teaching/ service credential. Assembly Bill 122 has markedly changed the requirements for credentials in the state. Some of these new credential programs have been defined (see below). Others are in a state of development, see page 99. Students are advised to consult with the department in which they are interested to obtain advising that is current.

List of Credentials	School Service Authorized
1. Multiple subjects credential	Teach in any self-contained classroom kindergarten through twelfth grade.
2. Single subject credential	Teach single subject area in grades K through 12.

Fisher Credentials*

List of Credentials	School Service Authorized
(1) A standard teaching credential with specialization in:	
(a) Elementary Teaching	Teach kindergarten and grades one through nine
(b) Secondary Teaching	Teach major and minor in grades seven through twelve

The following applies to both (a) and (b).

By completing specialized preparation, additional authorization may be earned in: (1) *Specialization in Teaching of Exceptional Children*, authorizing teaching in the area of mentally retarded in kindergarten and grades one through fourteen; and (2) *Specialization in Librarianship*, authorizing service as librarian and teaching of librarianship in kindergarten and grades one through fourteen. (3) *Specialization in Area of Deaf and Severely Hard of Hearing*, authorizing teaching in the area of deaf and severely hard of hearing in kindergarten and grades one through fourteen.

(2) The Community College Instructor Credential	Teach in grades thirteen and fourteen, any course in an occupational or subject matter area which appears on the credential document
(3) A standard designated subjects credential	Teach trade or technical courses at grade levels specified on the credential
(4) A standard designated services credential	Perform pupil personnel services or health services as specified on the credential
(5) A standard supervision credential	Serve as supervisor, consultant, or other intermediate administrative position including school principal
(6) A standard administration credential	Serve as a district superintendent or in intermediate level administrative positions, including those services authorized by the standard supervision credential
(7) A restricted credential	Serve as a speech and hearing specialist at all grade levels.

Admission to Teacher Education

Application for Admission

Students who plan to enroll in a credential program must make application for admission to that program through the appropriate department. The Multiple Subjects Credential is to be completed through the Elementary Education Department; the Single Subject Credential through the Secondary Education Department.

*Only students who are able to complete these Fisher credentials by September 14, 1974, or who meet special requirements of the Commission on Teacher Preparation and Licensing, are eligible for Fisher Credentials.

Standards for Admission

Multiple Subjects Credential (Elementary Education)

1. **Formal application** to the education program must be filed sometime after completing 45 units of college work.
2. **Written recommendations.** Applicants will be required to provide two written character references from persons not related to them. These recommendations will be included in the applicant's folder and will be examined by the Admissions Committee.
3. **Prior experience with children and youth groups.** Applicants will provide evidence of having had experience with children and youth groups. Such evidence will consist of a signed (by applicant) statement, describing the experience and including the place and approximate dates of the experience. For applicants not having such experience working with children, a laboratory activity course providing such experiences will be required prior to admission into the professional preparation sequence.
4. **Successful completion of the Reading Comprehension and Writing Competency Tests.** These tests are offered several times each year. Consult the Class Schedule or the bulletin board outside Education 100 for dates and time.
5. **Health clearance.** To meet the specific requirements for authorization for student teaching, a medical examination must be completed. This examination is in addition to the medical required for admission to the University.
6. **Interview.** Interview(s) with faculty members of the Department of Elementary Education should be scheduled during the weeks following the application period. (See application packet for specific dates.)
7. **Student teaching application.** Application for a student teaching assignment must be filed during the semester prior to beginning student teaching.
8. **Grade point average.** A 2.20 GPA (overall) is required for admission to the program. Once admitted, a 2.20 GPA must be maintained in the professional education courses and in overall college work to remain in the program. Transfer students must have copies of their transcripts forwarded to the Elementary Education Department.
9. **Planned program appointment.** After completion of 45 college units, each student should sign up for an appointment with a faculty adviser to work out a planned program.
10. **Prerequisite courses.** The following lower division courses are required for admission to the program. Admission priority will be given to students who have completed all of the prerequisites.
    Health Science and Safety 101, "Principles of Healthful Living" ..... 2 units
    Mathematics 210A, "Structure and Concepts of Elementary Mathematics" ... 3 units
    Music 102, "Basic Musicianship for Non-Music Majors" ..... 3 units
    Physical Education 153, "Physical Education of Children" ..... 2 units
11. **Major.** The new credential legislation (Ryan Act) permits a student to use any major listed in the college catalog. The student must, however, demonstrate by examination his knowledge of the content of the subjects commonly taught in the elementary school. Currently, the NTE Common Exam (National Teachers Examination, Common Knowledge Section only) is being administered. Information regarding this test may be obtained through the Test Office.
    The recently defined Liberal Studies Major (diversified major) may be selected for the teaching credential. Completion of this major exempts the teacher candidate from the NTE examination. (See the Liberal Studies Information Packet available in Room ED-100.)

Standards for Admission

Single Subject Credential (Secondary Education)

1. A prerequisite course: "The Secondary School," Secondary Education 400.
2. Academic achievement: Acceptable GPA, 2.5 overall and 2.75 in the major.
3. Satisfactory written recommendations from:
   (a) Instructors in Secondary Education 400.
   (b) Student's major department verifying the student's competency in the major and suitability for the profession.
   (c) Participating teacher or director of school or community facility in field experience.

4. Successful completion of the English Proficiency Examination or its equivalent, and demonstrated ability to communicate effectively verbally and in writing.
5. Successful clearance of Health Examination.
6. Formal application to the program by the student in the Secondary Education 400 class.
7. Absence of criminal conviction which would preclude credentialing.
8. Health Science and Safety 321, Adolescent Health, is required.

New Students Who Seek to Complete a Credential

Teachers with a provisional credential or partial fulfillment of requirements credential who are working toward a regular credential may have a program designed to fit their background. Evaluation of college credit completed to date, and arrangements for programming should be made through the Admissions Office of the School of Education.

Advanced Standing in Teacher Education

A student transferring into San Diego State University with advanced standing must complete a minimum of six units of professional education work in residence at this university in order to obtain a recommendation for a credential, regardless of the extent of education work already completed elsewhere.

Evaluation of Credits

After an interval of five years, courses in education are reevaluated and subject to reduction in credit, in light of new requirements and changes in educational procedures. All courses taken either at this university or elsewhere must be approved by an official adviser in order to be credited toward meeting credential requirements or pattern requirements for a degree.

Multiple Subjects Teaching Credential

Multiple Subjects (Elementary) — Clear

Persons interested in teaching in the elementary school will typically pursue the multiple subjects credential which authorizes the holder to teach in any self-contained classroom, classrooms in which one teacher is responsible for all the subjects commonly taught in the elementary schools. Attainment of this credential requires:

1. A bachelor's degree (or higher) with any major other than education.
2. Completion of a fifth year of study (30 units of upper division or graduate units).
3. Completion of an approved program of professional education including 15 units of course work and 16 units of student teaching (see Department of Elementary Education for further information about the approved programs).
4. Passage of subject matter examination(s) or waiver thereof through Liberal Studies major.
5. Knowledge of methods of teaching reading.
6. Three years of successful teaching.

Multiple Subjects (Elementary) — Preliminary

An applicant may be granted a preliminary teaching credential if the applicant has met all the requirements listed above except for completion of the fifth year of study. Thus, a person whose program allows him to meet these requirements would be eligible for a preliminary credential at the same time he finishes his four-year college program. During the next five years, however, such persons must complete the 30 units (the fifth year of study) in order to become eligible for the "clear" credential.

Description of Interdepartmental Major for Elementary Teaching

Liberal Studies Major

With the A.B. Degree in Applied Arts and Sciences and in Liberal Arts and Sciences

The liberal studies major offers a general type of education leading to objectives not otherwise provided in the regular programs of the university. Students electing this major must declare it prior to satisfactory completion of 90 semester units.

Option 1. This program is available to all students but is not acceptable for the Multiple Subjects credential. Information regarding this option is presented in the Interdisciplinary Programs section of this catalog.

Option 2. Liberal Studies with the A.B. Degree in Applied Arts and Sciences

The student taking this option selects courses to extend his background in the four multiple subjects groups of knowledge identified as follows (not more than 30 units may be taken for credit toward this major in any one department or area):

Group A: English (including courses in grammar, literature, composition) and speech. This group includes the following areas: (1) Afro-American Studies (English and speech only); (2) comparative literature; (3) English, i.e., American literature, British literature, and creative writing; (4) journalism; (5) linguistics; (6) Mexican-American Studies (English and speech only); (7) speech communication, plus (8) speech pathology and audiology.

Group B: Mathematics and science (physical sciences or life sciences). This group includes the following areas: (1) geography (101, 103, 104, 105 only); (2) the life sciences, i.e., biology, botany, microbiology, zoology; (3) mathematics; (4) the physical sciences, i.e., astronomy, chemistry, geology, oceanography, physical science, physics; (5) psychology.

Group C: Social sciences. This group includes social science courses only in the following areas: (1) Afro-American Studies; (2) anthropology; (3) economics; (4) family studies and consumer sciences; (5) geography; (6) health science and safety; (7) history; (8) Mexican-American Studies; (9) political science; (10) social welfare; (11) sociology; (12) women's studies.

Group D: Humanities and fine arts (including foreign languages). This group includes the following areas: (1) Afro-American Studies (humanities and fine arts only); (2) art; (3) drama; (4) foreign languages and literatures, i.e., classical and oriental, French and Italian, German and Russian, Spanish and Portuguese; (5) humanities; (6) Mexican-American Studies (humanities and fine arts only); (7) music; (8) philosophy; (9) religious studies; (10) women's studies (humanities and fine arts only).

Preparation for the major.*

Group A: Fifteen units of approved course work to include: a three-unit course in composition; a three-unit course in literature; a three-unit course in speech communication; a three-unit course in linguistics; and three additional units of course work selected from the areas listed under Group A above.

Group B: Fifteen units of approved course work to include: six units of mathematics**; three or more units of life science***; three or more units of a physical science; and additional units from areas listed under Group B for a minimum of fifteen units.

Group C: Fifteen units of approved course work to include: course work to satisfy "American Institutions" requirements; and additional units of course work selected from the areas under Group C.****

Group D: Fifteen units of approved course work to include: three units of art; three units of music*****; three units selected from drama, humanities, philosophy or religious studies; and additional units of course work selected from areas under Group D.

*Includes all graduation requirements except physical education. (Students who plan to enter elementary education must take Physical Education 153 in lieu of one of the physical education activity units for General Education.)
**Mathematics 210A-210B is required for students who plan to enter elementary education.
***One course in either physical or life science must include a laboratory.
****Health science and safety is required for students who plan to enter elementary education.
*****Music 102 is required for students who plan to enter elementary education.

Major. A minimum of 30 upper division units to include: a 15-unit concentration in one of the four groups; the additional 15 units distributed among the three remaining groups with no less than three units in each of the groups.

The Liberal Studies Major Option 2 is recommended for students who plan to enter elementary education. It meets all requirements for the multiple subjects/ diversified major as specified in the Ryan Bill. Students planning to enter elementary education must consult and secure program approval from an adviser in the Department of Elementary Education. See advising brochure available in Elementary Education Office for acceptable courses for students planning to enter elementary education.

Single Subject Teaching Credential

Single Subject (Secondary) — Clear

Persons interested in teaching in the secondary school will typically pursue the single subject credential which authorizes the holder to teach K-12 in any of the subjects indicated below. Attainment of this credential requires:

1. A bachelor's degree (or higher) with any major other than education.
2. Completion of a fifth year of study (30 units of upper division or graduate units).
3. Completion of an approved program of professional education. The required courses are Secondary Education 400, 401, 402, 404, 405, 406, 407.
4. Passage of subject matter examination(s) or waiver thereof.
5. Knowledge of methods of teaching reading. (Except for majors in music, art and physical education.)

Single Subject (Secondary) — Preliminary

An applicant may be granted a preliminary teaching credential if all the requirements listed above have been met except for completion of the fifth year of study and/ or three years of successful teaching experience. Thus, a person whose program allows him to meet these requirements would be eligible for a preliminary credential at the same time he finishes his four-year college program.

Acceptable Single Subject Areas

Art
Business
English
Foreign Languages
Government
History
Home Economics
Industrial Arts
Life Sciences
Mathematics
Music
Physical Education
Physical Sciences
Social Sciences

The Community College Instructor Credential

Specific Requirements

1. An associate degree in which the student can establish four years of occupational experience in a subject matter area plus 12 units in designated courses on the community college.
2. A baccalaureate degree in which the student can establish two years of occupational experience and a major or minor in a subject matter area related to this occupational experience plus six units in designated courses on the community college.
3. A master's degree in a subject matter area designated in Title 5, Section 5, #52210 (subjects commonly taught at a community college).

Baccalaureate Degree Candidates

Education 380, 381, 382 and 565 are offered to students who have had occupational experience and have been recommended by the following departments: Industrial Studies, Recreation, Family Studies and Consumer Sciences, Criminal Justice Administration, Health Science and Safety, Microbiology, Nursing, Public Administration and Urban Studies, Social Welfare, Telecommunications and Film and the School of Business Administration. Students may also enroll if they presently hold a partial credential in an occupational area or obtain an endorsement by the Dean of Occupational Education in a California community college. Early consultation with the Higher Education Programs Coordinator is recommended.

Master's Degree Candidates

No formal courses in education are required under the current interpretation of the Education Code. The program is elective and selective. It is strongly suggested, however, that graduate students enroll in the professional courses in teacher education in order to enhance employment possibilities as most community colleges require some professional preparation and/ or experience. Students desiring further information are urged to consult the Higher Education Programs Coordinator, Room 129, Education Building. Admission to Education 700 is based upon successful completion of Education 666 (not required for psychology majors) and Education 680 and selection by the Community College Admission Committee.

Most departments on the San Diego State University campus have developed programs permitting graduate students to obtain the master's degree and enroll in the education courses concurrently in as little as one year of full-time study. The courses in education are typically offered in the summer session and after three o'clock in regular semesters.

The following courses are suggested to enhance employment in the community college:

Education 630 Instructional Methods and Materials Community College (2)
Education 666 Educational Psychology: Community College (2)
Education 680 The Community College (3)
Education 700 Directed Teaching (4)

NOTE: Directed teaching can be accomplished only in a community college day assignment and not in summer session.

Teacher assistants or others now teaching in secondary school who cannot enroll in the student teaching sequence are urged to enroll in Education 688, Workshop in Community College Education (2-6).

Bachelor of Vocational Education Degree

The Bachelor of Vocational Education degree is designed for teachers who are teaching in a vocational education program either in the secondary school or in the community college, and qualify for a Swan Bill evaluation through the State Board of Vocational Examiners in Sacramento. To qualify for the evaluation the requirements of the State Education Code, Section 23956 must be met. This regulation stipulates a minimum period of vocational teaching experience amounting to 1,620 clock hours in a full-time position or 1,000 clock hours in an approved trade technical extension class. Additional information concerning this degree may be obtained from the Coordinator of Higher Education Programs, ED-129.

School of Engineering

Accreditation

The undergraduate curriculum in Engineering, with options in aerospace, civil, electrical and mechanical engineering, is accredited by the Engineers' Council for Professional Development.

Courses in Engineering

The School of Engineering offers courses at the undergraduate and graduate levels. These individual courses are described in the section of this catalog on Announcement of Courses. At the undergraduate level, the School prescribes certain patterns of its courses, combined with those of other academic divisions of the university, as a program of 132 semester units leading to the degree, Bachelor of Science in Engineering. This program is described in detail below. At the graduate level, the School offers the Master of Science degree in specific major fields of engineering.

Graduate Program

The Master of Science degree is offered in aerospace, civil, electrical and mechanical engineering. For further information, refer to the Graduate Bulletin and to the section in this catalog on the Graduate Division.

Undergraduate Program

The objective of the engineering program at San Diego State University is to provide the intellectual and physical environment best calculated to encourage students to develop their capacities toward a successful career in the profession of engineering. The graduate of this program is able to assume personal responsibility for the development and application of engineering knowledge with wisdom and judgment for the benefit of mankind. He is qualified to take the Engineer-in-Training examination as a first step to professional registration, to enter industry at the junior engineer level, or to continue his formal education at the graduate level. Because the engineer's work is predominantly intellectual and varied, and not of a routine mental or physical character, this program places emphasis on the mastery of a strong core of subject matter in the physical sciences, mathematics, and the engineering sciences of broad applicability. Woven throughout the pattern is a continuing study of the sociohumanistic facets of our civilization, because the engineering graduate must expect to find his best expression as a leader of men, conscious of the social and economic implications of his decisions.

Although the profession of engineering presents in practice a variety of specialties, the undergraduate student confines his attention during the first two years of the four-year program to a common pattern of course work in fundamentals. During his junior and senior years he may give outlet to his interest in a broad field of engineering by electing course work in aerospace, civil, electrical or mechanical engineering. Even here, during this upper division work, the student is involved with his fellows in the study of a common core of the engineering sciences; these courses, together with those elected in a specialty field, are taught with an emphasis on universal application and cross-fertilization of thought.

Requirements for the B.S. Degree in Engineering

Graduation Requirements

1. A minimum of 132 semester units for the B.S. degree in engineering.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this university.
4. At least 36 upper division units. (However, a typical program usually consists of at least 53 upper division units.)
5. A major in engineering as prescribed by the School.

6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the university.
8. American institutions, to include competence in American history, institutions and ideals; U.S. Constitution; and California state and local government.
9. Forty units in general education courses in addition to the major, distributed as prescribed in the section of this catalog on Graduation Requirements.
10. Application for graduation.

Major in Engineering

The major consists of 53 upper division units in a prescribed pattern. The program of study for the first two years is the same for all students in the school; thereafter there is differentiation according to the student's selected field of specialization. The requirements are as follows:

Lower Division Requirements

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Chem. 200A, General	5	*Chem. 201, Chem. for Engrs.	3
Math. 150, Single Variable Calc.	5	Math. 151, Calc. and Linear Alg.	4
Engr. 100, Intro. to Engineering	2	Engr. 150 or 151	2
Engl. 100, or Phil. 120	3	Engr. 160, Engr. Meas. Anal.	2
P.E. Activity	1	Engr. 170, Engr. Prob. Anal.	2
		Biol. 100, General Biology	3
		P.E. Activity	1
	16		17

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Math. 152, Multivariable Calc.	4	Phys. 195C, Principles	4
**Phys. 195E, Principles	4	Engr. 250, Engr. Mech. II	3
Engr. 200, Engr. Mech. I	3	Engr. 260, Electric Circuits	3
Engr. 210, Engr. Materials	3	Speech Communication 103	2
American Institutions	3	American Institutions	3
		Free Elective	2
	17		17

NOTE: Community college students who anticipate transferring to this institution in engineering are urged to remain at the community college to complete the lower division requirements in chemistry, engineering, mathematics and physics insofar as these courses are offered by the community college in question.

Upper Division Requirements

The program of study for the last two years embraces the fundamental engineering sciences and their application to specific problems in selected fields of engineering practice, together with an opportunity for the student to approach an intellectual maturity in social, economic, ethic and aesthetic thought.

The student must complete (1) the upper division requirements for all students; (2) the requirements of the selected field of specialization in accordance with an approved master plan filed during the first semester of the junior year; and (3) the remaining units of general education.

Recommended patterns in the four fields of specialization are shown below.

*Chemistry 200B, General, may be taken as equivalent to Chemistry 201.
**Physics 195A plus Physics 195B may be taken as equivalent to Physics 195E. See course description before enrolling.

Aerospace Engineering

Each student with the option in Aerospace Engineering includes in his program a sequence of fundamental courses. In addition the student has the opportunity to satisfy his particular areas of interest by selecting a pattern of study indicated in the sequence below as "electives within major." This pattern may include typical aerospace engineering topics, such as aerospace vehicle design, performance, structural analysis, aerodynamics, and propulsion; some elective opportunity is also available in other disciplines at this university. *The student's choice of elective courses must be made in consultation with his adviser and documented by the filing of an approved master plan during the first semester of his junior year.*

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 302, Fluid Mechanics	3	Engr. 381, High Speed Aerodynamics	3
Engr. 302L, Fluid Mech. Lab.	1	Engr. 386A, Aero. Struct. Anal. I	3
Engr. 306, Int. to Solid Mech.	3	Engr. 390, Aero. Flight Mech.	3
Core Laboratory	1	Engr. 382, Exp. Aerodynamics	2
Engr. 380, Low Speed Aerodynamics	3	Engr. 501, Methods of Analysis	3
Engr. 301, Methods of Analysis	3	General Education	3
General Education	3		
	17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 386B, Aero. Structural Analysis II	3	Engr. 493, Aircraft Stability and Control	3
Engr. 491A, Aero. Engr. Appl.	2	Engr. 491B, Aero. Engr. Appl.	2
Core Elective	3	*Electives within major	7
*Electives within major	5	General Education	3
General Education	3		
	16		15

Civil Engineering

All students in the Civil Engineering option pursue a common program of civil engineering fundamentals. In addition the student is provided with the opportunity to select a pattern of study to satisfy his areas of interest. This pattern of study is indicated in the sequence below as "electives within major" and may be selected from available courses in foundation, structural, environmental, transportation, or water resources engineering; computer programming; advanced surveying; engineering economics; and other areas. *The student's choice of elective courses must be made in consultation with his adviser and documented by the filing of an approved master plan during the first semester of his junior year.*

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 301, Methods of Analysis	3	Engr. 302, Fluid Mechanics	3
**Engr. 305, Thermodynamics and Heat Transfer	3	Engr. 302L, Fluid Mech. Lab.	1
Engr. 306, Introduction to Solid Mechanics	3	**Engr. 303, Electronics, Instrum. and Elect. Energy Conv.	3
Engr. 306L, Solid Mechanics Lab.	1	Engr. 310, Struct. Anal. I	4
General Education	6	Engr. 318, Surveying	3
	16	Geol. 153, Gen. Geol. for Engrs.	1
			15

*Approved as part of the student's master plan.
**Or restricted elective.

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 414, Water Res. Engr.	2	Engr. 410, Reinf. Concrete	3
Engr. 416, Soil Mechanics	3	*Electives within major	11
Engr. 420, Transportation Engr.	3	General Education	3
*Electives within major	6		
General Education	3		
	17		17

*Approved as part of the student's master plan.
**Or restricted elective.

Electives within major must be approved as part of the student's master plan. A partial list of courses from which electives may be chosen follows:

Engr. 400. Intermediate Engineering Problem Analysis	3
Engr. 401. Principles of Engineering Economy	3
Engr. 411. Civil Engineering Structural Design	3
Engr. 415. Water Resources Engineering	2
Engr. 417. Foundation Engineering	3
Engr. 421. Highway Engineering	3
Engr. 496. Advanced Engineering Topics—See Dept. List	3
Engr. 499. Special Study	
Engr. 510. Structural Analysis II	3
Engr. 514. Sanitary Engineering	3
Engr. 518. Advanced Surveying and Photogrammetry	3
Engr. 521. Highway Materials	3

Electrical Engineering

All students with the option in Electrical Engineering include in their programs a sequence of courses designed to develop an understanding of the basic principles, laws and methodology of Electrical Engineering. The student, through the proper selection of electives, has the opportunity to develop proficiency in his area of special interest. This pattern of study is indicated in the sequence below as "electives within major" and may be selected from available courses in communications, control systems, microwave circuits, digital systems, power systems and solid state electronics. *The student's choice of elective courses must be made in consultation with his adviser and documented by the filing of an approved master plan during the first semester of his junior year.*

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 301, Methods of Analysis	3	*Engr. 354, Elect. and Mag. Fields or	
Engr. 350, Elect. Energy Conv.	3	*Engr. 370, Log. Des. and Swi. Circ. or	
Engr. 350L, Elect. Energy Conv. Lab.	1	Engr. 467&467L, Contr. Comp. and Lab.	3-4
Engr. 351, Network Analysis	3	Engr. 361, Adv. Network Anal.	3
Engr. 352, Funds. Engr. Electr.	3	Engr. 362, Analysis & Des. of Elect. Circuits	3
Engr. 352L, Engr. Electronics Lab.	1	Engr. 362L, Electronic Circ. Lab.	1
General Education	3	***Core Elective	3
		General Education	3
	17		16-17

*Engineering 354 and 370 are required courses.
**One unit of advanced laboratory in the option is required.
***Core electives include: 302, 304 or 305 or 336, 306 and 501. Core laboratory 302L or 304L or 306L.

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
*Engr. 354, Elect. & Mag. Fields and/or		**Electives within major	8-10
*Engr. 370, Log. Des. & Sw. Circ. and		***Core Elective	3
**Electives within major	9-10	***Core Laboratory	1
***Core Elective	3	General Education	3
General Education	3		
	15-16		15-17

The following "electives within major" for areas of special interest are available. It is recommended that courses in more than one area be included to achieve a broad program.

	6th Sem.	*7th Sem.*	*8th Sem.*
Communications and Microwaves	354	456, 554, 554L, 555	470,553,556, 556L, 557
Control Systems	467	468L, 568	569
Digital Systems	370	400, 462, 470, 496	502, 570, 571, 472L, 573
Electronics	354 or 370	462, 470, 554, 554L, 555, 564	562, 570
Power Systems	467, 467L	550	551

Mechanical Engineering

All students in the Mechanical Engineering option pursue a common program of mechanical engineering fundamentals. In addition the student is provided with the opportunity to select a pattern of study to satisfy his areas of interest. This pattern of study is indicated in the sequence below as "electives within major" and may be selected from available courses in controls, energy conversion, gas dynamics, heat transfer, machine design, materials, thermodynamics, vibrations, and other areas. *The student's choice of elective courses must be made in consultation with his adviser and documented by the filing of an approved master plan during the first semester of his junior year.*

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 301, Methods of Analysis	3	Engr. 302, Fluid Mechanics	3
Engr. 303, Electronics, Instrum. and Elect. Energy Conv.	3	Engr. 303L, Electronics, Instrum. and Elect. Energy Conv.	1
Engr. 304, Thermodynamics	3	Engr. 436, Engr. Thermo	4
Engr. 304L, Thermal Sci. Lab.	1	Engr. 437, Heat Transfer or Engr. 332, Machine Design	3
Engr. 306, Introduction to Solid Mechanics	3	Engr. 541, Simulation of Engr. Systems	3
Engr. 330, Materials and Processes	4	General Education	3
	17		17

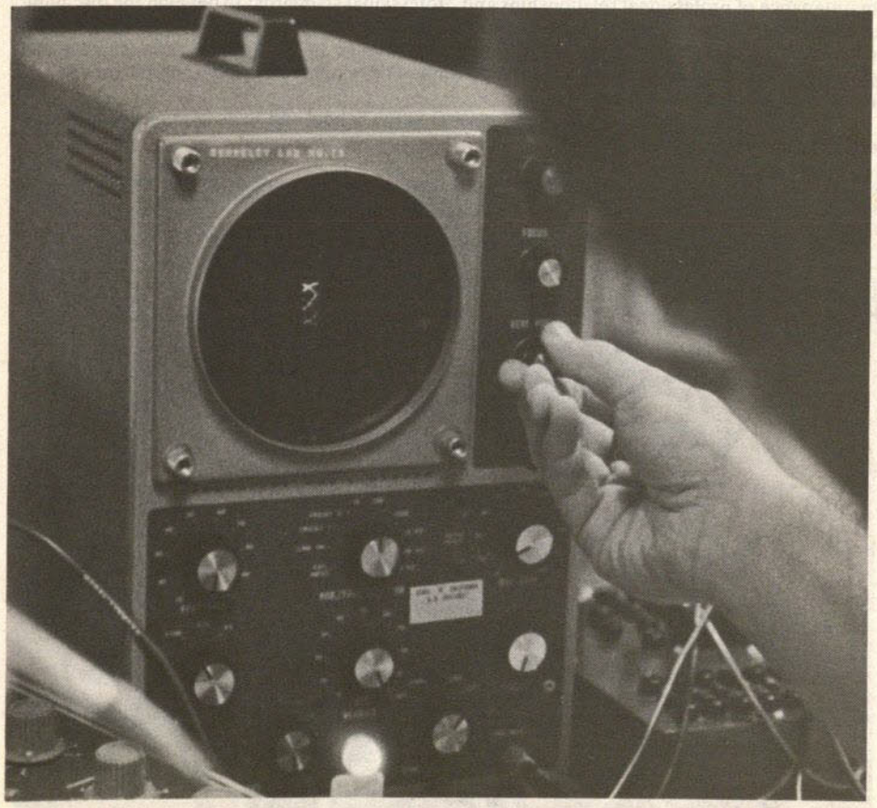
*Engineering 354 and 370 are required courses.
**One unit of advanced laboratory in the option is required.
***Core electives include: 302, 304 or 305 or 336, 306 and 501. Core laboratory 302L or 304L or 306L.

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 331, Engr. Design: Mechanisms	3	Engr. 445B, Engineering Applications	2
Engr. 332, Machine Design or Engr. 437, Heat Transfer	3	*Electives within major	6
Engr. 445A, Engineering Applications	2	General Education	6
*Electives within major	6		
General Education	3		
	17		14

Minor in Engineering

The minor in engineering, intended for students in other academic areas of the university, consists of 15 units in engineering, nine units of which must be in upper division courses. The courses must be approved by the Dean of the School of Engineering.



*Approved as part of student's master plan by the department chairman.

School of Social Work

Accreditation

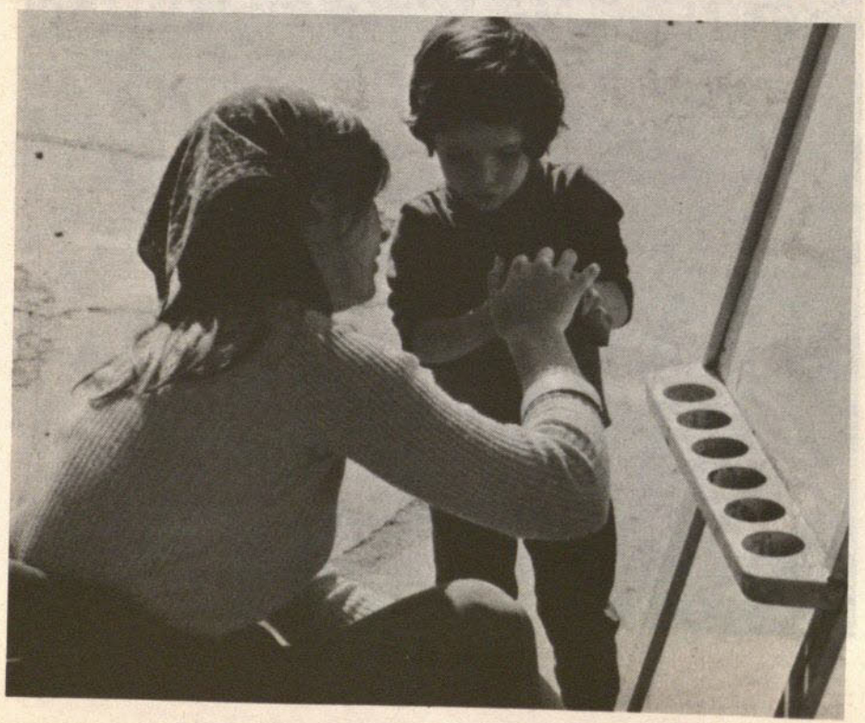
The graduate program of the School is accredited by the Commission on Accreditation of the Council on Social Work Education.

Program and Objectives

The School of Social Work offers a two-year graduate curriculum leading to the Master of Social Work degree under approval granted by the Trustees of the California State University and Colleges in May, 1963. Students with a bachelor's degree from an accredited college or university can be considered for admission to this program. The School also offers a program of professional education leading to the Master of Science in Social Work degree. Students who have completed the undergraduate social welfare major at San Diego State University, or its equivalent, can be considered for admission to this program. The Chancellor's Office gave its approval for this new degree program on February 12, 1970.

The objectives of the School of Social Work at San Diego State University are to equip students with the essential knowledge, philosophy and basic skills for their responsible practice in the profession of social work. In order to achieve these objectives, the School will assist students: to develop a philosophy which recognizes individual human welfare as the purpose and goal of social policy; to acquire attitudes which will permit the development and maintenance of professional relationships and professional standards; to develop the discipline and self-awareness essential to the professional social worker; to attain a level of competence necessary for professional practice; to acquire knowledge in methods of research in social work; and to accept responsibility for the continued development of their competence in the practice of social work.

For detailed information regarding admission to the School and to its graduate curriculum, see the Graduate Bulletin.



Courses and Curricula

Courses and Curricula

Course Numbering

Courses numbered from 100 to 299 are lower division (freshman or sophomore) courses; those numbered 300 to 499 are upper division (junior or senior) courses intended primarily for undergraduates; those numbered 500 to 599 are upper division courses also acceptable for advanced degrees in the major area; those numbered 600 to 799 are graduate courses. Courses numbered X-900/X-999 are those courses offered exclusively in the extension program to meet the professional needs of specific community groups and are listed in the Extension Bulletin only. These courses are not acceptable on advanced degree programs.

The Unit or Credit Hour

In the listing of courses that follow, figures in parentheses indicate the unit value of the course. One unit or credit hour represents 50 minutes of recitation or lecture, together with the required preparation, or three hours of laboratory work or two hours of activities, each week for a semester.

Prerequisites for Undergraduate Courses

Prerequisites for each course are stated in the course description.

The student should not register for any course for which he has not completed the indicated prerequisites. *The one exception to this is that he may register for the course without having completed the stated prerequisites if he has secured the consent of the instructor.*

Prerequisites for Graduate Courses

Graduate level (600- and 700-numbered) courses require, as general prerequisites, graduate standing, and competence in the specified field as indicated by a substantial amount of upper division study in the field or in a closely related field. Unless otherwise specified in the course description, graduate level courses are open to classified graduate students with the permission of the instructor. Unclassified graduate students must obtain the permission of the instructor and the Dean of the Graduate Division and Research before they may enroll in a graduate level course. Undergraduate students are not permitted to enroll in 600- and 700-numbered courses except under special circumstances (see section "Concurrent Master's Degree Credit"). Unauthorized enrollment of undergraduate students in 600- and 700-numbered courses may be cancelled or, if the course is completed before graduate standing is attained, only undergraduate credit will be earned for the course.

Semester in Which Courses Are Offered

In the listing of courses that follows, Roman numeral I indicates a course offered in the fall semester. Roman numeral II indicates a course offered in the spring semester. An "S" indicates a course offered in the summer.

Following the course title are designations of credit and the semester in which course is offered. Examples:

(3) I ..... Three units. Offered in fall semester.
(3) II ..... Three units. Offered in spring semester.
(3-3) ..... Three units each semester. Year course normally beginning in the fall semester.
(3-3) I, II ..... Three units each semester. Year course beginning either semester.

Although the university fully expects to carry out the arrangements planned in the list of courses, it reserves the right to make changes. Classes in which the enrollment does not come up to the minimum number set by the Trustees of the State University and Colleges may not be offered or may be postponed.

Common Courses

Experimental Topics Courses (299 or 496)

Any department, school, or college may offer courses under the numbers 299 and 496, Experimental Topics (2-4) under the following conditions: Each course must be approved by the Dean of the School or College concerned. Such a course may be offered no more than three years with the same title and content. Limit of nine units of 299 and nine units of 496 applicable on a bachelor's degree of which no more than three units of 299 and three units of 496 may be applicable to general education requirements. Such courses are applicable to the minor or to preparation for the major only by special action of the department.

General College Courses (200 or 400)

General College 200 or 400 provides credit of up to six units (total) applicable to the bachelor's degree by supervised experience in an educationally significant community or university activity. Tutoring, volunteer work for a social service agency, registering or interviewing voters, and serving on an all-university academic committee are examples of such activities. To be eligible to enroll, a student must have completed 12 units of college work and must have a grade point average of C (2.0) or better.

An interested student should, before registration, seek out a chairman of a faculty committee or a faculty adviser for an on-campus organization which sponsors such activities and obtain his written consent to supervise his work and evaluate it for credit purposes.

Units thus earned may not apply to a major or minor.

Honors Courses (300)

These courses are intended for students with superior scholastic records and aptitude. An interested student should direct his inquiries to the chairman of the department concerned.

Special Study (499)

These courses provide opportunity for individual study of a subject not offered in the regular curriculum. The student does this outside of the classroom. He should seek out an instructor under whose supervision he wishes to work, discuss the topic with him, and come to an understanding on the amount of time he is to devote to the topic, the credit he is to earn, and his mode of investigation and report. As with regular courses, the expectation is that the student will devote three hours per week to the subject for each unit of credit.

Credit/No Credit Courses

Courses which are offered for credit/no credit are indicated by the symbols Cr/NC in the course title.

Aerospace Studies

In the College of Professional Studies

Faculty

Professor: Pralle (Chairman)
Assistant Professors: Conner, Taylor

Offered by the Department

A.F.R.O.T.C. curriculum.
Minor in aerospace studies.

A.F.R.O.T.C. Curriculum

The department offers a two-year Air Force Reserve Officers' Training Corps program designed to develop officers who have broad understanding and high growth potential. Cadets participate in dialogues, problem solving, and other planning activities designed to develop leaders and managers. All coursework is done on campus with the exception of the Field Training Unit conducted at an active Air Force base and the Flying Instruction Program conducted at a local civilian flying school. Summer training is required of all students, other than veterans, prior to enrollment in on-campus courses.

Upon completion of the program and all requirements for a bachelor's degree, cadets are commissioned second lieutenants in the Air Force and serve a minimum of four years' active duty. Graduates who are qualified may apply for pilot or navigator training immediately upon graduation. Other graduates go on active duty in a specialty consistent with their academic major and existing Air Force needs. Graduates may request a delay from entry on active duty to continue their education in graduate programs. Graduates may apply for Air Force sponsored graduate study after entry on active duty.

Applying for the Program

Any student or prospective student may take the Air Force Officer Qualifying Test and the physical examination during the year preceding entry into the program.

When selected, applicants attend a six-week field training course at an Air Force base in the summer prior to their last two years of college. No further summer training is required. (Note: Veterans who are granted credit for prior military service may enter the program as juniors and attend a four-week field training between their junior and senior year.) Field training emphasizes military orientation for the junior officer and aircraft and aircrew familiarization. Cadets receive physical training and participate in competitive sports. They are trained in the use of weapons, drill and ceremonies, and observe selected Air Force units perform everyday operations of the Air Force.

Flight Instruction and Pay

The Flight Instruction Program (FIP) is offered to qualified senior cadets who have elected to enter pilot training when reporting for active duty. The cost of the flight training is paid by the Air Force. Instruction is divided between class work taught on the campus and flying training conducted by a civilian contractor in the area.

Cadet retainer pay of $100 per month is given for 20 months of the program. Cadets receive approximately $350 during the Field Training Unit and are reimbursed for the cost of travel to and from the unit.

Aerospace Studies Minor

The minor in aerospace studies consists of a minimum of 15 units in aerospace studies. Courses in the minor may not be counted toward the major or general education.

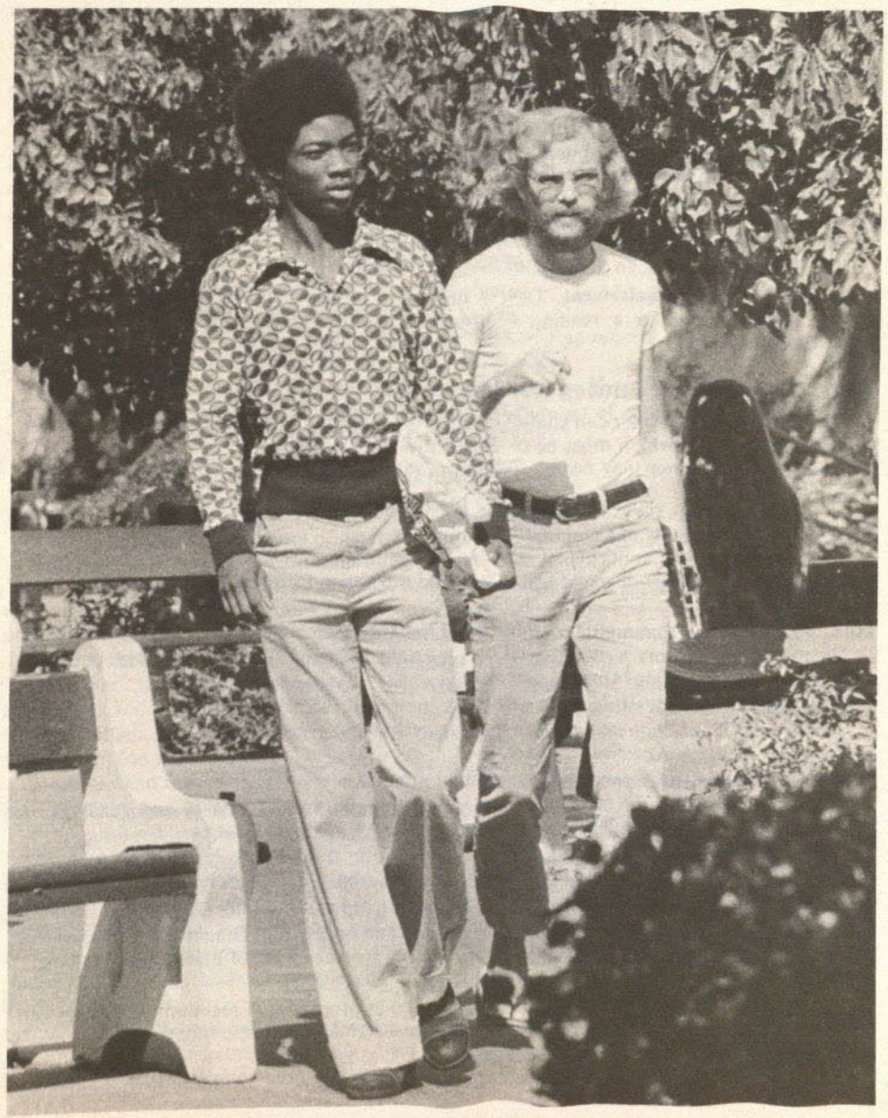
UPPER DIVISION COURSES

300A-300B. *(131A-131B.)* **National Security Forces in American Society (3-3)**
Semester I: Role of professional officer in democratic society; socialization within Armed Services; and requisites for adequate national security forces. Semester II: Political, economic, and social constraints on national defense structure and impact of technological and international developments on defense policy making.

333. *(133.)* **Field Training Unit (3)**
Required for advanced cadets; military orientation and flight familiarization. Credit granted through the Extension Division on basis of individual student application with approval of the Aerospace Studies Department Chairman.

400A-400B. *(141A-141B.)* **The Professional Officer (3-3)**
Semester I: The professional officer; the Military Justice System; leadership theory and practice. Semester II: Management principles and functions: problem solving; briefing for commissioned service.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of Aerospace Studies Department chairman.



Afro-American Studies

In the College of Arts and Letters

Faculty

Professor: Chambers
Associate Professors: Johns (Chairperson), Meadows
Assistant Professors: Foster, McKinney, Thomas, Weber
Lecturers: Blake, Robinson

Offered by Afro-American Studies

Major in Afro-American studies with the A.B. degree in liberal arts and sciences.
Minor in Afro-American studies.

Afro-American Studies Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for the degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Afro-American Studies 220, 230, 233 and 250. (12 units.)

Major. A minimum of 24 upper division units to include Afro-American Studies 320 (six units) and 12 units selected from one of the following areas and six units from the remaining two areas.

Area I. Afro-American Studies 330, 331, 360, and 445 or 451.
Area II. Afro-American Studies 363, 460, 461, 470 and 480.
Area III. Afro-American Studies 362, 470, 471A and 471B.

Foreign language requirement. Twelve units in a foreign language or demonstration of equivalent knowledge in a reading examination administered by the foreign language department concerned.

Afro-American Studies Minor

The minor in Afro-American studies consists of a minimum of 15 units in Afro-American studies, nine units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

100. *(M.)* **Fundamentals of Computation (0) I**
Basic mathematical concepts. A review in arithmetic and its basic operations. Topics include set notation, first degree equations in one unknown, factoring, graphs and systems of linear equations.

110A. *(1A.)* **Written Communication for the Afro-American (3) I, II**
Precise and expository writing based on selections by noted Black personalities in essays, short stories and selections from longer works.

110B. *(1B.)* **Intensive Writing (3) I, II**
Practice of composition skills utilizing an analytical and critical approach to the ideals and philosophies of Black American writers.

120A. *(2A.)* **Composition and Reading (3) I**
Practice of composition skills utilizing analytical and critical writing and readings, as exemplified by various nonfictional works of scholarly Black personalities.

120B. *(2B.)* **Composition and Literature (3) I, II**
Outstanding works of fictional writings by Black authors.

140. *(4.)* **Communications (3) I, II**
Practice in speaking, critical listening, reasoning and organizing. Theory and techniques of communications used to evaluate the effect they have on the lives of Blacks and others.

160. *(5.)* **Intermediate Computation (3) I, II**
Introduction to basic mathematical concepts such as properties of real numbers, linear and quadratic equations, polynomials, fractions, exponents and logarithmic functions.

170A-170B. *(7A-7B.)* **Afro-American History (3-3) I, II**
American history from a Black perspective. (Satisfies American institutions requirements.)

180. *(8.)* **Afro-American Music (3) I, II**
Musical contributions of Black Americans from African music to today. Musical styles, events, significant contributors, and the role of sociocultural variables in the development of the music. In addition to African music, the blues, spirituals-gospel, jazz and art music will be studied.

220. *(20.)* **Economics and Management in Urban Development (3) I, II**
Principles of economics and management and their application to urban development. May be used for general education requirement in social sciences.

230. *(30.)* **Ethnicity and Social Competence (3) I, II**
An exploration into the concept of ethnicity as a positive mental health model for Afro-Americans in the process of identity formation and coping strategies. May be used for general education requirement in social sciences.

231. *(31.)* **Cultural Patterns and Identity (3) I, II**
An analysis of institutions in society and their socializing effect upon Afro-Americans, and the cultural parameters that guide behavior.

233. *(32.)* **Afro-American Life Styles (3) I, II**
Afro-American life styles in the past, present, and future. Examination of contemporary problems, their roots and their effects on Twentieth Century America.

250. *(50.)* **Psychology of Blackness (3) I, II**
Facts, principles, and concepts which are basic to understanding human behavior. An analysis of the psychological motivations and behavioral responses of and toward Afro-Americans.

260. *(60.)* **Afro-American Literature (3) I, II**
Modern and contemporary writing of Black-American authors. The sociopolitical impact the literature has had upon the Afro-American culture.

286. *(86.)* **Statistics and Research (3) I**
Prerequisite: Afro-American Studies 160.
Fundamentals of research and statistics as used for writing reports, papers, books.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

320. *(120.)* **Integrative Schemes in Organizational Management (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Afro-American Studies 220.
An investigation of relevant approaches to administration and organization management in relation to the acquisition of skills for the analysis, development, and management of urban programs. May be repeated with new content. Maximum credit six units.

330. *(130.)* **Black Child Development (3) I, II**
Attitudes, needs and problems of the Afro-American child with emphasis on new approaches and insights into the development of positive changes for the child's growth and development.

331. *(131.)* **The Black Family (3) I, II**
Structure and functions of the Black family in contemporary American society.

360. *(140.)* **Communications and Community Action (3) I, II**
Prerequisite: Afro-American Studies 140 (field assignments are a major part of this course).
Application of the basic theories of communication through field projects. Study of the communication problems that exist between sociopolitical groups and the media.

362. *(142.)* **Rhetoric of Black America (3) II**
Prerequisite: Three units in Afro-American history or communications.
Rhetoric of Black Americans from David Walker to the present, the role rhetoric has played in the history of Black people and an analysis of the Black audience in terms of the Black experience.

363. *(143.)* **The Structure of Black English (3) I, II**
The history and structure of Black English. Its similarities to and differences from standard English dialects: implications for educational policy.

445. *(145.)* **Social Psychology (3) I, II**
Examination of social problems which Blacks encounter and the ways in which they approach solving them.

450. *(181.)* **Urban Music Education (3) I, II**
Teaching the "culturally different" music student. Investigation of cultural and environmental conditions that might influence the teaching of music to the "culturally different" music student.

451. *(151.)* **Black Consumer Psychology (3) I, II**
Prerequisite: Afro-American Studies 250.
Attitude values and decision making of Black people as consumers. Laws and techniques of manipulating consumers.

460. *(160.)* **Black Images in Western Literature (3) I, II**
Study of how the image of the Black has been portrayed in Western (white) literature and the attitudes and images of non-Black writers towards Blacks.

461. *(161.)* **Afro-American Literature (3) I, II**
Prerequisite: Afro-American Studies 260.
Contemporary writings of Afro-Americans. Analysis of themes, techniques, etc., of Afro-American fiction, poetry and drama.

470. *(170.)* **Comparative History: Afro-American and African Heritage (3) I, II**
Conceptual framework of African history and a comparative study of Afro-American institutions.

471A. *(172.)* **Black Protest Before the Civil War (3) I, II**
Antislavery movement and the resistance of Afro-Americans to the institution of slavery and the culmination of the movement during the Civil War.

471B. *(171.)* **The Black Man in the Twentieth Century (3) I, II**
History of social movements and institutions from 1890 to the present.

480. *(180.)* **Twentieth Century Afro-American Jazz (3) I, II**
Historical development of jazz from its beginnings to the present, based on the ability to identify people, discuss musical styles and events, and to relate these factors to the life of the times.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

American Studies

In the College of Arts and Letters

Faculty

American Studies is administered through the American Studies committee, composed of faculty members from the departments of Art, Geography, History, Linguistics, Literature, Political Science, and Sociology. Professor Pershing Vartanian is student adviser.

Offered by American Studies

Master of Arts degree in American studies.
Major in American studies with the A.B. degree in liberal arts and sciences.

American Studies Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Preparation for the major. Two six-unit sequences selected from American Studies 151 and 152; and English 250A-250B or History 110A-110B. (12 units.) Students should note that a number of the upper division required and recommended courses listed below have lower division prerequisites, but these prerequisites do not constitute requirements *per se* for the completion of the major.

Major. A minimum of 30 upper division units to include American Studies 498, 501, 580; History 547A-547B or History 548A-548B (may be used for Group B); and two groups of nine upper division units selected from Group A, Group B, or Group C; to be approved by the adviser.

The remainder of the courses needed to fulfill the 30-unit requirement may be taken in courses listed in Groups A, B, C and D, except that no more than 12 of the 30 units may be taken from any one group.

Group A: *American Literature.* English 510, 511, 512, 513, 514, 516, 519, 520.

Group B: *American History.* 310A-310B, 531A-531B, 532A-532B, 533A-533B, 534, 535A-535B, 536, 537A-537B, 539A-539B, 540, 541A-541B, 544A-544B, 545A-545B, 546A-546B, 547A-547B, 548A-548B, and 596 (when relevant to American studies).

Group C: *Social Sciences.* Business Administration 455, 456; Economics 332, 338A-338B, 385, 426, 453, 458, 474, 489, 490; Family Studies and Consumer Sciences 436; Geography 321, 354, 358, 370, 371, 555, 558, 559, 573; Journalism 500, 503; Mexican-American Studies 303, 320; Political Science 320, 332, 335, 338, 378, 505, 520, 523, 530, 531, 536, 543-S, 546, 547A-547B; Women's Studies 340, 350A-350B, 380.

Group D: *Electives.* Anthropology 545; Art 560; Music 351D; Philosophy 564.

Foreign language requirement. Choice of foreign language should be made in consultation with adviser.

LOWER DIVISION COURSES

151. Study of American Culture (3) I, II
Deals specifically with the concept of culture as a matrix of synthesizing various disciplinary methodologies in the study of American culture. Required for American studies majors.

152. Study of American Culture (3) I, II
Focuses on a particular American issue, examining it in terms of the methodological concerns relating to American culture. Recommended, but not required, for American studies majors. American Studies 152 may be taken without 151.

UPPER DIVISION COURSES

498. Senior Seminar in American Culture (3) I, II
Advanced reading and directed research on a problem in the study of American culture. Particular problems are presented with an emphasis on the integration of two or more disciplines or disciplinary techniques.

501. Study of American Culture (3) I, II
American studies as a discipline, the critical methods of the field, the variety of materials for interdisciplinary study. (Formerly numbered Humanities 180.)

580. Topics in American Studies (3) I, II

Topics dealing with cultural images and myths, social protest, folklore; themes focusing upon fear, alienation and nationalism; problems around racism, minorities and counter-cultures. May be repeated once with new content; and with the approval of the adviser, more than once by American studies majors. Maximum credit six units applicable on a master's degree in American studies. (Formerly numbered English 138.)

Anthropology

In the College of Arts and Letters

Faculty

Emeritus: Rogers
Professors: Anderson, Ezell, Goldkind, Leach (Chairman), Shutler, Watson, Whitney
Associate Professors: Greenfeld, Himes, Lippold, Pendleton, Staniford
Assistant Professors: Dubbs, Moore, Pillsbury, Rohrl, Sonek, Wagner
Lecturers: Almstedt, Henry, Kasper, Selvadurai, White

Offered by the Department

Master of Arts degree in anthropology.
Major in anthropology with the A.B. degree in liberal arts and sciences.
Minor in anthropology.

Anthropology Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Anthropology 100, 101. (Six units.)

Major. A minimum of 24 upper division units in Anthropology to include Anthropology 301, 302, 303, 304, 305, and nine units of electives selected from Anthropology with approval of the adviser. (Anthropology 400A and 400B may not be counted in the upper division requirements for graduation.)

Anthropology Minor

The minor in anthropology consists of a minimum of 15 units in anthropology, nine units of which must be in upper division courses (except for Anthropology 400A-400B).

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

100. *(1.)* **Physical and Cultural Origins of Man (3) I, II**

Man's place in nature; fossil evidences of early man; theories of human development; racial variability; the growth and development of man's culture; the rise of civilization. Not open to students with credit in Anthropology 400A.

101. *(2.)* **Introduction to Cultural Anthropology (3) I, II**

May be taken before Anthropology 100.

Man's relationship to his environment; types of preliterate society; system of social organization, politics, economics, religion, and language. Not open to students with credit in Anthropology 400B.

150. World Cultures (3)

Prerequisite: Anthropology 101.

Comparative and systematic application of the culture concept to the major culture areas of the world.

200. *(4.)* **Archaeological Field Methods (3)**

May be taken before Anthropology 100.

One lecture and six hours of laboratory.

Application of the methods and techniques of archaeology through excavation, laboratory analysis, and preparation of reports.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3)**
Refer to Honors Program.

301. *(101.)* **Principles of Physical Anthropology (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Anthropology 100 or 400A. Recommended for majors only.
Primate comparative anatomy and human paleontology. Physical measurement of the living subject and skeletal specimens. The statistical treatment of data in physical anthropology. Applications of physical anthropology in industry and medicolegal problems.

302. *(102.)* **Principles of Archaeology (3) I, II**
Prerequisite: Anthropology 101 or 400B. Recommended for majors only.
The historic background and basic techniques of archaeological excavation. Methods of site excavation with particular emphasis on California and the Southwest. Principles of culture dynamics utilized in archaeological interpretation.

303. *(103.)* **Principles of Cultural Anthropology (3) I, II**
Prerequisite: Anthropology 101 or 400B. Recommended for majors only.
Primary emphasis on the principles and fundamentals guiding the study of cultural anthropology and its various topics of interest. An overview of the more recent trends within the field will be presented.

304. *(104.)* **Principles of Anthropological Linguistics (3) I, II**
Prerequisite: Anthropology 100 or 101 or 400A or 400B. Recommended for majors only.
The structural nature of language. How languages differ, change and influence each other. The language families of the world. The significance of language for human social life in a variety of cultures.

305. *(167.)* **History of Anthropological Theory (3) I, II**
Prerequisite: Anthropology 303 or 352.
Development of theories which lie behind the science of anthropology. Applications of the theory of culture to field methods and interpretation of findings.

350. *(152.)* **World Ethnography (3)**
Prerequisite: Anthropology 101 or 400B.
The cultural patterns of representative aboriginal peoples. Industries, arts, social organization and supernaturalism considered with a view to environmental adjustment, historical development and functional interrelation. Ethnological theories reviewed and applied in interpreting illustrative aboriginal societies.

351. *(160.)* **Primitive Technology (3)**
Two lectures and three hours of laboratory.
Prerequisite: Nine units of anthropology.
Techniques of tool manufacture, subsistence, shelter, clothing and arts and crafts of nonindustrial peoples.

352. *(154.)* **Social Anthropology (3)**
Prerequisite: Anthropology 350.
The development of social anthropology as a distinct subfield of cultural anthropology. Readings and analysis of functionalism as theory and methodology in the explanation of social and cultural processes.

360. *(169-S.)* **Backgrounds of Mexican Civilization (3)**
Mexico's archaeological past and its bearing on historic and recent peoples and cultures. Conflicts between Aztec and Mayan cultures and western civilization. The relationship of Mexican civilization to other Latin American cultures.

361. *(157.)* **Mesoamerican Ethnohistory (3)**
Prerequisite: Anthropology 100 or 101 or 400A or 400B.
Aboriginal pre- and post-Conquest civilization of Mexico with emphasis on the developments, changes, and characteristics of aboriginal, mestizo, and creole society in Colonial Mesoamerica; stress on appropriate texts and codices.

400A-400B. *(100A-100B.)* **Principles of Anthropology (3-3) I, II**
Anthropology 400A: Human evolution as a biocultural process from the perspectives of human paleontology and prehistory. Anthropology 400B: Systems of cultural cognition, family organization, government, and religion in non-Western societies, comparison with analogous Western institutions. Anthropology 400A is not open to students with credit in Anthropology 100. Anthropology 400B is not open to students with credit in Anthropology 101. Anthropology 400A-400B may not be used to fulfill minimal upper division requirements in the anthropology major or minor or the liberal studies major.

496. *(196.)* **Topics in Anthropology (3) I, II**
Prerequisite: Nine upper division units in anthropology.
A senior level undergraduate seminar, topic to be announced in the class schedule. Maximum credit six units.

497. *(197.)* **Investigation and Report (3) I, II**
Prerequisites: Grade point average of 3.0 in the anthropology major and consent of instructor.
Analysis of special topics in anthropology and preparation of reports on the results of the study. Course is intended for advanced majors only who plan to continue in advanced degree programs.

499. *(199.)* **Special Study (1-3) I, II**
Individual Study. Maximum credit six units.
Prerequisite: Consent of instructor.

500. *(115.)* **Primatology (3)**
Two lectures and three hours of laboratory.
Prerequisite: Anthropology 100 or 400A.
Description, taxonomy, and comparative anatomy of the anthropoid apes, monkeys, and lesser primates. Primate behavior as a basis for the reconstruction of prehistoric human behavior. Extensive use of the primate collections of the San Diego Zoo.

501. *(116.)* **Human Paleontology (3)**
Prerequisite: Anthropology 100 or 400A.
Comparative anatomy of fossil man and other primates; evolutionary relationships and cultural associations.

510. *(122.)* **Language in Culture (3)**
Prerequisites: Anthropology 101 or 400B; and Anthropology 304 or Linguistics 500.
Survey of anthropological interests in the study of language and of linguistic interests in the sociocultural context of language.

511. *(126.)* **Field Methods in Linguistics (3)**
Two lectures and three hours of laboratory.
Prerequisites: Three units of linguistics or Anthropology 304, and consent of instructor.
Principles and techniques of linguistic analysis. Problems and methods in the phonetic transcription and analysis of unwritten, non-Indo-European languages. Emphasis on phonetics, phonemics, field techniques, and work with informants.

520. *(150.)* **Ethnological Field Methods (3)**
Two lectures and three hours of laboratory.
Prerequisite: Anthropology 350.
The problems and techniques of obtaining data in ethnological and social anthropological field work; preparation, gaining and maintaining rapport, evaluating data, participant observation. A review of literature followed by work with informants.

521. *(151-S.)* **Ethnographic Field Research Project (6)**
A six-week course. No other course may be taken concurrently.
Supervised collection of ethnographic data in the field and in a subculture or culture that is foreign to the students.

523. *(149.)* **Kinship and Social Organization (3)**
Prerequisite: Anthropology 101 or 400B.
Comparison of kinship systems and the structure of social relationships throughout the world. The methodological orientations and theories relating to social organization with emphasis on non-Western societies.

524. *(153.)* **Primitive Religion (3)**
Prerequisite: Anthropology 101 or 400B.
Beliefs and ritual of primitive man. Magic and religion. Forms of animism and polytheism. Primitive mentality and the supernatural.

525. *(155.)* **Peasant Society and Culture (3)**
Prerequisite: Anthropology 101 or 400B.
The social organization and culture of present-day small agricultural communities with emphasis on changes brought about by modernization.

526. *(156.)* **Cultural Change and Processes (3)**
Prerequisite: Anthropology 101 or 400B.
The individual and the culture pattern: the acquisition of culture, innovation and invention, direction of cultural development, diffusion and interpenetration of cultures. Illustrations from contemporary and historic peoples: Indians of the Southwest, Eskimos, aboriginal groups of Australia, Africa and Oceania.

527. *(158.)* **Economic Anthropology (3)**
Prerequisite: Anthropology 101 or 400B.
Social relationships and cultural values inherent in the economies of primitive and peasant societies. Cross-cultural comparisons made of various means by which goods and services are acquired and distributed in non-Western, non-market-industrial societies.

528. *(159.)* **Cultural Ecology (3)**
Prerequisite: Anthropology 101 or 400B.
Examination and comparison of the relationships which exist between the natural environment and the sociocultural processes in nonliterate and peasant communities.

529. *(164.)* **Urban Anthropology (3)**
Prerequisite: Anthropology 101 or 400B.
Cultural roles of urban centers and processes of urbanization in non-Western, nonindustrial societies of past and present. Urban influence on traditional peasant and primitive peoples of Africa, Asia, and Latin America.

530. *(187.)* **Political Anthropology (3)**
Prerequisite: Anthropology 101 or 400B.
Political processes, institutions, and ideologies in primitive and peasant societies.

531. *(179.)* **Applied Anthropology (3)**
Prerequisite: Anthropology 526.
Application of anthropological concepts to the solution of practical problems of culture change in industry, corporate organization and community development.

532. *(165.)* **Culture and Personality (3)**
Prerequisite: Anthropology 101 or 400B.
The relationship of individual personality to culture in a variety of cultures. A consideration of various theories and studies in the social and personality sciences.

533. *(168.)* **Evaluative Procedures in Culture and Personality (3)**
Two lectures and three hours of laboratory.
Prerequisite: Anthropology 532.
Methods of eliciting and evaluating cross-cultural information about patterns of behavior. Such field methods as the interview and participant observation will be reviewed and evaluated.

540. *(148.)* **Cultures of Europe (3)**
Prerequisite: Anthropology 101 or 400B.
The study of society and culture in contemporary Europe, utilizing current ethnographic materials. The relationship of such studies to European culture growth and to the definition of European sociocultural regions.

541. *(161.)* **The California Indian (3)**
Prerequisite: Anthropology 101 or 400B.
Native California Indian cultures with stress on the Indian groups of Southern California. The industries, arts, social organization, folklore and religion will be considered as revealed through the study of living peoples and archaeological evidences.

542. *(162.)* **Cultures of South America (3)**
Prerequisite: Anthropology 100 or 101 or 400A or 400B.
Indian cultures in terms of origins, migration, relation to habitat, cultural variation and relevance to contemporary trends. Development of Inca civilization, the effects of the Spanish conquest and its aftermath.

543. *(163.)* **Contemporary Latin American Cultures (3)**
Prerequisite: Anthropology 101 or 400B.
A social anthropological approach to the structure and dynamics of contemporary conditions and problems, especially as revealed in studies of particular communities. Included are such topics as ethnic and regional differences within national societies, population change, social consequences of economic changes, changing stratification systems, values, institutional change.

545. *(171.)* **Ethnology of North America (3)**
Prerequisite: Anthropology 101 or 400B.
Native cultures and the role of environmental and historical factors in North America.

546. *(172B.)* **Southwestern Ethnology (3)**
Prerequisite: Anthropology 101 or 400B.
Indian cultures of the American Southwest in historic times; ecological adaptations, responses to white contact, adaptations to modern American life.

547. *(175.)* **Cultures of Southeast Asia (3)**
Prerequisite: Anthropology 101 or 400B.
Prehistory, races and cultures of Indonesia, Philippines and nearby mainland Southeast Asia. Includes both primitive and peasant societies and reviews them with respect to environmental, historical and social factors.

548. *(178.)* **Cultures of Oceania (3)**
Prerequisite: Anthropology 101 or 400B.
The aboriginal cultures and people of Melanesia, Australia, Micronesia, and Polynesia in prehistoric, historic, and modern times.

549. *(185.)* **Cultures of Sub-Saharan Africa (3)**
Prerequisite: Anthropology 101 or 400B.
Indigenous peoples and cultures of Africa south of the Sahara. A comparison of cultural traditions, social organization, and modern trends in newly emergent nations of the area.

550. *(186.)* **Cultures of India (3)**
Prerequisite: Anthropology 101 or 400B.
Indigenous peoples and cultures of India and contiguous areas of South Asia. The development of cultural traditions, social organization, and modern trends.

551. *(191.)* **Chinese Society (3)**
Prerequisite: Anthropology 101 or 400B.
Culture and social organization of Chinese people. Traditional China, overseas Chinese, contemporary Taiwan and Hong Kong, recent social change in Mainland China.

552. *(192.)* **Japanese Society (3)**
Prerequisite: Anthropology 101 or 400B.
Culture and social organization of Japanese people. Traditional Japanese economic, social, political and religious institutions. Korea, Okinawa and overseas Japanese. Recent industrial and urban changes in modern Japan.

560. *(173.)* **Advanced Archaeological Field Methods (3)**
One lecture and six hours of laboratory.
Prerequisite: Anthropology 200.
Advanced projects in excavation and stabilization of ruins, archaeological surveys, laboratory analysis and preparation of reports.

561A-561B. *(188A-188B.)* **Archaeological Laboratory Methods (3-3)**
Two lectures and three hours of laboratory.
Prerequisite: Anthropology 560. Anthropology 561A is prerequisite to 561B.
Semester I: Application of palynology, paleontology and technologies. Semester II: Practical applications of materials from 561A. Individual laboratory research project required.

570. *(147.)* **Prehistory of South America (3)**
Prerequisite: Anthropology 302.
Development of native South American cultures from initial occupation to the 16th century. Emphasis on major historical trends, particularly of the Andean area.

571. *(170.)* **Archaeology of North America (3)**
Prerequisite: Anthropology 100 or 400A.
Origin of the American Indian and survey of the main prehistoric cultures of the North American continent.

572. *(172A.)* **Southwestern Prehistory (3)**
Prerequisite: Anthropology 100 or 400A.
Prehistoric Indian cultures in the American Southwest; ecological adaptations and outside cultural influences.

573. *(174.)* **Prehistoric Archaeology of Europe (3)**
Prerequisites: Anthropology 100 and 101 or 400A and 400B.
The Stone Age, Bronze Age, and Iron Age cultures of Europe, North Africa, and the Middle East. Industries, habitations, and art of peoples antecedent to recorded history. Methods of investigation used in reconstructing prehistoric civilizations.

574. *(176.)* **Early Near and Middle Eastern Civilizations (3)**
Prerequisite: Anthropology 100 or 400A.
Anthropological foundations of historic primary civilizations of the Near and Middle East in their early phases of development as revealed by archaeological and other sources.

575. *(180.)* **Preclassic Cultures of Mesoamerica (3)**
Prerequisite: Anthropology 100 or 400A.
The development of civilization in pre-Columbian Mexico and Central America antecedent to the Tolteca, Classic Maya, and related cultures.

576. *(181.)* **Classic Pre-Columbian Civilizations of Middle America (3)**
Prerequisite: Anthropology 100 or 400A.
Aboriginal Mexican and Central American civilizations through the Age of Exploration and Conquest. Aztecs, Mixtecs, Zapotecs, Mayas, and related cultures.

577. *(182.)* **Post-Conquest Cultures of Middle America (3)**
Prerequisite: Anthropology 101 or 400B.
Aboriginal and mixed cultures of Mexico and Central America in Colonial and recent epochs. Aftermath of Conquest and exploitation.

578. *(183.)* **Archaic Hellenic, Aegean, and Italian Cultures (3)**
Prerequisite: Anthropology 100 or 400A.
Anthropological foundations of primary civilizations of Greece, the Aegean, and Italy, in their prehistoric phases of development as revealed by archaeological and other sources.

579. *(184.)* **Archaeology of Sub-Saharan Africa (3)**
Prerequisite: Anthropology 100 or 400A.
A chronological review of the major archaeological cultures in sub-Saharan Africa. The archaeological evidence for the evolution of man and his culture in Africa will be presented in a conjunctive approach.

580. *(189.)* **Topics in Arctic Anthropology (3)**
Prerequisites: Anthropology 100 or 101 and consent of instructor.
Discussion of selected areas, periods or problems in the context of broad considerations of prehistoric, historic or contemporary cultural development and human ecology throughout the arctic and subarctic regions.

581. *(190.)* **Archaeology of East Asia (3)**
Prerequisite: Anthropology 100 or 400A.
A chronological review of prehistoric cultural development and human ecology in East Asia.

GRADUATE COURSES

600. *(200.)* **Seminar (3)**
An intensive study in advanced anthropology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

601. *(201.)* **Seminar in Physical Anthropology (3)**
Prerequisites: Anthropology 100 or 400A and 12 upper division units in anthropology.
History and theory in physical anthropology stressing the significant literature on such topics as functional anatomy, human paleontology, population genetics, and primatology.

602. *(202.)* **Seminar in Archaeology (3)**
Prerequisites: Anthropology 100 or 400A and 12 upper division units in anthropology.
History and theory in archaeological data collection, analysis, and interpretation.

603. *(203.)* **Seminar in Ethnology (3)**
Prerequisites: Anthropology 101 or 400B and 12 upper division units in anthropology.
History and theory in ethnology stressing the significant literature on such topics as cross-cultural comparison, structural-functional analysis and description, personality and culture, and sociocultural change.

604. *(204.)* **Seminar in Linguistics (3)**
Prerequisites: Anthropology 304 or 510 and 12 upper division units in anthropology.
History and theory of linguistics stressing the significant literature on such topics as cultural cognition, descriptive linguistics, lexicostatistics, and transformational analysis.

620. *(220.)* **Seminar in Regional Anthropology (3)**
Prerequisite: Twelve upper division units in anthropology.
Study of a major world region such as Africa, the Arctic, East Asia, Europe, Latin America, the Middle East, North America, Oceania, or South Asia. Maximum credit six units applicable on a master's degree.

621. *(221.)* **Seminar in Topical Anthropology (3)**
Prerequisite: Twelve upper division units in anthropology.
Study of a major subdiscipline such as Political Anthropology, Economic Anthropology, Social Anthropology, Psychological Anthropology, Cultural Ecology, Applied Anthropology, Race and Variation, or Environmental Archaeology. Maximum credit six units applicable on a master's degree.

630. *(222.)* **Historical Linguistics (3)**
Prerequisite: Anthropology 304 or 511.
Principles and techniques of historical linguistics, with concentration on the dynamics of linguistic change, comparative linguistics, and historical reconstruction as applied to non-Indo-European languages.

631. *(233.)* **Social Structure (3)**
Prerequisite: Twelve upper division units in anthropology.
A structural and functional approach to the social organization of a wide range of cultures. An examination of theories and generalizations regarding the stability and integration of a wide variety of human societies.

632. *(255.)* **Culture and Society in the Nahua Area (3)**
Prerequisites: Anthropology 100 or 101 and 12 upper division units in anthropology.
A course designed to permit concentrated studies of the area and those related to it, based on archaeology, aboriginal records, colonial accounts, and modern studies; and to permit various approaches to such studies.

634. *(257.)* **Classical Nahuatl (3)**
Prerequisites: Anthropology 100 or 101 and 12 upper division units in anthropology including Anthropology 361 or 575 or 576; reading knowledge of Spanish recommended.
Nahuatl language study and analysis for translation of 16th-17th century texts, use of ancient and modern grammatical works and vocabularies; reading of manuscripts; relationship of the language to appropriate aspects of Nahua culture.

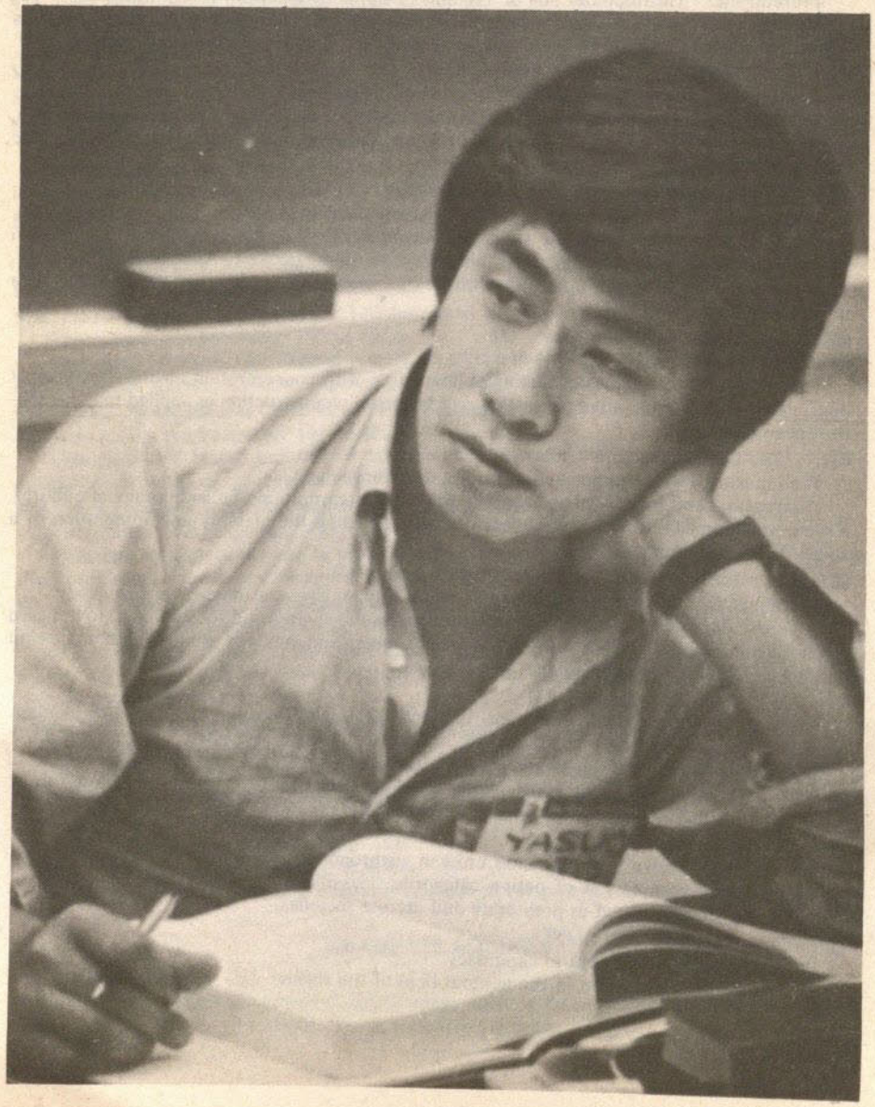
635. *(258.)* **Ethnoscience (3)**
Prerequisite: Twelve upper division units in anthropology.
Analysis and comparison of native categories, classifications, and bodies of systematic knowledge as demonstrated in preliterate and literate societies.

797. *(297.)* **Research (3) Cr/NC**
Prerequisite: Advancement to candidacy.
Independent investigation in the general field of the thesis.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study directed toward the preparation of a paper on a specific problem. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. *(300.)* **Thesis Extension (0) Cr/NC**
Prerequisite: Prior registration in Thesis, 799A, with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.



Arabic

In the College of Arts and Letters

Faculty

Lecturer: Busool

Offered by the Department of Classical and Oriental Languages and Literatures

Courses in Arabic.
Major or minor work in Arabic is not offered.

LOWER DIVISION COURSES

101. *(1.)* **Elementary (4) I**
Four lectures and one hour of laboratory. Pronunciation, oral and written drills, essentials of grammar, and introduction to basic texts.

202. *(2.)* **Elementary (4) II**
Four lectures and one hour of laboratory.
Prerequisite: Arabic 101.
Continuation of Arabic 101.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

303. *(103.)* **Readings in Literary Arabic (4) I**
Prerequisite: Arabic 202.
Application of principles of grammar and readings on advanced level in literary Arabic.

304. *(104.)* **Readings in Literary Arabic (4) II**
Prerequisite: Arabic 303.
Continuation of Arabic 303.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

Art

In the College of Professional Studies

For purposes of exhibition and reference, the department reserves the right to retain for a limited period some of each student's work produced in class.

Faculty

Emeritus: Andrews, Jackson, Ruocco

Professors: Baker, Baxter, Berg, Bigelow, Covington, Dirks, Fisch, Higgins, Hopkins, Lingren (Chairman), Longenecker, Rogers, Swiggett, Tanzer, Wallace

Associate Professors: Bowne, Groover, Hodge, Hunter, Miller, Orth, Papworth, Peterson

Assistant Professors: Austin, Childress, Frick, Moaney, Perczel, Ray

Lecturers: Forster, Litrownik, Tibbs, Tuttle, Veitzer

Offered by the Department

Master of Arts degree in art.
Major in art with the A.B. degree in liberal arts and sciences.
Major in art with the A.B. degree in applied arts and sciences.
Minor in art.
Teaching major in art for the single subject teaching credential.

Art Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

This major in art may be planned with an emphasis in studio arts or art history.

A minor is not required with this major in art.

Emphasis in Studio Arts

Preparation for the major. Art 100, 101, 157, 200, 201, 203, 204, 216, 258, 259; Philosophy 101. (33 units.)

Major. A minimum of 24 upper division units in art to include Art 403, 404, 500, 557, 590; Philosophy 541; and six units selected with the approval of the adviser from Art 404, 405, 406, 416, 499, 502, 505, 506, 509, 516, 571, 572, 573 and 574.

Emphasis in Art History

Preparation for the major. Anthropology 100; Art 258, 259, 264, 265; French, German or Italian, or a reading knowledge of the language selected. (15 units.)

Major. A minimum of 24 upper division units selected from Art 557, 560, 561, 562, 571, 572, 573 and 575; and three units of electives selected with the approval of the department from anthropology, art, history or philosophy.

Art Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

The major in art may be planned with an emphasis in crafts, environmental design, graphic communication, painting and printmaking, or sculpture. The programs in environmental design and in graphic communication have a preprofessional orientation supplemented by a strong liberal arts background. Environmental design can lead to interior design or city planning. Graphic communication prepares the student for the areas of environmental graphics, art direction, visual design for the contemporary media of advertising, fashion illustration or editorial illustration. The areas of painting and printmaking and sculpture prepare students for professional attitudes toward the fine arts and the continuance of their educational experience in graduate schools with the goal of teaching at institutions of higher learning. The preprofessional program in art education prepares the student for teaching in either elementary or secondary schools. The crafts program can be developed to specialize in ceramics, furniture or industrial design, jewelry, textile design and weaving.

A minor is not required with this major. However, in graphic communication an English minor is recommended.

Emphasis in Crafts

Preparation for the major. Art 100, 101, 200, 201, 220, 258, 259, and six units of art electives. (27 units.)

Major. A minimum of 24 upper division units in art to include nine units selected from three of the following areas: fiber, metal, clay, wood; three units of extended work in one of the selected areas; six units of art electives; and six units of art history. Twelve units of advanced work in one area are strongly recommended.

Emphasis in Graphic Communication

Preparation for the major. Art 100, 101, 141, 200, 201, 258, 259; and six units selected from Art 203, 204, 205, 240, 241. (27 units.)

Major. A minimum of 24 upper division units in art to include Art 341, 441, 541, 557; three additional units of art history; and nine units selected from Art 340, 440, 442, 443, 444, 541, 543, 544, 591 and 592.

Emphasis in Environmental Design

Preparation for the major. Art 100, 101, 200, 201, 247, 248, 249, 250, 251, 258, 259; and three units selected from Art 216, 220, 225. (36 units.) Recommended: Art 141, 205, 234; Industrial Arts 121; Family Studies and Consumer Sciences 119, 245.

Major. A minimum of 24 upper division units in art selected from Group I or Group II in consultation with an adviser:

Group I: Art 451, 552, 553, 557; six units selected from 381, 481, 581; and six units selected from Art 323, 348, 450, 452, 454, 547, 577, 591.

Group II: Art 450, 454, 547, 550, 557, 577, and six units selected from Art 348, 381, 416, 451, 481, 552, 553, 581.

Emphasis in Painting and Printmaking

Preparation for the major. Art 100, 101, 200, 201, 258, 259; and nine units selected from Art 203, 204, 205. (27 units.)

Major. A minimum of 24 upper division units in art to include Art 557; three additional units of art history; and 18 units selected in consultation with the adviser from Art 403, 404, 405, 406, 410, 411, 500, 502, 503, 504, 505, 509, 510, 511, 512.

Emphasis in Sculpture

Preparation for the major. Art 100, 101, 200, 201, 216, 258, 259; and three units selected from Art 203, 204, 220, 225, 231, 234. (27 units.)

Major. A minimum of 24 upper division units to include Art 416 or 517, 416, 498, 516, 557; three additional units of art history; and six units selected from Art 323, 331, 403, 404, 500.

Alternate Program for Advanced Degree Preparation

Students planning to pursue an advanced degree may elect a 63-unit (27 units lower division, 36 upper division) alternate degree program in Applied Arts and Sciences. This program involves the completion of the requirements for one of the emphasis areas listed above and 12 additional units of art planned in consultation with the adviser in the student's area of emphasis.

Art Minor

The minor in art consists of a minimum of 15 units in art, six units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

Art Major

For the Single Subject Teaching Credential

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in applied arts and sciences.

Preparation for the major. Art 100, 101, 200, 201, 220, 258, 259, and six units of electives in art. (27 units.)

Teaching Major. A minimum of 26 upper division units in Art to include Art 557; three units of art history; and twenty units from Group I or Group II in consultation with the Art Education Adviser.

Group I: Seventeen units of one major emphasis area, including Art 585 and 586, and three units of one other emphasis area. (20 units.)

Group II: Six units of drawing and painting, six units of crafts or sculpture, three units of graphic communication or environmental design, and Art 585 and 586. (20 units.)

LOWER DIVISION COURSES

100. *(1A.)* **Drawing and Composition (3) I, II**
Six hours.
The ordering of two-dimensional space through drawing.

101. *(2A.)* **Design and Aesthetics (3) I, II**
Six hours.
Fundamentals of space and color design. Basic course used as a prerequisite for advanced work.

141. *(14A.)* **Beginning Graphic Communication (3) I, II**
Six hours.
Prerequisites: Art 100 and 201.
Creative projects exploring the interrelation of fundamental art principles and design using phonetic symbols and typography.

157. *(5.)* **Art Orientation (3) I**
An illustrated lecture course dealing with aesthetic meaning and a survey of the history of western art. Designed to increase the understanding and appreciation of art.

200. *(1B.)* **Drawing and Composition (3) I, II**
Six hours.
Prerequisite: Art 100.
Line and value in drawing; emphasis on structure and proportion, sketching, gesture, and contour drawing.

201. *(2B.)* **Design and Aesthetics (3) I, II**
Six hours.
Prerequisite: Art 101.
Continuation of Art 101. Original work in creative design including projects in three dimensions.

203. *(15A-15B.)* **Life Drawing (3) I, II**
Six hours.
Prerequisite: Art 200.
Drawing from the nude model. Maximum credit six units.

204. *(16A-16B.)* **Painting (3) I, II**
Six hours.
Prerequisite: Art 200.
Pictorial composition and techniques of painting. Maximum credit six units.

205. *(18A-18B.)* **Aqueous Media (3) II**
Six hours.
Prerequisite: Art 101.
Composition of still-life and landscape in aqueous media. Maximum credit six units.

216. *(17A-17B.)* **Sculpture (3) I, II**
Six hours.
Prerequisite: Art 201.
Three dimensional design using varied materials. Maximum credit six units.

217. *(27.)* **Life Modeling—Sculpture (3) I, II**
Six hours.
Prerequisite: Art 201.
Creative experimentation with sculptural forms from the human figure.

220. *(61.)* **Design in Crafts (3) I, II**
Six hours.
Prerequisite: Art 201.
Visual and structural form in crafts.

225. *(19A-19B.)* **Ceramics (3) I, II**
Six hours.
Prerequisite: Art 101.
Design and construction of hand-built ceramic forms. Maximum credit six units.

231. *(70.)* **Beginning Jewelry Design (3) I, II**
Six hours.
Prerequisite: Art 220.
Design and fashioning of jewelry.

234. *(80A-80B.)* **Weaving (3) I, II**
Six hours.
Prerequisite: Art 220.
Structure and design of woven fabrics. Maximum credit six units.

240. *(7.)* **Graphic Imagery (3)**
Six hours.
Prerequisite: Art 101.
The organization concepts of design applied to experimental photographic and technical reproductive media, and environmental graphics.

241. *(14B.)* **Intermediate Graphic Communication (3) I, II**
Six hours.
Prerequisite: Art 141.
Typographic and design concepts applied to layout for contemporary media.

242. *(94A-94B.)* **Fashion Imagery (3) I, II**
Six hours.
Prerequisite: Art 101.
Design of original contemporary costumes and the drawing of the fashion image. Maximum credit six units.

247. *(8.)* **The House and Its Environment (3) I, II**
Architecture, interior design, landscape and city planning for forming man's physical and aesthetic environment.

248. *(33A.)* **Visual Presentation (3) I, II**
Six hours.
Methods, materials, and tools of the professional environmental designer stressing art principles.

249. *(33B.)* **Visual Presentation (3) I, II**
Six hours.
Prerequisite: Art 248.
Methods, materials, and tools of the professional environmental designer stressing art principles.

250. *(95A.)* **The Contemporary House (3) I, II**
Six hours.
Prerequisites: Art 100, 201, and 248.
Elementary problems in neighborhood planning, house design, and landscaping.

251. *(95B.)* **Interior Design (3) I, II**
Six hours.
Prerequisite: Art 250.
Elementary functional and aesthetic studies in interior space and form. Relationships of light, color, texture, shape and volume.

258. *(50A.)* **Appreciation and History of Art (3) I, II**
Art development in painting, sculpture, architecture, and handicrafts from the dawn of art to the Renaissance. Illustrated.

259. *(50B.)* **Appreciation and History of Art (3) I, II**
The period from the Renaissance through the modern school treated in the same manner as in Art 258.

264. *(52B.)* **Chinese Art (3) I**
A study of the arts of China.

265. *(52A.)* **Japanese Art (3) II**
A study of the arts of Japan.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

323. *(113A.)* **Furniture Design (3) I**
Six hours.
Prerequisite: Art 101. Industrial Arts 151 is recommended.
Study of the principles of design through the making of furniture.

325. *(119A.)* **Ceramics (3) I, II**
Six hours.
Prerequisite: Art 225.
Basic methods of forming, decorating, glazing and firing pottery forms with emphasis on the use of the potter's wheel.

331. *(170A.)* **Beginning Jewelry Design (3) I, II**
Six hours.
Prerequisite: Art 220.
Design and fashioning of jewelry. Not open to students with credit in Art 231.

334. *(180A-180B.)* **Advanced Weaving (3) I, II**
Six hours.
Prerequisite: Art 234.
Total credit in Art 234, 334 and 534 limited to nine units.
Advanced problems in fabric design and weave construction including tapestry and rug weaving techniques. Maximum credit six units.

340. *(197.)* **Advanced Graphic Imagery (3) I, II**
Six hours.
Prerequisite: Art 240.
Investigation of experimental photographic and technical reproductive media. Maximum credit six units.

341. *(114A.)* **Graphic Communication (3) I, II**
Six hours.
Prerequisite: Art 241.
Investigation of design concepts relating to advertising.

347. *(108.)* **The House and Its Environment (3) I, II**
Architecture, interior design, landscape and city planning for forming man's physical and aesthetic environment, its simplicities and complexities. Not open to students with credit in Art 247.

348. *(133.)* **Environmental Media (3)**
Two lectures and four hours of laboratory.
Prerequisite: Art 249.
The communication of Environmental Design using photography, miniatures, mock-ups, and transfers with terminal emphasis in transparency projection.

381. *(135A.)* **History and Theory of Environmental Design (3) I, II**
Prerequisites: Art 258 and 259.
Environmental arts. From earliest times to the 15th century.

403. *(115A-115B.)* **Life Drawing and Painting (3) I, II**
Six hours.
Prerequisites: Art 203 and 204.
Drawing and painting from nude and costumed models. Maximum credit six units.

404. *(116A-116B.)* **Advanced Painting (3) I, II**
Six hours.
Prerequisite: Art 204.
Pictorial composition and painterly process. Maximum credit six units.

405. *(118A.)* **Advanced Aqueous Media (3) I, II**
Six hours.
Prerequisite: Art 205.
Composition in watercolor and related media.

406. *(112A.)* **Design and Composition (3) I, II**
Six hours.
Prerequisites: Art 201 and 204.
Structure in picture making.

410. *(126A-126B.)* **Intaglio Printmaking (3) I, II**
Six hours.
Prerequisites: Art 101 and 203. Art 403 and 500 are recommended.
Creative intaglio—etching, drypoint, aquatint, engraving and variations. Emphasis on fine print quality and technical development. Maximum credit six units.

411. *(136A-136B.)* **Lithography Printmaking (3) I, II**
Six hours.
Prerequisites: Art 101 and 203. Art 403 and 500 are recommended.
Creative lithography—stone and plate planographic process. Emphasis on fine print quality and technical development. Maximum credit six unit.

416. *(117A-117B.)* **Advanced Sculpture (3) I, II**
Six hours.
Prerequisite: Art 216.
Creative design in diverse materials. Maximum credit six units.

421. *(111A.)* **Industrial Design (3) I, II**
Six hours.
Prerequisites: Art 100 and 201.
Design of objects for manufacture with reference to their use, materials, and in accordance with factory practices and machine techniques. Practice in the techniques of presentation, working drawings, rendering and perspective and scale models.

423. *(113B.)* **Advanced Furniture Design (3) I, II**
Six hours.
Prerequisite: Art 323.
Advanced individual design: Exploration of materials, process and function. Maximum credit nine units.

425. *(119B.)* **Ceramics (3) I, II**
Six hours.
Prerequisite: Art 325.
Continuation of Art 325. Further development of knowledge, skills and philosophy of ceramics through individual creative projects.

429. *(161A.)* **Design in Enamels (3) I, II**
Six hours.
Prerequisite: Art 220.
Design and production of vitreous enamels. Maximum credit six units.

431. *(170B.)* **Jewelry and Metalwork (3) I, II**
Six hours.
Prerequisite: Art 231 or 331.
Design and production of jewelry and hollow ware.

435. *(181.)* **Nonwoven Textile Construction (3) I, II**
Six hours.
Prerequisite: Art 220.
Textile structures with an emphasis on nonloom techniques.

436. *(182.)* **Textile Design (3)**
Six hours.
Prerequisite: Art 220.
Application of design for the textile surface, using a broad variety of media and processes appropriate for both the individual designer and commercial reproduction. Media include stencil, block, silkscreen, batik, and tie-dye. Maximum credit six units.

440. *(107.)* **Contemporary Environmental Graphics (3) I, II**
Six hours.
Prerequisite: Art 101. Art 141 and 201 are recommended.
Study of creative design for contemporary architectural and motivational graphics.

441. *(114B.)* **Advanced Graphic Communication (3) I, II**
Six hours.
Prerequisite: Art 341.
The relation of art structure and the aspects of visual communication.

442. *(194A-194B.)* **Advanced Fashion Imagery (3) I, II**
Six hours.
Prerequisite: Art 101. Art 242 is recommended.
Emphasis on developing individual drawing concepts and creative techniques in fashion illustration. Creation of fashion drawings and fashion advertising layouts. Development of a professional portfolio. Maximum credit six units.

443. *(193A.)* **Drawing and Illustration for Graphic Communication (3) I**
Six hours.
Prerequisites: Art 101 and 403.
The disciplines of realistic descriptive illustration including problems in imaginative, aesthetically refined painterly illustration. Media to include gouache, watercolor, scratch board, mixed media, and pen and ink.

444. *(196A.)* **Visual Communication Media (3) I, II**
Six hours.
Prerequisite: Art 341.
Experimental, creative and practical exploration of contemporary communication as related to magazine and editorial layout. Production of a student designed limited edition.

450. *(186.)* **Synergetic Environments (3)**
Two lectures and four hours of laboratory.
Prerequisite: Art 454.
Synthesis of materials, space, sound and light using exploratory methods in full scale projects.

451. *(195A.)* **Residential Interior Design (3) I, II**
Six hours.
Prerequisite: Art 251.
Survey, analysis and conceptual design methods of residential interiors stressing materials, equipment, components and structural detailing. Maximum credit six units.

452. *(195E.)* **Interior Design Practicum (3)**
Nine hours of laboratory.
Prerequisite: Credit or concurrent registration in Art 552.
Field experience with local professional interior designers in client relationships, business procedures, supervision of subcontracted work and installation, and execution of contracts.

454. *(195B.)* **Environmental Design (3) I, II**
Six hours.
Prerequisite: Art 451.
Survey, analysis and design synthesis of problems of more complexity, through interiors, to landscape, to architectural planning and, finally, concern for city design.

479. *(129A.)* **History of Ceramics (3) I, II**
Philosophical approaches to design of pottery and techniques as related to contemporary ceramics. Field trips.

481. *(135B.)* **History and Theory of Environmental Design (3) I, II**
Prerequisites: Art 258 and 259.
Environmental arts. From the 15th to the 19th century.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

497. *(198B.)* **Senior Investigation and Report in Art History (3) I, II**
Prerequisites: Six upper division units in art, and consent of the instructor.
Individual research into areas of art history not covered by regular courses.

498. *(198A.)* **Senior Project (3) I, II**
Prerequisite: Consent of instructor.
Investigation in art. Formal presentation of project.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

500. *(100A-100B.)* **Advanced Drawing (3) I, II**
Six hours.
Prerequisites: Art 203 and 204.
Drawing emphasizing the qualitative aspect of visual subject matter. Maximum credit six units.

502. *(120A-120B.)* **Inter-Media (3) I, II**
Six hours.
Prerequisites: Art 200 and 201.
Process and materials in plane and space. Maximum credit six units.

503. *(115C-115D.)* **Life Drawing and Painting (3) I, II**
Six hours.
Prerequisite: Art 403.
Drawing and painting from nude and costumed models. Maximum credit six units.

504. *(116C-116D.)* **Advanced Painting (3) I, II**
Six hours.
Prerequisite: Art 404.
Pictorial composition and painterly process. Maximum credit six units.

505. *118B.)* **Advanced Aqueous Media (3) I, II**
Six hours.
Prerequisite: Art 405.
Composition in watercolor and related media.

506. *(112B.)* **Design and Composition (3) I, II**
Six hours.
Prerequisite: Art 406.
Structure in picture making.

509. *(106A-106B.)* **Relief Printmaking (3) I, II**
Six hours.
Prerequisite: Art 203.
Woodcut, wood engraving, gessocut, linoleum, collograph, and relief printmaking processes. Emphasis on fine print quality and technical development using mixed media. Maximum credit six units.

510. *(126D-126E.)* **Intaglio Printmaking in Color (3)**
Six hours.
Prerequisite: Art 410.
Advanced creative intaglio printmaking in color, including zinc and copper plate; etching, drypoint, aquatint, engraving, embossing and color variations. Emphasis on fine print quality and technical development in the color process unique to this medium. Maximum credit six units.

511. *(136C-136D.)* **Lithography Printmaking in Color (3)**
Six hours.
Prerequisite: Art 411.
Advanced creative lithography printmaking in color. Emphasis on fine print quality in color process and color technology unique to this medium. Maximum credit six units.

512. *(146A-146B.)* **Serigraphy (3)**
Six hours.
Prerequisite: Art 203.
Techniques of reproducing original prints by means of the silkscreen process. Maximum credit six units.

516. *(117C.)* **Advanced Sculpture (3) I, II**
Six hours.
Prerequisite: Art 416.
The influence of art media and tools on aesthetic organization in sculpture in relief and in the round. Maximum credit six units.

517. *(127.)* **Advanced Figurative Sculpture (3) I, II**
Six hours.
Prerequisites: Art 216 and 217.
Figurative study with emphasis on individual exploration. Maximum credit six units.

521. *(111B.)* **Industrial Design (3) I, II**
Six hours.
Prerequisite: Art 421.
Design of objects for manufacture with reference to their use, materials, and in accordance with factory practices and machine techniques. Practice in the techniques of presentation, working drawings, rendering and perspective and scale models.

522. Design Crafts (3) Irregular
Six hours.
Prerequisite: Art 220.
Exploration of a variety of materials and techniques. Development of the aesthetic and technical abilities of the artist craftsman. Maximum credit six units.

523. *(113C-113D.)* **Advanced Furniture Design (3) I, II**
Six hours.
Total credit in Art 323, 423 and 523 limited to nine units.
Prerequisite: Art 423.
Advanced individual design; exploration of materials, process and function. Maximum credit six units.

525. *(119C-119D.)* **Ceramics (3) I, II**
Six hours.
Prerequisite: Art 425.
Study of ceramic design through creative projects of clay forms. Maximum credit six units.

526. *(121.)* **Clay and Glaze Technology in Ceramic Design (3)**
Six hours.
Prerequisite: Art 425.
Experimentation and application of research concerning the use of ceramic materials and techniques as an integral part of the design process. Maximum credit six units.

529. *(161B-161C-161D.)* **Design in Enamels (3) I, II**
Six hours.
Prerequisite: Art 429.
Design and production of vitreous enamels. Maximum credit nine units; six units applicable on a master's degree.

531. *(170C-170D.)* **Jewelry and Metalwork (3) I, II**
Six hours.
Prerequisite: Art 431.
Advanced individual problems in jewelry. Maximum credit six units.

532. Metalsmithing (3) I, II
Six hours.
Prerequisite: Art 331.
Individual problems involving fabrication processes already studied in order to increase technical competence while exploring personal design statements. Individual and small group study of specialized techniques such as photoetching, electroforming, small-scale forging in iron and cut steel. Maximum credit six units.

534. *(180C-180D.)* **Advanced Weaving (3) I, II**
Six hours.
Total credit in Art 234, 334 and 534 limited to nine units.
Prerequisite: Art 334.
Advanced individual problems in weaving. Maximum credit six units.

535. Advanced Nonwoven Textile Construction (3)
Six hours.
Prerequisite: Art 435.
Advanced study in nonloom techniques. Techniques to include: looping, braiding, plaiting, and special fabricating techniques. Experimentation with new man-made fibers and with synthetic commercial dyes. Maximum credit six units.

541. *(114C., 114D.)* **Problems in Graphic Communication (3) I, II**
Six hours.
Prerequisite: Art 441.
Refinement of personally developed design concepts for visual communication with emphasis on individually directed solutions. The development of a portfolio of professional quality. Maximum credit six units.

543. *(193B.)* **Drawing and Illustration for Graphic Communication (3) I**
Six hours.
Prerequisite: Art 443.
The disciplines of realistic descriptive illustration including problems in imaginative, aesthetically refined painterly illustration. Media to include gouache, watercolor, scratch board, mixed media, and pen and ink.

544. *(196B.)* **Visual Communication Media (3) I, II**
Six hours.
Prerequisite: Art 444.
Experimental, creative and practical exploration of contemporary communication as related to magazine and editorial layout. Production of a student designed limited edition.

547. *(188.)* **Environmental Theory (3)**
Prerequisite: Art 247 or 347.
Survey of alternative solutions to the problem of design of the physical environment.

550. *(187.)* **Environmental Prototypes (3)**
Two lectures and four hours of laboratory.
Prerequisite: Art 450.
Research and development of creative architectural concepts with emphasis in space enclosure systems and cybernetics.

552. *195C.)* **Professional Methods of Interior Design (3) I, II**
Six hours.
Prerequisite: Art 350.
Techniques and analyses of specification writing, estimating, contractual agreements, budget studies and supervision of professional interior design projects.

553. *(195D.)* **Contract Interior Design (3) I, II**
Six hours.
Prerequisite: Art 550.
Projects in nonresidential architectural interiors involving space planning systems analysis, specification writing, equipment and materials appropriate to commercial function. Maximum credit six units.

557. *(156A.)* **History of Modern Art (3) I, II**
Prerequisites: Art 258 and 259.
Development of painting, sculpture, and architecture from the French Revolution to the 20th century. Field trips included.

558. *(156B.)* **Contemporary Art (3) I, II**
Prerequisite: Art 557.
Current movements in sculpture, painting, graphics and architecture.

560. *(157.)* **The History of American Art (3) II**
Prerequisites: Art 258 and 259.
Development of painting, sculpture, and architecture from Colonial times to the present.

561. *(151A.)* **Pre-Columbian Art of Middle and South America (3) I**
Prerequisites: Art 258 and 259.
South and Middle American art and architecture from earliest time to the arrival of Spaniards.

562. *(151B.)* **Colonial Art of Latin America (3) II**
Prerequisites: Art 258 and 259.
The art and architecture of Latin America from the colonial period to the present. Field trips included.

565. *(152A.)* **The Art of India and Southeast Asia (3) II**
Prerequisites: Art 258 and 259.
History of the art, architecture, and sculpture of India and Southeast Asia.

566. *(152B.)* **The Art of Persia and the Islamic World (3) I**
Prerequisites: Art 258 and 259.
History of the art, architecture, sculpture and minor arts of Persia and the Islamic World.

567. *(153.)* **Art of the Ancient Near East (3) I**
Prerequisite: Art 258.
Development of painting, sculpture, architecture and crafts from prehistoric times to the fourth century B.C.

568. Art of Crete, Mycenae, Greece, and Rome (3) II
Prerequisite: Art 258.
Development of painting, sculpture, architecture, and crafts from prehistoric times to the fifth century A.D.

569. Art of Sub-Saharan Africa (3) I
Prerequisites: Art 258 and 259.
Form and content of the arts of Sub-Saharan Africa viewed within a cultural context.

570. Art of Oceania (3) II
Prerequisites: Art 258 and 259.
Form and content of the arts of Australia, Melanesia, Polynesia, and Micronesia viewed within a cultural context.

571. *(154A.)* **Medieval Art (3) II**
Prerequisites: Art 258 and 259.
Development of painting, sculpture and architecture from the time of Constantine through the Gothic period.

572. *(154B.)* **Coptic and Byzantine Art (3) I**
Prerequisites: Art 258 and 259.
The art of the Eastern Church from the reign of Justinian to the Russian Revolution.

573. *(155A.)* **Renaissance Art in Italy (3) II**
Prerequisites: Art 258 and 259.
Architecture, painting and sculpture of the Renaissance period in Italy.

574. *(155B.)* **Northern Renaissance Art (3) I**
Prerequisites: Art 258 and 259.
Architecture, sculpture, and painting north of the Alps during the Renaissance period.

575. *(155C.)* **Baroque and Rococo Art (3) II**
Prerequisites: Art 258 and 259.
Architecture, sculpture, and painting of the Baroque and Rococo periods.

577. *(160.)* **History of Architecture (3) Irregular**
Prerequisites: Art 157, or 258 and 259.
Architecture from primitive times to the present.

578. *(126C.)* **History of Printmaking (3) Irregular**
Prerequisites: Art 258 and 259.
History of printmaking from its inception to the present.

579. *(129B.)* **History of Ceramics (3) I, II**
Prerequisite: Art 479.
Philosophical approaches to design of pottery and techniques as related to contemporary ceramics. Field trips.

580. *(164.)* **History of Costume (3) Irregular**
Prerequisites: Art 258 and 259.
Historic origins of costume traced through aesthetic, social and political influences dominant during each period.

581. *(135C.)* **History and Theory of Environmental Design (3) I, II**
Prerequisites: Art 258 and 259.
Environmental arts in the 19th and 20th centuries.

584. *(105.)* **Aesthetics of Visual Environment for Young People (3) I, II**
Six hours.
Prerequisite: Art 101.
Means of developing an expanded awareness of the environment in the young. Not open to students with credit in Art 247 or 347.

585. *(175.)* **Concepts and Observations in Art (3) I, II**
Six hours.
Prerequisite: Twelve upper division units in art.
Study of principles and fundamentals of art as related to strategies of presentation.

586. *(176.)* **Practicum in Art (2) I, II**
Prerequisite: To be taken concurrently with student teaching.
Discussion, readings, and research study related to art presentation strategies.

587. *(110.)* **Exploration in Crafts for Young People (3) I, II**
Six hours.
Prerequisite: Art 101.
A design-crafts course that explores in depth materials and processes that could be used with young people. Not open to students with credit in Art 220.

590. *(190.)* **Principles and Elements of Visual Aesthetic Organization (3) II**
Three hours.
Prerequisites: Senior standing and Art 157.
Visual aesthetic materials and the psychological principles involved in aesthetic organization.

591. *(191A.)* **Gallery Exhibition Design (3) I, II**
Six hours.
Prerequisite: Fifteen units of art.
Fundamental art elements and principles applied to the theories and techniques of gallery exhibition design.

592. *(191B.)* **Gallery Exhibition Design (3) I, II**
Six hours.
Prerequisite: Art 591.
Advanced problems in the theories and techniques of gallery exhibition design.

GRADUATE COURSES

600. Drawing (3) I, II
Six hours.
Prerequisite: Art 500.
Projects synthesizing process and concept in visual field ordering. Maximum credit six units applicable on a master's degree.

604. *(216A-216B.)* **Painting (3)**
Six hours.
Prerequisites: Art 405, 504 and 506.
Organization with visual subject matter. Maximum credit six units applicable on a master's degree.

609. *(206A-206B.)* **Printmaking (1-3)**
Two hours for each unit of credit.
Advanced creative work in selected printmaking media based upon the analysis of the history and philosophies of printmaking from its inception through contemporary concepts. Maximum credit six units applicable on a master's degree.

616. *(217A-217B.)* **Sculpture (3) I, II**
Six hours.
Prerequisites: Art 516 and classified graduate standing.
Aesthetic organization of selected subject matter in the media of sculpture. Maximum credit six units applicable on a master's degree.

625. *(219A-219B.)* **Crafts (1-3)**
Two hours for each unit of credit.
Prerequisite: Six units completed in upper division courses in sculpture or ceramics or printmaking or a combination of these courses.
Advanced creative work in selected craft media. Maximum credit six units applicable on a master's degree.

627. *(221.)* **Advanced Clay and Glaze Technology in Ceramic Design (3)**
Six hours.
Prerequisite: Art 425.
Experimentation with the use of ceramic material and techniques as an integral part of the design process. Maximum credit six units applicable on a master's degree.

628. Enamel Workshop (3) I, II
Six hours.
Prerequisite: Art 529.
Workshop in enamel technology and its application to the craft. Maximum credit six units applicable on a master's degree.

631. *(270.)* **Seminar in Jewelry and Metalwork (3)**
Prerequisite: Art 331.
Problems in the design and execution of works in precious metals. Projects will be determined by the individual student in conference with the instructor. Maximum credit six units applicable on a master's degree.

634. *(280.)* **Seminar in Textile Design (3)**
Prerequisite: Art 334A.
Problems in textile design and technology. Projects will be determined by the individual student in consultation with the instructor. Maximum credit six units applicable on a master's degree.

641. *(214.)* **Graphic Communication (1-3)**
Two hours for each unit of credit.
Prerequisite: Art 541B.
Advanced individual study in graphic design. Maximum credit six units applicable on a master's degree.

650. *(295.)* **Creative Environmental Design (103)**
Prerequisite: Six upper division units in interior design, architecture or city planning.
Creative work in interior design, architecture and civic design. Maximum credit six units applicable on a master's degree.

694. *(294A-294B.)* **Seminar in the Principles of Design in the Space Arts (3)**
Prerequisite: A semester course in art appreciation.
An intensive study of the activity of creative expression and aesthetic appreciation in the area of visual experience. The aesthetic analysis of original works of art. Maximum credit six units applicable on a master's degree.

700. *(291.)* **Seminar in the Practice of Art (3)**
Prerequisite: M.A. standing.
Independent research in specified areas including the presentation of a paper with its oral defense.
Each course may be taken to a maximum of six units. No more than six units of 700 are applicable on a master's degree.
A. Seminar in Painting
B. Seminar in Sculpture
C. Seminar in Printmaking
D. Seminar in Ceramics
E. Seminar in Crafts
F. Seminar in Graphic Communication
G. Seminar in Environmental Design

760. *(292E.)* **Seminar in Modern Art (3)**
Prerequisite: Art 557.
Studies in problems of the development of art styles or important artists within broad limits of modern art.

767. *(292F.)* **Seminar in Primitive Art (3)**
Prerequisite: Art 559.
Studies in problems of the development of art styles or important artists within broad limits of primitive art.

769. *(292A.)* **Seminar in Ancient Art (3)**
Prerequisites: Art 258 and 259.
Studies in problems of the development of art styles or important artists within broad limits of ancient art.

771. *(292B.)* **Seminar in Medieval Art (3)**
Prerequisites: Art 258 and 259.
Studies in problems of the development of art styles or important artists within broad limits of medieval art.

773. *(292C.)* **Seminar in Renaissance Art (3)**
Prerequisites: Art 258 and 259.
Studies in problems of the development of art styles or important artists within broad limits of renaissance art.

775. *(292D.)* **Seminar in Baroque and Rococo Art (3)**
Prerequisites: Art 258 and 259.
Studies in problems of the development of art styles or important artists within broad limits of baroque and rococo art.

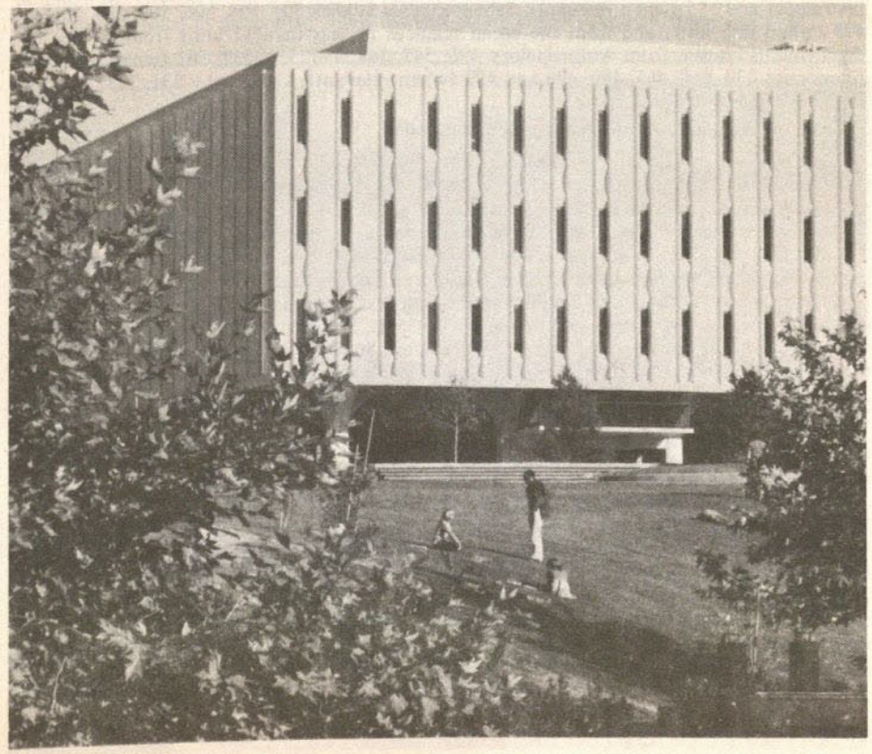
785. *(222.)* **Art Education Colloquium (3)**
Prerequisite: Fifteen upper division units in art.
Historic and current art education philosophies.

790. *(290.)* **Bibliography and Research Methods (2)**
Introduction to research methods and materials, compiling of a specialized bibliography, preparatory to writing a master's thesis.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of the staff; to be arranged with department chairman and the instructor.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for a master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.



Asian Studies

In the College of Arts and Letters

Faculty

Asian Studies is administered through the Center for Asian Studies, composed of faculty members from the departments of Anthropology, Art, Classical and Oriental Languages and Literatures, Economics, Geography, History, Linguistics, Literature, Philosophy, Political Science, Religious Studies, and Sociology; the schools of Business Administration and Education; and the Library. Professor Alvin D. Coox is student adviser.

Offered by Asian Studies

Master of Arts degree in Asian studies.
Major in Asian studies with the A.B. degree in liberal arts and sciences.
Minor in Asian studies.

Asian Studies Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Preparation for the major. Six units in History 105A-105B, 120A-120B, or Philosophy 101 and 102; six units in Anthropology 100 and 101, Economics 120 and 121, Geography 101 and 102, or Political Science 110 and 130; and Asian Studies 159A-159B. (18 units.) Art 258 and 259 (unless waived by the instructor) are needed if Art 565 is selected in the major. Art 264 and 265 and Comparative Literature 260A-260B are recommended.

Major. A minimum of 30 upper division units to include: from Asian studies not less than three units from Asian Studies 499 or 596; from the humanities not less than 12 units from at least two departments chosen from Art 565; Comparative Literature 490, 495, 530, 570 (when relevant), 571, 577, 580, 581; History 496 (when relevant), 561A-561B, 562A-562B, 564A-564B, 566, 567A-567B, 569, 570, 571A-571B; Philosophy 301 (unless waived by the instructor) and 575 (when relevant), 596; Religious Studies 501, 503, 506, 508, 580, 581 and 499 (when relevant); and from the social sciences no less than 12 units from at least two departments chosen from Anthropology 496, 547, 548, 550, 551, 552, 581 (when relevant); Economics 330, 360, 465, 489, 496 and 499 (when relevant); Geography 331, 333, 334, 350; Political Science 499.

Foreign language. Asian language recommended.

Asian Studies Minor

The minor in Asian Studies consists of a minimum of 21 units to include History 120A-120B or Asian Studies 159A-159B. Other lower division courses acceptable for the minor are Art 264 and 265; Comparative Literature 260A-260B, and four units of an appropriate Asian language. Twelve units must be in upper division. Upper division courses acceptable for the minor include: (a) from the humanities not less than six units chosen from History 561A-561B, 562A-562B, 564A-564B, 566, 567A-567B, 569, 570, 571A-571B; Philosophy 301 (unless waived by the instructor) and 575; Religious Studies 501, 503, 506, 508; (b) from the social sciences not less than six units chosen from Anthropology 547, 550, 551, 580; Economics 465; Geography 331, 333, 334; Political Science 499, 562; Business Administration 376.

Courses selected from (a) and (b) must be outside the major. No more than six units may be chosen from among History 566, 567A-567B, and Anthropology 551. No more than six units may be chosen from among History 569, 570 and Anthropology 552. Three units from Asian Studies 499 or 596 may be substituted for three units in either (a) or (b) above.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

159A-159B. The Asian Heritage (3-3)

An interdisciplinary year course on the cultures of Southern, Southeastern, and Eastern Asia, with emphasis on the interaction of ideas, peoples and their environment. (Formerly numbered Humanities 59A-59B.)

UPPER DIVISION COURSES

458A-458B. Asian Cultures (3-3)

An interdisciplinary study of the people of Southern, Southeastern, and Eastern Asia emphasizing social, cultural, economic and political aspects of Asian societies. Not open to students with credit in Asian Studies 159A-159B.

499. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisites: At least six units of upper division work completed toward the major or minor in Asian studies and the consent of the instructor.

596. Selected Studies in Asian Cultures (3)

Topics in various aspects of Asian studies, topics to be announced in the class schedule. May be repeated with new content. Maximum credit six units.

GRADUATE COURSES

601. Interdisciplinary Methods (3)

Introduction to graduate research methods and presentation of findings.

690. Seminar in Asian Studies (3)

Intensive study of an aspect of Asian studies. Maximum credit six units.

797. Research (1-3) Cr/NC

Research in one of the aspects of Asian studies. Maximum credit six units applicable on a master's degree.

799A. Thesis (3) Cr/NC

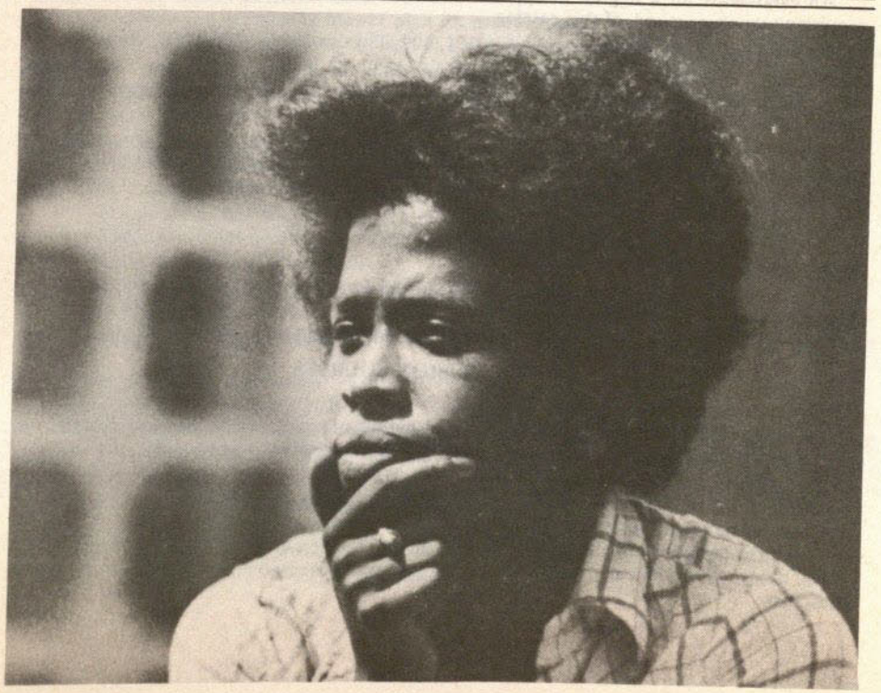
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC

Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.

Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.



Astronomy

In the College of Sciences

Faculty

Emeritus: Huffer, Smith
Professors: Daub, Nelson (Chairman), Schopp, Young
Associate Professor: Angione
Assistant Professor: Talbert

Offered by the Department

Master of Science degree in astronomy.
Major in astronomy with the A.B. degree in liberal arts and sciences.
Major in astronomy with the A.B. degree in applied arts and sciences.
Minor in astronomy.

Astronomy Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Preparation for the major. Astronomy 101, 109; Physics 195A-195B-195C. (16 units.)

Major. A minimum of 24 upper division units to include Astronomy 304A-304B, 312A-312B; and Physics 350A-350B, 354A-354B. Recommended: Astronomy 520, Physics 311, 306, 408, 510.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics to include Mathematics 150, 151, 152 and either 340A-340B, or 530 and three additional units of upper division mathematics. Recommended: Mathematics 541A, 541B, 531; Engineering 502.

Astronomy Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements on page 64 of this catalog.

Preparation for the major. Astronomy 101, 109; Physics 195A-195B-195C. (16 units.)

Major. A minimum of 24 upper division units to include Astronomy 304A-304B, 312A-312B, 498A, 498B; and Physics 350A-350B, 354A. Recommended: Astronomy 520; Physics 306, 311, 354B, 408, 510.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics, to include Mathematics 150, 151, 152, and either 340A-340B, or 530 and three additional units of upper division mathematics. Recommended: Mathematics 107, 541A, 541B, Engineering 502.

Astronomy Minor

The minor in astronomy consists of a minimum of 15 units in astronomy, nine units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

101. *(1.)* **Descriptive Astronomy (3), I, II**
Methods of astronomy and of the physical nature of members of the solar system, our galaxy and other galaxies. Telescopes will be used for occasional observations.

109. *(9.)* **Practice in Observing (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Astronomy 101.
A course designed to supplement Astronomy 101. The course will include constellation study, use of astronomical coordinates, and descriptive observations of celestial objects with telescope.

112. *(12.)* **.Elementary Navigation (3) I**
Prerequisite: Astronomy 101 and 109 recommended.
Compass corrections, time, line of position, use of celestial coordinates, tables such as H.O. 214 for the solution of astronomical triangle.

130A-130B. *(30A-30B.)* **Survey of Literature in Astronomy (1-1) I, II**
Prerequisite: Astronomy 101.
Readings in current developments in astronomy.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

303. *(103.)* **Astronomical Optics (3) II**
Two lectures and three hours of laboratory.
Prerequisites: Physics 195C, or 124B and 125B.
Theory and applications of optical instruments used in astronomy.

304A-304B. *(104A-104B.)* **Advanced Astronomy (3-3)**
Prerequisites: Astronomy 101 and 109 and credit or concurrent registration in both Mathematics 151 and Physics 195C.
Problems in practical astronomy, such as atmospheric refraction, proper motion, photographic and photoelectric photometry, solar system astrophysics.

305. *(105.)* **Historic Development of Astronomy (3) I**
A study of the more important problems and astronomical concepts in the light of their historical development. Particular attention is given to the biography and contributions of the more important astronomers, such as Galileo, Kepler, Newton, Herschel, Bessel.

312A-312B. *(112A-112B.)* **Astrophysics (3-3)**
Prerequisites: Astronomy 101 and Physics 195C. Astronomy 312A is prerequisite to 312B.
An application of modern physics to a study of the sun and the stellar system.

498A. *(198A.)* **Senior Project (1) I**
Prerequisite: An acceptable master plan for graduation within one year.
Consists of the selection and design of individual projects; oral and written progress reports.

498B. *(198B.)* **Senior Project (2) II**
Six hours of laboratory.
Prerequisite: Astronomy 498A.
Laboratory work, progress reports, oral and written reports.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisites: Three units in astronomy and consent of instructor.

520. Solar System Astronomy (3)
Prerequisites: Astronomy 101 and Physics 195C.
Study of the structures of the planets, their atmospheres and satellite systems, asteroids, comets, and meteoroids, and the interplanetary medium, including the sun's influence in the system.

580. *(180.)* **Celestial Mechanics (3) I, II**
Prerequisite: Mathematics 152.
The problem of two bodies based on the solutions of differential equations using Newtonian mechanics. Potential theory; geometrical interpretation of perturbations; calculation of planetary positions.

596. *(196.)* **Advanced Topics in Astronomy (2 or 3) I, II**
Prerequisite: Consent of instructor.
Selected topics in theoretical astronomy or astrophysics. May be repeated with new content upon approval of instructor. Maximum credit six units.

GRADUATE COURSES

600. *(200.)* **Seminar (2 or 3)**
Prerequisite: Consent of instructor.
An intensive study in advanced astronomy, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

610. *(210.)* **Binary Stars (3)**
Prerequisite: Astronomy 312B.
An intensive study of visual, spectroscopic, and eclipsing binaries, including the determination of orbits.

620. *(220.)* **Galactic Structure (3)**
Prerequisite: Astronomy 312B.
Survey of basic observational data for determining the structure of the Milky Way Galaxy; luminosity functions, stellar distributions in and near the galactic plane, solar motion, kinematics and dynamics of stellar motions, and galactic rotation; introduction to stellar dynamics.

630. *(230.)* **Stellar Interiors (3)**
Prerequisite: Astronomy 312B.
Structure of the interior of stars including the details of the reactions by which energy is obtained and the evolution of stars.

640. *(240.)* **Interstellar Matter (3)**
Prerequisites: Astronomy 312B and Mathematics 530.
Interstellar absorption and polarization, theory of interstellar grains, physics of a low density gas in a dilute radiation field, nebulae, interstellar absorption lines, dynamics of the interstellar medium, and radio observations of the interstellar medium.

650. *(250.)* **Stellar Atmospheres (3)**
Prerequisite: Astronomy 312A.
Emission and absorption of radiation, continuous spectra, spectral lines, model stellar atmosphere calculations, and non-L.T.E. problems.

660. *(225.)* **Extragalactic Structure (3)**
Prerequisite: Astronomy 312B.
The individual and collective properties of normal and peculiar galaxies. Topics include classification, spectra, masses, luminosity distributions, distance indicators, clustering, and redshifts.

670. *(170.)* **Astrophysical Spectroscopy (3)**
Prerequisites: Mathematics 152 and credit or concurrent registration in Astronomy 312A.
Theory of atomic spectra and atomic structure leading to interpretation of astronomical spectra. Optics of spectrograph design; line identification, spectral classification, radial velocity measurement, and line profile analysis.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Classified graduate standing.
Research in one of the fields of astronomy. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Athletics

In the College of Professional Studies

Faculty

Professor: Karr (Chairman)
Assistant Professors: Gilbert, Templeton, Zampese
Head Coaches: Hill, Vezie
Coaches: Dietz, Kofler, Matson, Shafer, Tollner

Offered by the Department

Courses in athletics.
Major or minor work in athletics is not offered.

LOWER DIVISION COURSES

299. *(99.)* **Experimental Topics (2-4) I, II**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

380. *(180.)* **Intercollegiate Sport Practicum (2-3)**
Laboratory experience in field of interest, with emphasis on skill, rules, and organizational procedures for varsity team members. A sport may be taken only once for credit in either Athletics 380 or 381.
Subject fields of 380 are as follows:

Offered in the Fall	*Offered in the Spring*
A Basketball (3)	H Baseball (3)
B Cross Country (2)	I Golf (2)
C Football (3)	J Rowing (2)
D Gymnastics (3)	K Tennis (2)
E Swimming (2)	L Track (3)
F Water Polo (2)	M Volleyball (2)
G Wrestling (3)	
N Soccer (2)	

381. *(181.)* **Competitive Sport Practicum (2-3)**
Laboratory experience in field of interest, with emphasis on skill, rules, and organizational procedures. A sport may be taken only once for credit in either Athletics 380 or 381.
Subject fields of 381 are as follows:

Offered in the Fall	*Offered in the Spring*
A Basketball (3)	H Baseball (3)
B Cross Country (2)	I Golf (2)
C Football (3)	J Rowing (2)
D Gymnastics (3)	K Tennis (2)
E Swimming (2)	L Track (3)
F Water Polo (2)	M Volleyball (2)
G Wrestling (3)	
N Soccer (2)	

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

Biology

In the College of Sciences

Faculty

Professors: Baer, Brandt, Clark, Collier, Cooper, Cox, Farris, Flittner, Ford, Hazen (Chairman), Johnson, McBlair, Miller, Neel, Parsons, Ratty, Rinehart, Shepard, Sloan, Taylor

Associate Professors: Awbrey, Daugherty, Diehl, Ebert, Futch, Hurlbert, Krisans, Paolini, Sanders, Schapiro, Thwaites, Zedler, P.

Assistant Professors: Barnett, Davis, Dukepoo, Hays, R.L., Mauriello, Zedler, J.

Lecturers: Hayes, R.I., Mathewson, Stutz

Offered by the Department

Doctor of Philosophy degree in genetics and in ecology.
Master of Arts degree in biology.
Master of Science degree in biology.
Major in biology with the A.B. degree in liberal arts and sciences.
Major in biology with the A.B. degree in applied arts and sciences.
Major in biology with the B.S. degree in applied arts and sciences.
Minor in biology.
Curricula which prepare for the fields of dentistry, conservation, fisheries, marine biology, medicine, veterinary medicine, and wildlife.
Single subject teaching credential in life sciences in the area of biology.

Biology Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog. A total of 45 upper division units must be selected from the general Biology Degree requirements and the list of courses acceptable for electives. Students must choose French, German, or Russian to meet the foreign language requirement. A minor is not required with this major.

Biology Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog. A total of 40 upper division units must be taken, of which 24 must be selected from the general Biology Degree requirements and the list of courses acceptable for electives. In addition students must complete twelve units of a single foreign language (chosen from French, German or Russian) or equivalent knowledge demonstrated by a test of reading knowledge administered by the foreign language department concerned in consultation with the Department of Biology. A minor is not required with this major.

Biology Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog. A total of 36 upper division units must be taken, of which 36 must be selected from the general Biology Degree requirements and the list of courses acceptable for electives. A minor is not required with this major.

General Biology Degree Requirements

Preparation for the Major. All candidates for a major in biology must complete the following: Biology 100, 100L and 215; Chemistry 200A-200B, and 230 or 231; Mathematics 121, 122 or 149 and 150; Physics 115A-115B or 124A-124B and 125A-125B or 195A-195B-195C.

Major. A minimum of 24 upper division units for the A.B. degree or 36 upper division units for the B.S. degree to include Biology 520, 540, 560; 497E or 497G or 497P; and one advanced course in the biological sciences for which Biology 520 or 540 or 560 is a prerequisite. Additional units should be selected from the following elective courses: All 400 and 500 series biology courses, Biology 300; all upper division botany courses except Botany 312, 319; all upper division chemistry courses except Chemistry 307, 360A-360B; all upper division microbiology courses except Microbiology 370; Oceanography 320 is not acceptable toward the degree; all upper division zoology courses except Zoology 314, 350, 520. All courses not covered in this list must have prior approval by the Biology Department chairman.

Biology Minor

The minor in biology consists of a minimum of 16 units in biological sciences to include Biology 100 and 100L, and nine upper division units in biological sciences selected with approval of the biology adviser.

Courses in the minor may not be counted toward the major or general education.

Biology

For the Single Subject Teaching Credential in Life Sciences

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

The requirements for the single subject teaching credential in life sciences which includes the area of biology are being revised. For further information consult the department.

LOWER DIVISION COURSES

100. *(1.)* **General Biology (3) I, II**
Prerequisites: None; concurrent registration in Biology 100L recommended.
A beginning course in biology stressing processes common to living organisms.

100L. *(2.)* **General Biology Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Biology 100.
A laboratory course in biology stressing processes common to living organisms.

130. Ecosystems and Man (3) I, II
Prerequisite: A high school or college general biology course.
Man's ecosystem interrelationships: past, present and future. Examination of how human activities disturb stable ecosystem relationships and how they may be modified to reestablish steady-state patterns of ecosystem function.

145. *(25.)* **Introduction to Heredity (3) I, II**
Hereditary mechanisms and consideration of the social implications of recent and expected developments in the field of heredity. Not open to biology majors.

200. *(4.)* **Natural History of Plants and Animals (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Biology 100.
An introduction to plants and animals in relation to their environments and to one another, with emphasis on local forms and their habitats.

215. *(15.)* **Introduction to Quantitative Biology (3) I, II**
Two lectures and three hours of laboratory.
Prerequisites: Biology 100, 100L, and Mathematics 121.
Methods and experience in defining and solving quantitative problems in biology, including the design of experiments, and parametric and nonparametric statistical techniques.

261. *(9.)* **Human Physiology (5) I, II**
Three lectures and six hours of laboratory.
Prerequisites: Zoology 108 or 160; Chemistry 100A-100B.
Functions of the human body; emphasis on the circulatory, muscular, and nervous systems. Not open to students with credit for Biology 462.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

303-S. *(170-S.)* **Contemporary Problems in Biology (1) S Cr/NC**
A series of six weekly lectures on varied aspects of biology by scientists engaged in research. Reading and reports required of students enrolled for credit. These lectures are open to the public. Maximum credit three units.

320. Concepts of Ecology (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Biology 100 and Chemistry 200A-200B.
Basic aspects of ecological theory relating to the organismal population, community and ecosystem levels of organization. Not acceptable for biological sciences major.

350. *(139.)* **Human Heredity (3) I, II**
Prerequisite: Biology 100.
Selected principles of human inheritance with emphasis on relationships to other fields of human studies. Not open to students with credit in Biology 540 or 544 or to biology majors.

351. *(165.)* **Biology of Natural Populations (3) I, II**
Prerequisite: A college course in biology.
The relation of modern concepts of genetics, ecology and physiology to natural populations with emphasis on the problems of human populations. Not open to majors in the biological sciences.

410. Bioscience Methodology (3) I
One lecture and six hours of laboratory.
Prerequisite: Consent of instructor.
Methods and techniques in the biological sciences, based on materials developed by the biological sciences curriculum committee.

420. *(115.)* **Conservation of Wildlife (3) I, II**
Prerequisite: Biology 100.
Plant and animal resources with emphasis on their conservation and intelligent use.

462. *(140.)* **Principles of Human Physiology (3) I, II**
Prerequisite: Biology 100 or Zoology 108.
Principles of human physiology. Body maintenance and nerve and muscle physiology. Not open to students with credit in Biology 261.

462L. *(141.)* **Human Physiology Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Biology 462.
Laboratory work in human physiology. Not open to students with credit in Biology 261.

496. Experimental Topics (2-4)
Refer to catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

497E. *(191.)* **Senior Investigation and Report in Ecology (2) I, II**
Prerequisites: Biology 520, senior standing and consent of instructor.
Investigation and report on current ecological literature.

497G. *(195.)* **Senior Investigation and Report in Genetics (2) I, II**
Prerequisites: Biology 540, senior standing and consent of instructor.
Investigation and report on current genetic literature.

497P. *(190.)* **Senior Investigation and Report in Physiology (2) I, II**
Prerequisites: Biology 560, senior standing and consent of instructor.
Investigation and report on current physiological literature.

498. *(198.)* **Methods of Investigation (2) I, II**
One hour of discussion and three hours of laboratory.
Prerequisites: Junior standing and a major in the life sciences.
Individual and original investigations in biology; class reports. Maximum credit four units for Biology 498 or a combination of this course with Microbiology 495 or Zoology 498.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisites: Fifteen units in biological sciences with grades of A or B and consent of instructor.

505. *(161.)* **History of Biology (3) I, II**
Prerequisite: A college course in biology.
Lectures and reports tracing scientific development of biology with emphasis on the influence of personalities and trends of the times. Not more than three units in the history of biology may be counted for graduate credit.

506. *(162.)* **Source Material in the History of Biology (3) I, II**
Prerequisite: Biology 505.
A study of original papers of significance to the history of biology. Not more than three units in the history of biology may be counted for graduate credit.

519. *(175.)* **Statistical Methods in Biology (3) I**
Two lectures and three hours of laboratory.
Prerequisite: Biology 520, 540 or 560.
Application of statistical techniques to biological data. Not open to students with credit for another upper division course in statistics except with written approval of the chairman of the department offering the student's major to be filed with the Evaluations Office.

520. *(110.)* **Ecology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 215 and Chemistry 200A-200B.
Relationships between organisms and the environment; field study in local marine, fresh water, mountain, chaparral, and desert habitats.

521. *(114.)* **Advanced Ecology (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Biology 520.
The ecology of individuals, populations, or communities. May be repeated with new content. Maximum credit six units applicable on a master's degree.

525. Agricultural Ecology (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Biology 320 or 520.
Mechanisms controlling fertility, productivity and regulation in agricultural ecosystems. The ecological design and management of agroecosystems.

528. Ecology of Renewable Resources (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Biology 320, 420 or 520.
Ecological principles in exploitation and management of forest, range, watershed and recreation lands for sustained human benefit.

530. *(111.)* **Limnology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 520 and Chemistry 200A-200B.
Biological, chemical and physical considerations of inland waters.

531. *(113.)* **Biological Oceanography (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 520, Zoology 150, Physics 124A. Application for collecting permit must be made at least six weeks before class begins at the Center for Marine Studies (AS-111).
Ecological concepts as applied to pelagic and benthic marine organisms and their environment. Field and laboratory experience in oceanographic techniques, particularly the coastal environment.

532. *(112.)* **Fisheries Biology (3) II**
Two lectures and three hours of laboratory.
Prerequisite: Biology 520.
Fisheries of commercial importance. The dynamics of exploited populations.

535. *(121.)* **Systems Ecology (5) I, II**
Four lectures and three hours of laboratory.
Prerequisites: Biology 520 and consent of instructor.
Provides a foundation in the theories and techniques necessary for a systems approach to ecology, including computer programming and topics in applied mathematics useful in systems analysis.

536. *(122.)* **Environmental Measurement (3) I, II**
Two lectures and three hours of laboratory.
Prerequisites: Biology 520 and consent of instructor.
The utilization of electronic equipment to record ecological data under field conditions, including field power supplies, effects of fluctuations in environmental conditions, types of sensors, amplifiers and data recorders, and the interfacing of components.

537. *(123.)* **Simulation of Ecological Systems (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 535 and consent of instructor.
Properties of different types of models, Monte Carlo methods, the design of simulated experiments, ways of evaluating models, the use of simulation studies as a means of guiding research. The computer will be extensively used.

540. *(155.)* **Genetics (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Biology 215.
Principles of plant and animal genetics with experiments and demonstrations illustrating the mechanisms of heredity.

541. *(156.)* **Developmental Biology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 540 and Chemistry 230 or 231. Recommended: Biology 560.
Analysis of development with emphasis on embryonic differentiation.

544. *(158.)* **Human Genetics (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Biology 540.
Genetics as related to human biology, with consideration of the applied fields of medical genetics, genetic counseling, and population studies.

545. *(157.)* **Cytogenetics (4) I**
Two lectures and six hours of laboratory.
Prerequisite: Biology 540.
The physical basis of heredity. Study of the chromosomes and chromosome behavior in relation to problems in heredity and evolution.

546. *(171.)* **Mutagenesis (3)**
Prerequisite: Biology 540.
Basic principles and applications of mutation induction, expression, and detection at all levels of biological organization. Emphasis on mutation induction by chemicals and ionizing radiations.

547. *(163.)* **Microbial Genetics (3) I, II**
Prerequisite: Biology 540.
Theory underlying microbial genetics.

548. *(172.)* **Behavioral Genetics (3) I, II**
Prerequisite: Biology 540.
The genetic involvement of single and multiple gene systems in animal behavior.

549. *(160.)* **Evolution and Population Genetics (3) I, II**
Prerequisite: Biology 540.
Theory of evolution and modeling of genetic systems.

550. *(169.)* **Ecological Genetics (3) I, II**
Prerequisites: Biology 520 and 540.
Theory of adaptations of natural populations to their environments.

559. *(173.)* **Advanced Genetics (3) I, II**
Prerequisite: Biology 540.
Current topics in molecular, organismal or population genetics. Maximum credit six units.

560. *(101.)* **Cellular Physiology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 215; Chemistry 200A-200B, and 230 or 231; Physics 115A-115B, or 124A-124B and 126A-126B, or 195A-195B-195C.
Physiological processes at the cellular level.

561. *(181.)* **Advanced Cellular Physiology (3) I, II**
Prerequisite: Biology 560.
Current topics in cellular physiology.

562A-562B. *(142A-142B.)* **Comparative Animal Physiology (4-4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 560 and consent of instructor. Application for collecting permit for 562A must be made at least six weeks before class begins at the Center for Marine Studies (AS-111).
Semester I: Feeding and digestion, blood and circulation, nutrition, respiration and metabolism, excretion and osmoregulation. Semester II: Receptor, effector, and integrative systems. In both semesters, consideration of function ranges from molecular to organismal levels. All major phyla are considered. Individual laboratory research.

564. *(144.)* **Comparative Endocrinology (3) I, II**
Prerequisite: Biology 560, Botany 530, Microbiology 320, or Zoology 540. Recommended: Chemistry 361A-361B or 560A-560B; Biology 562B.
Endocrine mechanisms at cellular, organismic, and population levels in plants and animals.

564L. *(144L.)* **Comparative Endocrinology Laboratory (2) II**
Six hours of laboratory.
Prerequisite: Credit or concurrent registration in Biology 564.
Standard and recent experiments with endocrine systems in vertebrate and invertebrate animals; analysis of mechanisms of hormone action; the role of pheromones in behavioral responses; the effects of auxins on plant growth.

566. *(148.)* **Photophysiology (3) II**
Prerequisite: Biology 560.
Bioluminescence and the physiological effects of visible and ultraviolet radiations on plants and animals.

566L. *(148L.)* **Photophysiology Laboratory (1) II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Biology 566.
The generation, measurement and control of visible and ultraviolet radiations, and the measurement and analysis of selected biological effects of these radiations.

568. *(182.)* **Immunochemistry (3) I, II**
Prerequisite: Biology 560 or Microbiology 330.
Structure and function of the immunoglobulins and the chemical and physical nature of the antigen-antibody reaction.

568L. *(182L.)* **Immunochemistry Laboratory (1) I, II**
Prerequisite: Credit or concurrent registration in Biology 568.
The characterization of the immunoglobulins and the measurement of the antigen-antibody reaction.

570. *(150.)* **Radiation Biology (3) I, II**
Prerequisites: Biology 100; Physics 124A-124B and 125A-125B. Recommended: Chemistry 200A-200B, Biology 560 and Physics 303.
Principles underlying radiological reactions of ionizing radiations. Effects of ionizing radiations at the biochemical, cell, organ, and organism levels.

570L. *(150L.)* **Radiation Biology Laboratory (2) I, II**
Six hours of laboratory.
Prerequisite: Credit or concurrent registration in Biology 570.
The laboratory determination of the effects of ionizing radiation on biological systems.

571. *(151.)* **Radioisotope Techniques in Biology (3) I, II**
One lecture and six hours of laboratory.
Prerequisites: Biology 215; Chemistry 200A-200B; Physics 115A-115B, or 124A-124B and 125A-125B. Recommended: Chemistry 250 or 251 and Biology 560.
The principles and application of radioisotopes in biology. Radionuclide measurement, safe handling, tracer and radioautography techniques.

580. *(109.)* **Regional Field Studies in Biology (1-3)**
One- to three-week periods during vacations and summer sessions.
Prerequisites: At least twelve units in the biological sciences, including Biology 100 and 100L, and consent of instructor. Application for collecting permit must be made at least six weeks before class begins at the Center for Marine Studies (AS-111).
Extended field studies of the flora, fauna, and biotic communities of major natural regions of western North America. May be repeated with new content. Maximum credit six units.

GRADUATE COURSES

600. *(200.)* **Seminar (2-3)**
Prerequisite: Consent of instructor.
An intensive study in advanced biology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

610. *(231.)* **Seminar in Ethology and Comparative Psychology (3)**
(Same course as Psychology 761.)
Prerequisite: Biology 520, or Psychology 414 or 417, or Zoology 570, and consent of the graduate adviser.
Current problems in ethology and comparative animal behavior. Maximum credit six units applicable on a master's degree.

615. *(250.)* **Biogeography (3)**
Prerequisite: Biology 520 or 549.
Concepts and principles of the distributional history of plant and animal groups, and the origins and dispersal of modern faunas and floras.

620. *(242.)* **Population and Community Ecology (3)**
Two lectures and three hours of laboratory.
Prerequisite: Biology 520.
Formulation, analysis, and experimental testing of the theories of the structure and dynamics of ecological systems at the population and community level.

621. *(243.)* **Physiological Ecology (3)**
Two lectures and three hours of laboratory.
Prerequisites: Biology 520 and consent of instructor.
The comparative physiological characteristics of natural plant and animal populations in relation to their habitats and environments.

622. *(246.)* **Behavioral Ecology (3)**
Two lectures and three hours of laboratory.
Prerequisites: Biology 520 and consent of instructor. Recommended: Zoology 570 or Psychology 461.
Behavioral mechanisms relating animals to their physical and biotic environment.

625. *(244.)* **Physical Aspects of Ecology (3)**
Two lectures and three hours of laboratory.
Prerequisite: Biology 520.
Analysis and measurement of physical factors of the environment and of the processes by which energy and matter are exchanged between organisms and the environment; the significance of the physical environment in ecological processes.

626. *(245.)* **Aquatic Ecology (3)**
Two lectures and three hours of laboratory.
Prerequisites: Biology 520 and consent of instructor. Application for collecting permit must be made at least six weeks before class begins at the Center for Marine Studies (AS-111).
Ecological concepts as applied to benthic and pelagic populations and communities in fresh water and marine environments.

630. *(240.)* **Seminar in Terrestrial Ecology (2)**
Prerequisite: Biology 520.
Ecological concepts as applied to the terrestrial environment. May be repeated with new content. Maximum credit four units applicable on a master's degree.

631. *(241.)* **Seminar in Aquatic Ecology (2)**
Prerequisite: Biology 520.
Ecological concepts as applied to the fresh water and marine environment. May be repeated with new content. Maximum credit four units applicable on a master's degree.

640. *(270.)* **Seminar in Genetics (2)**
Prerequisite: Biology 540.
Maximum credit four units applicable on a master's degree.

641. *(220.)* **Seminar in Developmental Biology (2)**
Prerequisite: Biology 541.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

642. *(221.)* **Developmental Genetics (3)**
Prerequisites: Biology 541 and 560.
Regulation of genetic information in developing systems.

643. *(222.)* **Morphogenesis (3)**
Prerequisites: Biology 541 and 560.
Regulation of pattern formation in developing systems; cell migration, cell division, cell death, dependent differentiation.

649. *(230.)* **Speciation (3)**
Prerequisites: Biology 520 and 540, or 549.
Concepts and principles of the origin of species.

651. *(276.)* **Physiological Genetics (3)**
Prerequisites: Biology 540 or 544; Chemistry 231. Recommended: Chemistry 361A-361B.
Biochemical aspects of genetics of microbial and human systems.

660. *(210.)* **Seminar in Cellular Physiology (2)**
Prerequisites: Biology 560 and consent of instructor.
Maximum credit four units applicable on a master's degree.

661. *(260.)* **Seminar in General Physiology (2)**
Prerequisite: Biology 560.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

662. *(263.)* **Seminar in Comparative Physiology (2)**
Prerequisites: Biology 562A or 562B and consent of instructor.
Comparative aspects of function at the molecular through organismal levels. Maximum credit four units applicable on a master's degree.

663. *(261.)* **Seminar in Environmental Radiation (2)**
Prerequisites: Biology 570 and 571.
The sources, characteristics, distribution, measurement, and fate of radioactive contaminants in the biosphere and interactions with the biota. Maximum credit four units applicable on a master's degree.

670. *(262.)* **Cytoplasmic Inheritance (3)**
Prerequisites: Biology 540, 560 and consent of instructor.
Literature and techniques related to research in non-Mendelian genetics.

671. *(264.)* **Methods in Physiology (2)**
Six hours of laboratory.
Prerequisite: Biology 560.
Current methods employed in physiological measurements. Maximum credit four units applicable on a master's degree.

672. *(265.)* **Molecular Biophysics (3)**
Prerequisites: Biology 560 and Mathematics 122.
The description and analysis of biological processes and systems in terms of the properties of molecules and of basic principles.

697. *(291.)* **Investigation and Report (3)**
Analysis and research techniques in biology.

790. *(290.)* **Bibliography (1)**
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

797. *(297.)* **Research (1-3) Cr/NC**
Research in one of the fields of biology. Maximum credit six units applicable on a master's degree.

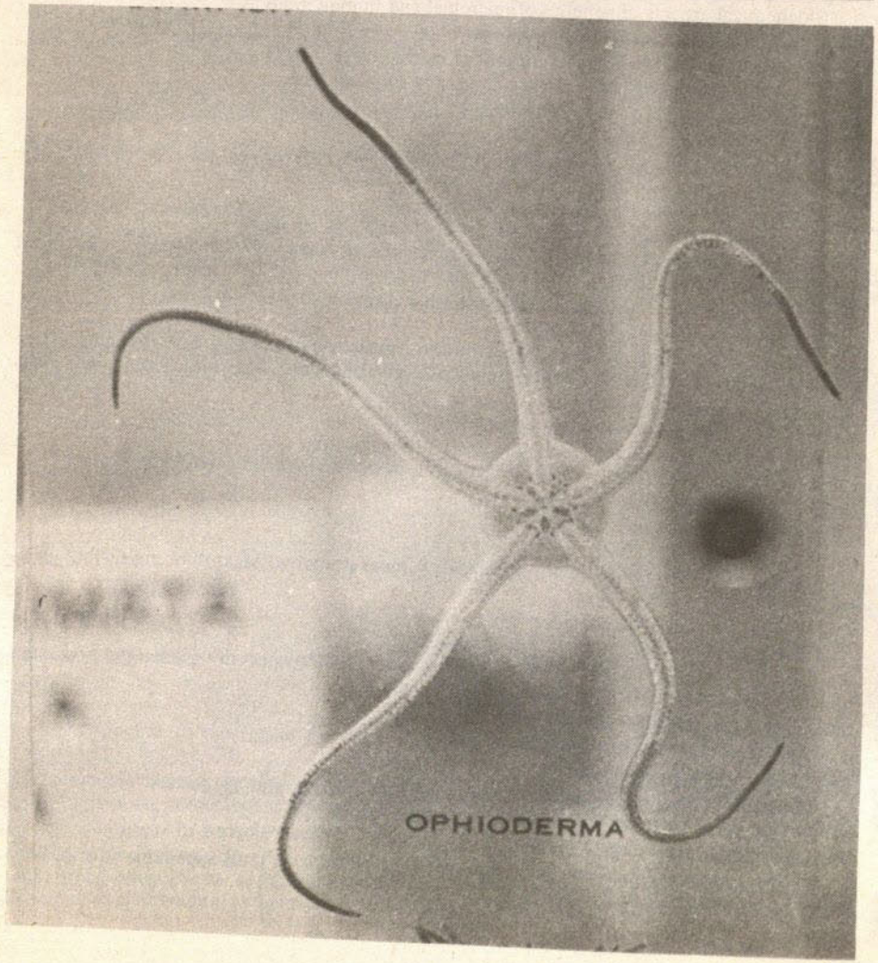
798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.

897. Doctoral Research (3-6) Cr/NC
Prerequisite: Admission to the doctoral program.
Independent investigation in the general field of the dissertation.

899. Doctoral Dissertation (3-6) Cr/NC
Prerequisite: An officially constituted dissertation committee and advancement to candidacy.
Preparation of the dissertation for the doctoral degree.



Botany

In the College of Sciences

Faculty

Emeritus: Harvey
Professors: Gallup, Kummerow, Wedberg
Associate Professors: Alexander, Preston, Rayle (Chairman)
Assistant Professors: Carmichael, Johnson

Offered by the Department

Master of Arts degree in biology with an emphasis in botany.
Major in botany with the A.B. degree in liberal arts and sciences.
Major in botany with the B.S. degree in applied arts and sciences.
Minor in botany.
Single subject teaching credential in life sciences in area of botany.

Botany Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog. It is recommended that students choose French, German, or Russian to meet the foreign language requirement for graduation.

A minor is not required with this major.

Preparation for the major. Biology 100, 100L, and 215; Chemistry 200A-200B, and 230 or 231; Mathematics 121 or 140; and Physics 115A-115B, or 124A-124B and 125A-125B. (32 units.)

Major. A minimum of 24 upper division units to include Biology 540 and either Biology 520 or Botany 514, Botany 500 and 501 or 502 or 503, and 530 and 490A, 490B, and electives in the natural sciences. Recommended: Botany 540 and Microbiology 310.

Botany Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Biology 100, 100L, and 215; Chemistry 200A-200B, and 230 or 231; Mathematics 121 or 140; and Physics 115A-115B, or 124A-124B and 125A-125B. (32 units.) Recommended: German or French or Russian; Geology 100 and 101 or 104 and 105.

Major. A minimum of 36 upper division units in the biological sciences to include Biology 520 and 540; Botany 500 and 501 or 502 or 503; Botany 490A, 490B, 514 and 530; Microbiology 310; and five units of electives. Recommended: Botany 540.

Botany Minor

The minor in botany consists of a minimum of 15 units in botany, six units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

Botany

For the Single Subject Teaching Credential in Life Sciences

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

The requirements for the single subject teaching credential in life sciences which includes the area of botany are being revised. For further information consult the department.

LOWER DIVISION COURSES

100. *(1.)* **Plants and Man (3) I, II, S**
Basic structure and function of plants with emphasis on the interrelationships of plants and man.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

312. *(112.)* **Cultivated Trees and Shrubs (3) I, II**
One lecture and six hours of laboratory, field trips.
Identification of the common cultivated trees and shrubs of the San Diego region. Trips to local parks and private gardens.

319. *(119.)* **Field Botany (4)**
Two lectures and six hours of laboratory.
Prerequisite: A course in college biological science.
Local native vegetation with emphasis on ecological units within floristic areas. Primarily for students not majoring in the College of Sciences.

490A. *(190A.)* **Senior Investigation and Report (1) I, II**
One discussion period and two additional hours to be arranged.
Prerequisites: Botany 501 or 502 or 503, and senior standing.
Selection and design of individual project; oral and written reports.

490B. *(190B.)* **Senior Investigation and Report (2) I, II**
One discussion period and five additional hours to be arranged.
Prerequisite: Botany 490A.
Individual investigation, progress reports, oral and written final reports.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Fifteen units in botany with grades of A or B or consent of instructor.

500. *(100.)* **General Botany (4) I, II**
Three lectures and three hours of laboratory.
Prerequisites: Biology 100 and 100L.
Primarily for majors in the biological sciences. Structure, physiology, reproduction and evolution of the major plant groups.

501. *(101.)* **Phycology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L.
Morphology and phylogenetic relationships of the algae.

502. *(102.)* **Mycology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L.
The structure, food relations, and classification of fungi.

503. *(103.)* **Vascular Plants (4)**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L.
Structure, development and phylogenetic relationships of the bryophytes and vascular plants.

511. *(111.)* **Advanced Phycology (3)**
Prerequisite: Botany 501.
Physiology, ecology, culture and economic aspects of the algae. Maximum credit six units with three units applicable on a master's degree.

514. *(114.)* **Plant Taxonomy (4) II**
Two lectures and six hours of laboratory, field trips.
Prerequisite: Biology 540.
The study of variation, primarily in flowering plants; classification, identification, nomenclature, distribution.

526. *(126.)* **Plant Pathology (4)**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L. Recommended: Botany 502.
A practical course dealing with the principles of disease in plants, control measures, and quarantine procedures. Emphasis is placed on the determination and control measures of those pathogenic organisms which affect crops, trees and shrubs and nursery stock.

530. *(130.)* **Plant Physiology (4)**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100, 100L, Chemistry 200A-200B, and 230 or 231.
The activities of plants, including food manufacture, absorption, conduction, transportation, respiration, growth and movement.

532. *(132.)* **Plant Metabolism (3)**
Prerequisite: Botany 530 or Biology 560.
An examination of metabolic pathways in plants and their regulation and control.

533. *(133.)* **Experimental Plant Metabolism (2)**
Six hours of laboratory.
Prerequisites: Credit or concurrent registration in Botany 532 and consent of instructor.
Experimental approaches to the study of plant metabolism and development.

540. *(140.)* **Plant Anatomy (4) II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L. Recommended: Botany 500.
The arrangement of structural elements within plant organs, with emphasis on cell and tissue types.

562. *(162.)* **Agricultural Botany (2)**
Field trips to be arranged.
Prerequisites: Biology 100 and 100L. Recommended: Botany 500 or Zoology 521.
California crop plants, their general identification, cultural methods, and regional distribution.

572. *(172.)* **Palynology (3) I**
One lecture and six hours of laboratory.
Prerequisite: A course in college biological science.
Principles and methods of pollen and spore diagnosis, with reference to use in taxonomy, paleontology, anthropology, and medicine.

596. *(196.)* **Selected Topics in Botany (2-3)**
Prerequisite: Consent of instructor.
Selected topics in classical and modern botany. May be repeated with new content. Maximum credit six units with three units applicable on a master's degree.

GRADUATE COURSES

600. *(200.)* **Seminar (2 or 3)**
Prerequisite: Consent of instructor.
An intensive study in advanced botany, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

601. *(201.)* **Seminar in Phycology (2)**
Prerequisite: Botany 501.
Recent developments in phycology. Maximum credit four units applicable on a master's degree.

602. *(202.)* **Seminar in Mycology (2)**
Prerequisite: Botany 502.
Current problems in the taxonomy, morphology or physiology of the fungi. Maximum credit four units applicable on a master's degree.

603. *(203.)* **Seminar in Vascular Plants (2)**
Prerequisite: Botany 503.
Problems in the evolution of the vascular plants. Maximum credit four units applicable on a master's degree.

626. *(226.)* **Seminar in Plant Pathology (2)**
Prerequisite: Botany 526.
Advanced topics in the biology of plant pathogens. Maximum credit four units applicable on a master's degree.

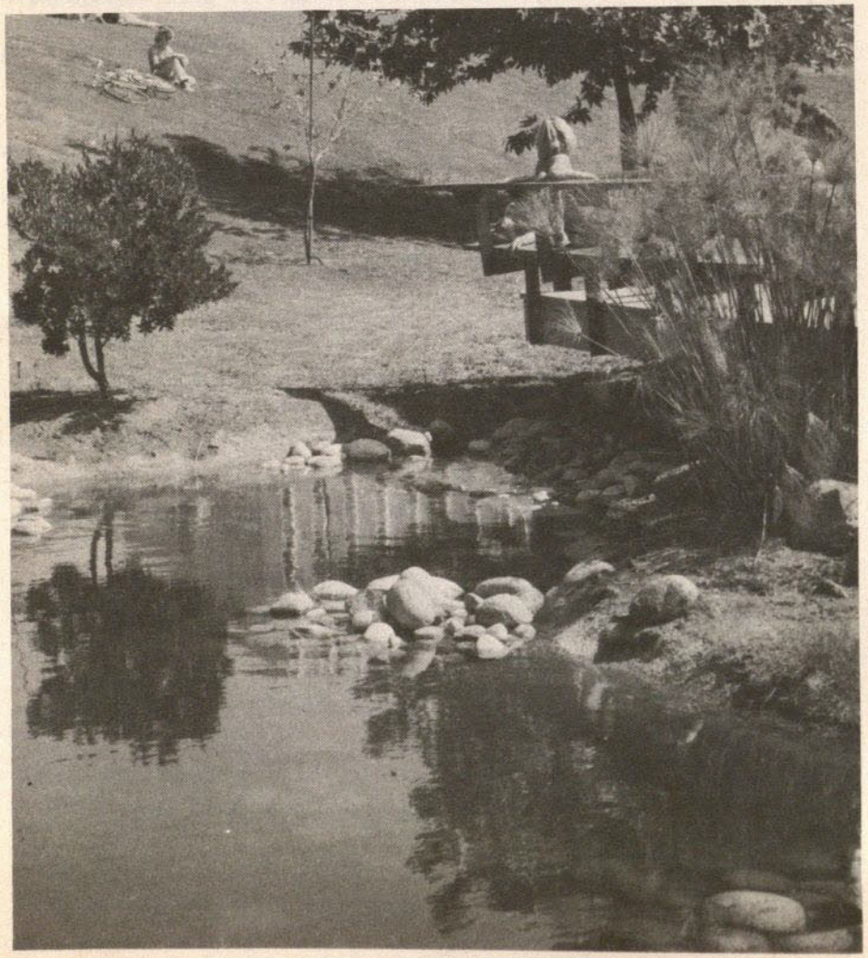
630. *(230.)* **Seminar in Plant Physiology (2)**
Prerequisite: Botany 530.
Current investigations in one of the areas in plant physiology. Maximum credit four units applicable on a master's degree.

797. *(297.)* **Research (1-3) Cr/NC**
Research in one of the fields of botany.
Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for a master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.



Business Administration

In the School of Business Administration

A member of the American Assembly of Collegiate Schools of Business

Faculty

Dean: Hungate

Accounting Department
Emeritus: Brown, Wright
Professors: Brodshatzer, Dodds, Ferrel, Harned, Lightner, Meier (Chairman), Odmark, Snudden, Williamson
Associate Professors: Bailey, Meigs
Assistant Professors: Samuelson, Toole
Lecturers: Krepshaw, Lambert

Finance Department
Emeritus: Chapman
Professors: Hippaka, Neuberger, Nye, Reints, Reznikoff, Wijnholds
Associate Professors: Block, Fisher, H., Hutchins, Schmier, Short, Smith, Vandenberg (Chairman)
Assistant Professors: Cowan, Fisher, R., Potter, Wilbur
Lecturer: Crabb

Information Systems Department
Emeritus: Gibson
Professors: Archer, Crawford (Associate Dean), Langenbach, LeBarron, Straub
Associate Professor: Spaulding (Chairman)
Assistant Professors: Chrysler, Feeney, Mahoney, Stenvall, Tilaro
Lecturers: Crownover, Padelford, Richardson, Wight

Management Department
Emeritus: Torbert
Professors: Atchison, Belasco, Belcher, Galbraith, Ghorpade, Hampton, Mitton, Peters, Pierson, Sherrard (Chairman), Srbich, Trueman
Assistant Professors: Beatty, Boschken, Hesse, Trippi
Lecturers: Benson, Brill

Marketing Department
Professors: Barber, Darley (Chairman), Haas, Hale, Lindgren, McFall, Sharkey, Wotruba
Associate Professors: Akers, Vanier
Assistant Professors: Settle, Vidali
Lecturer: Redinbaugh

Offered by the School of Business Administration

Master of Science degree in business administration, Master of Business Administration. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Majors with the B.S. degree in business administration in the following fields: accounting, finance, information systems, insurance, management, marketing, real estate. (Described in the section on the School of Business Administration.)

Minors in the following fields: accounting, business management, employee relations, finance, information systems, insurance, marketing, production and operations management. (Described in the section on the School of Business Administration.)

Teaching major in business for the single subject teaching credential.

LOWER DIVISION COURSES

140. *(30A.)* **Business Law (3) I, II**
Introduction to legal institutions; nature and sources of law; the judicial system; legal concepts and cases involving contracts, agency, and sales.

141. *(30B.)* **Business Law (3) I, II**
Prerequisite: Business Administration 140.
Legal concepts and cases to be selected from business organization, negotiable instruments, property, security devices, creditors' rights and bankruptcy, trade regulation, and labor law. Students preparing for public accounting should take Business Administration 340 instead of 141.

150. *(40.)* **The Business Enterprise (3) I, II**
Not open to students who are majors or minors in any department of the School of Business Administration.
The business enterprise and its function in society; interrelations of ownership, entrepreneurship, and administration; interactions within the firm and within and among industries.

180. *(83.)* **Information Processing and Computer Programming (3) I, II**
Introduction to concepts of information processing and computer programming.

190. *(71.)* **Beginning Typewriting (2)**
Four hours.
Fundamentals of typewriting. Development of personal-use skills. Not open to students with credit for high school typewriting.

191. *(72.)* **Advanced Typewriting (2)**
Four hours.
Application of typewriting skills in solution of typical business problems.

192. *(73.)* **Computational Machines Laboratory (1) I, II**
Two hours of laboratory.
Laboratory course in figuring and calculating machine principles and operation.

193. *(74.)* **Communicative Machines Laboratory (2) I, II**
Four hours of laboratory.
Prerequisite: Business Administration 190.
Laboratory course in communication and duplicating machine principles and operation.

194A-194B. *(75A-75B.)* **Shorthand (3-3)**
Five hours of lecture and activity.
Prerequisite: Business Administration 191; 194A is prerequisite to 194B.
Gregg shorthand theory; dictation and transcription.

210A-210B. *(1A-1B.)* **(2-2) or 212.** *(1A-1B.)* **(4) Accounting Fundamentals I, II**
Prerequisite: Business Administration 210A is prerequisite to 210B.
Organizing, recording, and communicating economic information relating to the business entity.

231. *(170.)* **Real Estate Principles and Practices (3) I, II**
Functions and regulation of the real estate market; transfers of property including escrows, mortgages, deeds, title insurance; appraisal techniques; financing methods; leases; subdivision development; property management. Prerequisite for major in Real Estate.

280. *(84.)* **Systems Programming (3) I, II**
Prerequisite: Business Administration 180.
The theory and techniques of data manipulation, utilizing a problem-oriented language.

290. *(80.)* **Written Communications in Business (3) I, II**
Prerequisite: English 100 or 101.
Principles of effective writing applied to business and industrial situations and to the organization and presentation of reports.

295. *(76.)* **Advanced Shorthand (3)**
Prerequisite: Business Administration 194B.
Development of speed in writing and transcription.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. *(190.)* **Quantitative Analysis for Business (3) I, II**
Prerequisites: Mathematics 120; Economics 142 or Mathematics 119.
Quantitative methods applied to business decision making.

302. *(191.)* **Quantitative Methods (3)**
Prerequisites: Mathematics 120; Economics 142 or Mathematics 119.
A study of various management science techniques such as simulation, transportation and simple linear programming and queuing theory.

306. *(194A.)* **Scope and Function of Business Education (3) I**
Philosophy, scope, and functions of business education; analysis and development of curricula; instructional foundations of basic business subjects.

310. *(100.)* **Intermediate Accounting (4) I, II**
Prerequisite: Minimum grade of C in Business Administration 210A-210B or 212.
Theories and principles underlying financial statements and determination of income of profit-seeking enterprises. Emphasizes asset and liability accounting.

311. *(115.)* **Financial Accounting Theory (4) I, II**
Prerequisite: Business Administration 310 with minimum grade of C.
Equity accounting issues; theory construction; various income concepts; contemporary financial accounting issues; statement analyses.

312. *(102.)* **Managerial Cost Accounting (4) I, II**
Prerequisite: Minimum grade of C in Business Administration 210A-210B or 212.
Management use of accounting data for planning and control; theories and practices of cost accounting, standard cost systems, distribution analysis, and capital budgeting.

314. *(101.)* **Specialized Accounting Problems (4) I, II**
Prerequisite: Credit or concurrent registration in Business Administration 311.
Problems involved in partnerships, consignments, consolidations, receiverships, foreign exchange, fund accounting, and other specialized areas.

315. *(103.)* **Accounting for Managers (4) I, II**
Prerequisite: Credit or concurrent registration in Business Administration 350.
Managerial accounting and financial accounting for nonaccountants. Not open to students with credit in Business Administration 310 or 312.

321. Managerial Economics (3) I, II
Prerequisites: Completion of lower division course requirements in major or minor.
Role of economic analysis in management decisions. Study of demand, cost, supply theories from a business viewpoint. Emphasis on managerial decision making.

323. *(126.)* **Fundamentals of Finance (3) I, II**
Prerequisite: Completion of lower division course requirements in major or minor.
Objectives of financial management. Financing the business enterprise. Internal financial management. Introduction to the cost of capital, valuation, dividend policy, leverage and the techniques of present value and its applications. Sources of capital.

325. *(127.)* **Planning of Capital Expenditures (3) I, II**
Prerequisites: Business Administration 323 and credit or concurrent registration in 301.
The capital expenditure decision process. Measuring and evaluating benefits and costs. The cost of capital and the evaluation process. Capital rationing problems. Risk and uncertainty in the decision process. Emphasis on quantitative and computer methods in the decision-making process.

327. *(128A.)* **Investments (3) I, II**
Prerequisite: Business Administration 323.
Investment principles and practices with emphasis on problems of the small investor, such as tests of a good investment, sources of information, types of stocks and bonds, mechanics of purchase and sale, investment trusts, real estate mortgages, and the like.

329. *(129.)* **International Business Finance (3) I, II**
Prerequisite: Business Administration 323.
The financing of international business transactions; international payments and their environment; international financial institutions.

331. Real Estate Development (3) I, II
Prerequisites: Economics 120 and 121, or 303 and 304.
Operation of the real estate market; principles of valuation, financing, leasing and property management. Not open to students with credit for Business Administration 231.

333. *(171.)* **Law of Real Property (3) I, II**
Prerequisites: Business Administration 141 and 231.
Legal theory and practice of estates in land; landlord and tenant relationships; land transactions; mortgages and trust deeds; easements; land use; ownership rights in land; environmental law.

335. *(172.)* **Real Estate Institutions and Urban Development (3) I, II**
Prerequisite: Business Administration 231.
The real estate market as a land use determinant. Housing as a public resource. Land as an agent of production. Real estate and the quality of urban life. Real estate development and urban infrastructure. Property taxation. Urban decline and property redevelopment.

340. *(118.)* **Advanced Business Law (3) I, II**
Prerequisites: Business Administration 140 and a major in accounting with at least nine upper division units in accounting.
Legal concepts and cases involving business organization, negotiable instruments, property, security devices, creditors' rights, bankruptcy, insurance, wills, trusts, estates, and suretyship. Special emphasis on problem-solving techniques. Not open to students with credit in Business Administration 141.

341. *(131.)* **Law in a Business Society (3) I, II**
Prerequisite: Business Administration 140.
The nature of law as a process of resolving economic disputes and social conflicts. Analysis of the rationale in statutes, judicial decisions, and doctrine. The role of law in the development of business concepts.

342. *(120.)* **General Insurance (3) I, II**
History of insurance; economic and social implications; principles of insurance contracts; theory of risk; law of large numbers. Survey of all major insurance fields and policies including life, fire, marine, inland marine, casualty and surety bonding.

344. *(122.)* **Social Insurance (3) II**
Prerequisite: Economics 121.
Public assistance. Old age, survivors, disability, and hospitalization insurance; workmen's compensation; unemployment compensation and disability insurance. Administration, coverage, financing, and benefit provisions. Strength and weakness of existing systems.

346. *(123.)* **Employee Benefit Plans (3) II**
Theory of employee benefit plans. The group technique. Group life and health insurance. Insured pension plans. Trust fund plans. Funding and cost considerations. Profit sharing plans. Self-employed plans. Problems in benefit security. Administration of employee benefit plans.

348. *(124.)* **Life Insurance Principles and Practices (3) II**
Prerequisite: Business Administration 342.
Economic and social aspects of life insurance; nature of life insurance and annuity contracts; basic legal principles; theory of probabilities, premiums, reserves, and nonforfeiture values; company operational activities; agency development and management.

350. *(132.)* **Management and Organization (3) I, II**
Prerequisite: Completion of lower division courses required in the major or minor.
Concepts of organizing activities to achieve goals. Effects of environment, technology and human behavior on organization design. Managerial processes including planning, decision making, influence and control required to operate and change organizations.

351. *(145.)* **Organizational Behavior (3) I, II**
Prerequisite: Business Administration 350 or Public Administration 330.
Human behavior in organizations at the individual, interpersonal and group level including the effect of organization structure on behavior. Emphasis on managerial behavior as it relates to human motivation, influence, leadership, communication, group dynamics and conflict resolution.

352. *(140.)* **Human Resources Management (3) I, II**
Prerequisite: Business Administration 350.
Management of human resources including manpower planning and staffing, training and development, performance appraisal, compensation and union-management relations. Emphasis on effect of economic, sociological and psychological factors on concepts and practices.

360. *(135.)* **Fundamentals of Production and Operations Management (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Business Administration 350.
Role of the operations function in the organization. Study of production and operations organizations. Systems analysis, facilities planning, competitive bidding, methods and scheduling and control models.

370. *(150.)* **Marketing Principles (3) I, II**
Prerequisite: Completion of all lower division course requirements for the major or minor.
Marketing functions, activities of producers, wholesalers, retailers and other middlemen; channels of distribution; integration of marketing activities; price policies; government regulation.

371. *(156.)* **Consumer Behavior (3) I, II**
Prerequisite: Business Administration 370.
Examination of the nature of markets and of the factors influencing market development and change. Study of the individual consumer's behavior in relation to the selling-buying process.

372. *(152.)* **Retailing Principles (3) I, II**
Prerequisite: Business Administration 370.
Study of retail stores, emphasizing the problems of store managers and merchandising executives; store location, organization, personnel, sales promotion, buying and handling of merchandise, inventory, turnover, and control methods. Problems of profitable operation under changing conditions.

373. *(153.)* **Advertising Principles (3) I, II**
Prerequisite: Business Administration 370.
Advertising as a sales promotional tool in marketing activities; consumer, market and product analysis; advertising media; preparation of advertisements; measurement of advertising effectiveness; economic and legal aspects of advertising; public relations; advertising campaigns.

374. *(161.)* **Traffic Management (3) I**
Prerequisite: Economics 121 or 304.
Organization and functions of a traffic department, routing policy on shipments, freight rates and classifications, receiving and shipping, loss and damage claims, warehousing, packing and loading, documentation, export and import shipments, government regulations.

375. *(164.)* **Purchasing and Buying (3) I, II**
Prerequisites: Business Administration 350 and 370.
Policies for purchasing raw materials, parts, supplies and finished goods for manufacturing operations, for commercial uses, and for wholesale and retail resale. Buying procedures, inventory control, vendor relations, legal problems, quality control, financing.

376. *(165.)* **International Marketing (3) II**
Prerequisite: Business Administration 370.
Bases and promotion of marketing; foreign marketing; organizations and methods; technical and financial features of international markets; selection of organization and trade channels. Determinants and principles of foreign marketing policies.

380. *(185.)* **Automated Management Information Systems (3) I, II**
Prerequisites: Business Administration 280; Economics 142 or Mathematics 119.
Concepts and techniques for the design, development, and implementation of EDP-based management information systems to improve decision making.

381. *(182.)* **Consumer Income Management (3) I, II**
Functions and responsibilities of consumers; problems of choice making; planning expenditures for housing, household operation, insurance and investments. Economics of installment buying, borrowing procedures, control of frauds, legislation affecting consumers.

385. *(184.)* **Information Systems Management (3) I, II**
Prerequisites: Business Administration 180; Economics 142 or Mathematics 119.
Administrative theories as they apply to typical information systems; interrelationship of personnel, equipment, and services; emphasis on quantitative and qualitative aspects of information systems.

390. *(183.)* **Executive Secretarial Management (3)**
Prerequisites: Business Administration 193 and 194B.
Executive secretarial responsibilities and functions, including a review for the Certified Professional Secretary Examination.

401. *(196.)* **Business Internship (1-3) I, II**
Prerequisite: Consent of Dean of School of Business Administration.
Students to be assigned to business firms to work under the joint supervision of the business firm's supervisor and the course instructor.

403-S. *(180-S.)* **Workshop in Business Education (2) S**
Developments in business education areas such as (a) bookkeeping, (b) distributive and basic business education, (c) secretarial, and (d) typewriting. Opportunity provided for work on individual problems. May be repeated with new content. Maximum credit eight units.

406. *(194B.)* **Methods in Teaching Business Skills (3) II**
Philosophy and psychology of teaching business skills; presentation and evaluation of objectives, techniques, and materials for skill development.

410. *(106.)* **Income Tax Accounting (4) I, II**
Prerequisite: Minimum grade of C in Business Administration 310 or 315.
Theory and procedures in the preparation of federal and California income tax returns for individuals, partnerhips and corporations.

411. *(107.)* **Advanced Income Tax Accounting (2) I, II**
Prerequisite: Business Administration 410.
Theories of taxation as related to personal holding companies, corporate distributions, liquidation and capital changes; fiduciary return preparation; brief survey of gift, estate and social security taxes.

412. *(114.)* **Advanced Managerial Accounting (3) I, II**
Prerequisites: Business Administration 302 and 312.
Use of accounting information systems for managerial decision making. Introduction to decision making situations which use accounting information for full or partial resolution. Consideration of uncertainty, decision theory and specific decision contexts.

414. *(112.)* **Auditing (4) I, II**
Prerequisites: Business Administration 311, 312 and 314.
Consideration of internal control in the design of accounting systems; flow-charting techniques; duties, ethics and responsibilities of the auditor; procedures for verification of financial statements; auditor's reports.

415. *(108.)* **Governmental Accounting (2) I, II**
Prerequisite: Business Administration 310.
Principles of fund accounting useful in state and local governmental units, hospitals, colleges, and universities. Comparisons with commercial accounting emphasized. Includes study of budgetary accounting, appropriations, encumbrances, internal checks and auditing procedures.

417. *(119.)* **Advanced Accounting Problems (3) I, II**
Prerequisite: Business Administration 414.
An intensive review of the accounting principles and procedures covered in the accounting theory and accounting practice sections of the uniform C.P.A. examination prepared by the American Institute of Certified Public Accountants.

421. *(128B.)* **Security Analysis and Investment Strategies (3) I, II**
Prerequisite: Business Administration 327.
Theory and practice of security valuation and market behavior by advanced technical and fundamental analysis. Strategies for optimizing profit and minimizing risk in securities transactions. Institutional and personal portfolio management.

423. *(130.)* **Financial Analysis and Management (3) I, II**
Prerequisites: Business Administration 325 and Economics 490.
Evaluation of conditions and trends in the money and capital markets. Utilization of financial data as related to the problems of business enterprises. Emphasis on decision making and research in finance.

425. *(197.)* **Business Forecasting (3) I, II**
Prerequisites: Business Administration 323, 370, and 301 or 302.
Business fluctuations; forecasting, and related problems confronting the business firm; forecasting techniques; specific forecasts. The use of forecasts in the firm.

431. *(173.)* **Real Estate Finance (3) I, II**
Prerequisites: Business Administration 141 and 231.
Methods of financing real estate; sources of real estate credit; loan servicing; governmental financial agencies; acquisition and sale of mortgages and trust deeds.

433. *(174.)* **Theory of Real Property Value (3) I, II**
Prerequisite: Business Administration 335.
Introduction to theories of real property value. Techniques of value determination. Data analysis techniques.

435. *(175.)* **Real Estate Appraisal Problems (3) II**
Prerequisite: Business Administration 433.
Implementation of advanced value theory and appraisal technique in the solution of valuation problems involving condemnation, and industrial, commercial, land, and special purpose properties.

437. Housing, Renewal and Real Estate Dynamics (3)
Prerequisite: Business Administration 231.
Entrepreneurial behavior in the housing sector. Models of the housing market. Housing quality, social aspects of housing. Urban renewal and relocation. Low income housing. Public housing. Governmental involvement in the housing sector. Community and environmental factors.

441. *(121A.)* **Property Insurance (3) I**
Prerequisite: Business Administration 342.
Standard forms of property insurance including fire and allied lines, business interruption and consequential loss coverages, inland marine, and ocean marine. Other areas including marketing, underwriting, investment, rate-making, loss adjusting, reinsurance, and government regulation.

443. *(121B.)* **Casualty Insurance (3) II**
Prerequisite: Business Administration 342.
Basis for legal liability. Identification of personal business and professional liability situations, liability risk management. Analysis of major liability insurance contracts including automobile, malpractice, general liability, workmen's compensation. Other areas including underwriting, rate-making, regulation, and reserves of casualty insurers.

445. *(125.)* **Estate Planning (3) I, II**
Programming fundamentals with emphasis on economic, actuarial, and legal principles, program coordination and integration with wills; guardianships; estate planning fundamentals; taxation; business life insurance. Analysis of life insurance selling as a career.

452. *(142.)* **Wage and Salary Administration (3) I, II**
Prerequisite: Business Administration 352.
Major problems in the determination and control of compensation from employment. Comparison of underlying theory to current practice.

453. *(143.)* **Problems in Employee Relations (3) II**
Prerequisite: Business Administration 352.
The employee relations function. Analysis of current practices as effective solutions to problems in this area. Guided research into the nature of employment relations.

456. *(134.)* **The Social Environment of Business (3) I, II**
Prerequisite: Senior standing.
An interdisciplinary study of American business enterprise in its cultural environment. The foundations of business; historical modifications; present relationship between business and society. The moral and ethical responsibilities of business and the businessman.

457. *(141.)* **Applications in Management (1-3) I, II**
Prerequisites: Business Administration 350 and concurrent registration in Business Administration 351, 352, 360 or 459.
Developing specific skills in areas of management.

458. *(148.)* **Management Decision Games (1-3) I, II**
Prerequisite: Consent of instructor.
Integrated managerial decision making within a dynamic environment through the use of business games.

459. *(149.)* **Business Policy (3) I, II**
Prerequisites: Senior standing and consent of instructor.
Formulation and administration of policy; integration of the various specialties in business; development of overall management viewpoint.

460. *(136.)* **Quality Control (3) I, II**
Prerequisites: Business Administration 301 and 360.
Techniques for planning and controlling quality of produced and purchased items; emphasis on statistical and quantitative methods particularly applicable to quality, reliability, and maintainability.

461. *(137.)* **Systems and Methods Analysis (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Business Administration 360.
Examination of systems approach as applied to methods analysis and work measurement. Modeling, analysis, synthesis, and management of systems. Analysis of case studies.

462. *(138.)* **Operations Planning and Control Systems (3)**
Prerequisites: Business Administration 301 and 360.
Problems in the design of single- and multiple-product integrated production and inventory control systems. Detailed and aggregate scheduling of operations under deterministic and stochastic demand conditions.

463. *(192.)* **Advanced Quantitative Methods (3)**
Prerequisite: Business Administration 302.
The derivation and application of management science techniques to management decision making. Simulation of static and dynamic models. Development of advanced linear and nonlinear programs.

464. *(193.)* **Management Science (3)**
Prerequisite: Business Administration 463.
Study of current applications of operations research techniques to the solution of business and industrial problems. Readings, projects, cases, and field work as appropriate.

470. *(157.)* **Marketing Research (3) I, II**
Prerequisites: Business Administration 301 and 370.
Formal research techniques and analysis for marketing decisions; principles of decision making.

471. *(158.)* **Marketing Research Laboratory (1)**
Three hours of laboratory.
Prerequisite: Business Administration 470.
Applications of market research techniques to selected topics. Uses and limitations of various methods of analysis. Orientation and use of computer center is included.

472. *(160.)* **Advertising Management (3)**
Prerequisites: Business Administration 371 and 373.
The management of the advertising and sales promotion function.

473. *(163.)* **Sales Management (3) I, II**
Prerequisite: Business Administration 370.
Consideration of the structure of sales organization; sales policies; selection, training, compensation, evaluation and control of the sales force; sales analysis; sales quotas; sales costs and budgets; markets and product research and analysis; coordination of personal selling with other forms of sales effort.

474. *(162.)* **Industrial Marketing (3) I, II**
Prerequisites: Business Administration 350 and 370.
Study of industrial products and services and how they are marketed; classifications of industrial products and customers; buying procedures; applications of marketing research; analysis of industrial product planning; industrial channels of distribution; industrial promotion applications and pricing practices.

475. *(154.)* **Marketing Problems (3) I, II**
Prerequisite: Business Administration 370.
Complex cases in marketing involving analysis of business situations.

476. *(159.)* **Analysis of Marketing Information (3) I, II**
Prerequisites: Business Administration 301 and 370.
The analysis and interpretation of marketing and business information. Decision-making procedures used in conjunction with marketing information.

479. *(151.)* **Marketing Management (3) I, II**
Prerequisites: Business Administration 371 and 470.
The managerial aspects of marketing. The development of marketing strategy and plans with the aid of social science concepts. Integrates the specific elements of the marketing function.

480. *(186.)* **Information Storage and Retrieval Systems (3) I, II**
Prerequisite: Business Administration 380.
Systems for abstracting, storing, and retrieving information with automated equipment.

481. *(187.)* **Advanced Programming Techniques (3) I, II**
Prerequisite: Business Administration 380.
Software packages utilized in EDP systems in business.

482. *(188.)* **Data Processing Practicum (3) I, II**
Prerequisites: Business Administration 301, 480, 481.
Fundamentals of systems flow charting and computer programming; computer applications to typical automated data processing problems.

496. *(195.)* **Selected Topics in Business Administration (1-3) I, II**
Prerequisite: Consent of Dean of School of Business Administration.
Selected areas of concern in business administration; topic to be listed in class schedule. May be repeated with new content with consent of Dean of School of Business Administration. Maximum credit six units.

498. *(198.)* **Investigation and Report (1-3) I, II**
Prerequisites: Senior standing and consent of instructor.
May be repeated with new content. Maximum credit six units.
A comprehensive and original study of a problem connected with business under the direction of one or more members of the business administration staff.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

GRADUATE COURSES

Classified graduate standing is a prerequisite for all 600- and 700-numbered courses.

600. *(200.)* **Financial Accounting (3)**
Basic concepts and principles of financial accounting; accounting as a data processing system; measurement of business income; financial statements.

601. *(201A.)* **Organization Theory (3)**
The business organization viewed as a system. Development of organization theory, functions and structure of organizations, control and adaptation, interaction of systems levels and organizational values.

602. *(202A.)* **Quantitative Methods I (3)**
Measure of central tendency and variation, sampling and various statistical tests such as analysis of variance, F, t, and X^2 tests. Simple and multiple correlation.

604. *(204.)* **Law for Business Executives (3)**
Development, significance, and interrelationships of law and business. Analysis of essential aspects of law pertaining to business including materials from the law of contracts, sales, agency, business organizations, property, negotiable instruments, secured transactions. Effects of government regulation of labor and business.

605. *(203.)* **Marketing (3)**
The marketing activities of a firm in relation to management and society. Application of economic theory to marketing institutions and functions. Not open to students with credit for Business Administration 370.

609. *(209.)* **Computer Programming and Systems Analysis (3)**
Prerequisite: Business Administration 602.
Fundamentals of computers, problem-oriented computer language, flow-charting logic and techniques, analysis of the synthesis of computer-based systems.

610. *(208.)* **Managerial Accounting (3)**
Prerequisite: Business Administration 600.
Accounting in relation to the decision-making process; various cost systems; relevancy of various cost concepts; direct costing, flexible budgets, distribution costing; break-even analysis; capital budgeting; and other techniques of management planning and control.

611. *(201B.)* **Behavior in Organizations (3)**
Prerequisite: Business Administration 601.
Nature of the human resource in organizations. Analysis of organizational systems and managerial actions to direct and control human behavior.

612. *(202B.)* **Quantitative Methods II (3)**
The design of statistical experiments and various operations research techniques such as simulation, linear programming, queuing theory, and Markov chain analysis.

615. *(205.)* **Financial Principles and Policies (3)**
Prerequisite: Business Administration 600.
Finance and financial institutions as they relate to the firm and the flow of funds. Emphasis on the supply of and demand for capital; principles and tools of business finance; money and capital markets.

616. *(206.)* **Managerial Economics (3)**
Prerequisite: Economics 603.
Role of economic theory in management analysis and decision. Study of demand, cost, and supply theories from a business viewpoint.

620. *(207.)* **Research and Reporting (3)**
Prerequisite: Business Administration 612.
Principles of research design and data accumulation. The analysis and effective presentation of data related to business and industry.

625. *(270.)* **Seminar in Business Education (3)**
Study of some phase of business education, such as administration and supervision; distributive and basic business education; trends in and methods of teaching shorthand and typewriting.

630. *(210.)* **Theory and Analysis of Financial Statements (3)**
Prerequisite: Business Administration 600.
The theories, principles, and concepts underlying financial statements; measurement and presentation of enterprise resources, equities, and income in accordance with generally accepted accounting principles; consideration of price level problems.

632. *(211.)* **Advanced Accounting (3)**
Prerequisite: Business Administration 630.
Principles and concepts as related to the measurement, determination, and presentation of resources, equities, and income of parent and affiliated companies; concepts of fund accounting; specialized reporting for partnership formation, income distribution, and liquidation.

633. *(212.)* **Income Tax Accounting (3)**
Prerequisite: Business Administration 600.
Provisions of the federal tax law, including preparation of returns for individuals, partnerships, corporations, estates, trusts; procedures for reporting deficiency assessments, refunds, and other administrative practices.

634. *(213.)* **Auditing (3)**
Prerequisite: Business Administration 632.
Critical analysis of the application of auditing principles in verification of financial statements; review of AICPA and SEC bulletins and regulations; consideration of professional ethics, audit standards, procedures, sampling techniques, and report writing; trends and developments in auditing profession.

637. *(214.)* **Seminar in Accounting Information Systems (3)**
Prerequisites: Business Administration 610 and 612.
Systems design and related controls. Emphasis on mathematics, statistics, and computers in planning and reporting.

638. *(215.)* **Seminar in Managerial Accounting (3)**
Prerequisite: Business Administration 610.
Managerial cost accounting concepts and procedures, including budgetary planning, cost control, advisory functions, measurement of divisional profitability, product pricing, and investment decisions.

639. *(219.)* **Seminar in Accounting Theory (3)**
Prerequisite: Business Administration 632.
Historical development of accounting principles and theory; problems in valuation, income determination, and statement presentation.

650. *(223.)* **Seminar in Business Finance (3)**
Prerequisite: Business Administration 615.
Application of principles of finance to current problems in financial management, with emphasis on planning and development of tools for use in decision making. Consideration of case materials, study of the literature, and development of individual student reports.

651. *(224.)* **Seminar in Investments (3)**
Prerequisite: Business Administration 615.
Examination of firms from an investment point of view; historical and current developments affecting investment values; sources of information; techniques of analysis; measurement of risks, returns, and investment values.

652. *(226.)* **Seminar in Security Analysis and Portfolio Management (3)**
Prerequisites: Business Administration 609 and 651.
Security valuation and price forecasting. Portfolio management theory. Risk management and reduction analysis. Establishment of performance objectives.

653. *(227.)* **Seminar in Quantitative Analysis for Financial Decisions (3)**
Prerequisites: Business Administration 609, 612 and 615.
Quantitative techniques and the computer as employed to optimize financial decisions.

654. *(228.)* **Seminar in International Business Finance (3)**
Prerequisite: Business Administration 615.
International finance applied to the business firm.

655. *(229.)* **Seminar in Financial Markets (3)**
Prerequisite: Business Administration 615.
Analysis of money and capital markets. Emphasis on factors of influence and sources and uses of data. Survey of literature in the field.

670. *(240.)* **Seminar in Manpower Planning and Staffing (3)**
Prerequisite: Business Administration 611, or one of the following: Economics 680, Psychology 622, Public Administration 630, Sociology 720.
Theories and models of manpower planning; inventorying and forecasting of manpower needs and requirements; labor force analysis; recruitment; the staffing process; measurement tools and techniques.

671. *(241.)* **Seminar in Union-Management Relations (3)**
Prerequisite: Business Administration 611, or one of the following: Economics 680, Psychology 622, Public Administration 630, Sociology 720.
Interaction of unions and business organizations with emphasis on collective bargaining. Effects on management and society. Trends in collective bargaining and in the organization of employees.

672. *(242.)* **Seminar in Compensation (3)**
Prerequisite: Business Administration 611, or one of the following: Economics 680, Psychology 622, Public Administration 630, Sociology 720.
The organizational process of compensating employees. Compensation theory from economics, psychology, and sociology. Compensation systems and their effects on organizations and individuals.

673. *(243.)* **Seminar in Organizational Development (3)**
Prerequisite: Business Administration 611, or one of the following: Economics 680, Psychology 622, Public Administration 630, Sociology 720.
The process of developing human resources and organizations. Theories of organizational development; tools and techniques, analysis of manpower and organizational development programs.

679. *(249.)* **Seminar in Human Resources Administration (3)**
Prerequisite: Business Administration 611 or six units in Human Resources Administration.
Analysis of issues and application of behavioral science theory in acquiring, developing, rewarding, and utilizing human resources.

680. *(273.)* **Computer Hardware and Software Systems (3)**
Prerequisite: Business Administration 609.
Computer architecture, programming languages, programming systems, and operating systems.

681. *(274.)* **Information Theory (3)**
Prerequisite: Business Administration 609.
Data structures, data communications, computer-centered information networks, and addressing and indexing schemes.

682. *(275.)* **Measurement and Control of Information Systems (3)**
Prerequisites: Business Administration 680 and 681.
Information systems models, information utility, performance measurement, applications and systems evaluations, and computer-based adaptive control concepts and organization.

683. *(276.)* **Seminar in Advanced Information Topics (3)**
Prerequisite: Business Administration 681.
Self-reproducing automata, artificial intelligence, self-organizing information systems.

688. *(278.)* **Seminar in Management of Information Systems (3)**
Prerequisite: Business Administration 681.
Advanced information systems. Emphasis on current managerial trends and developments and on individual student research.

689. *(279.)* **Seminar in Data Systems Design (3)**
Prerequisites: Business Administration 612 and 681.
Research in the analysis and design of data processing systems.

700. *(221.)* **Insurance Principles and Practices (3)**
Nature and extent of personal business, and social risk. Risk handling techniques; insurance principles and practices; basic contracts analysis; insurance underwriting and rating; insurance problems and trends; personal and business risk management.

701. *(225.)* **Seminar in Insurance (3)**
Prerequisite: Business Administration 700.
Risk management in effective business operation. Programming of personal and business risk problems. Insurance institutions.

710. *(222.)* **World Business Environment (3)**
Prerequisite: Economics 603.
The nature, dimensions and motives of International Business. Impact of environmental factors. The nature of the multinational corporation, the importance of national and multilateral controls and policies for International Business management.

720. *(281.)* **Behavioral Sciences for Management (3)**
Prerequisite: Business Administration 611.
Applications of findings from behavioral sciences to management problems and decisions. Study of organization cultures and subcultures. Impact of human behavior on the enterprise.

721. *(282.)* **Group Processes and Leadership (3)**
Prerequisite: Business Administration 611.
Perceptions and processes in work groups. Experience in interpersonal networks, influence and rewards, stereotypes; managing differences and conflicts.

722. *(283.)* **Organizations and the Social Environment (3)**
Prerequisite: Business Administration 611.
Societal forces underlying the American industrial system: modern corporations and their historical antecedants, the organization man, the role of technology and the political economy in industrial society.

723. *(286.)* **Seminar in Comparative Management (3)**
Prerequisite: Business Administration 611.
Concepts, theories, techniques, and practices of management in various countries.

724. *(288.)* **The Entrepreneur (3)**
Prerequisite: Business Administration 611.
Examination of the entrepreneurial approach; concepts, theory and techniques of managerial innovation and implementation; analysis of entrepreneurial skills.

726. *(284.)* **Policy Formulation (3)**
Prerequisites: Advancement to candidacy and consent of instructor.
Building and maintaining enterprises in our society; determining objectives; developing policies and plans for achievement; measuring and controlling organizational activities; reappraising objectives and policies on the basis of new developments.

728. *(285.)* **Seminar in Business Planning (3)**
Prerequisites: Business Administration 601, 605, 615, and nine units in Business Administration courses numbered 630 or above.
Strategic decision making, long-range forecasting, and corporate planning with major emphasis on product-market relationships.

729. *(289.)* **Seminar in Organization and Management (3)**
Prerequisite: Business Administration 611.
Analysis of problems in business and other organizations. Organization and decision theory and contemporary developments in management science are emphasized.

740. *(236.)* **Operations Research: Deterministic Systems (3)**
Prerequisites: Business Administration 609 and 612.
Mathematical optimization techniques for deterministic systems. Advanced topics in linear programming; nonlinear, dynamic, and integer programming; selected examples of application.

741. *(237.)* **Operations Research: Stochastic Systems (3)**
Prerequisites: Business Administration 609 and 612.
Use of probability and statistical decision theory for decision making under conditions of uncertainty. Markov processes, queuing theory, and the theory of games.

742. *(238.)* **Computer Applications in Operations Research (3)**
Prerequisite: Business Administration 740.
Computer simulation techniques for analysis of complex decision problems. Implementation of optimization algorithms through use of the digital computer.

743. *(239A.)* **Seminar in Management Science: Theory (3)**
Prerequisite: Business Administration 740.
Examination of recent developments in management science/operations research theory and methodology.

744. *(239B.)* **Seminar in Management Science: Application (3)**
Prerequisite: Business Administration 740.
Quantitative techniques for managerial planning and decision making. Applications of operations research and other concepts to industrial situations.

745. *(287.)* **Quantitative Forecasting and Planning (3)**
Prerequisite: Business Administration 740 or 741.
Mathematical approach to intermediate and long-range forecasting of economic and technological variables which affect the firm. Development of solution algorithms and heuristic procedures for solution of dynamic planning problems.

748. Applied Multivariate Statistics for Business (3)
Prerequisite: Business Administration 612.
Applications of various multivariate techniques such as factor analysis, multiple regression, judgment analysis, hierarchical grouping, multiple discriminant analysis, multivariate analysis variance, canonical correlation.

749. Seminar in Applied Behavioral Measurement (3)
Prerequisite: Business Administration 602 and 611.
Measurement procedures useful in analyzing such areas as leadership, job satisfaction, attitudes, motivation, etc. Development and use of scaling strategies including Likert, Thurstone, Guttman, paired-comparison, forced-choice, semantic-differential, and review of existing instruments used in business-related settings.

750. *(230.)* **Production and Operations Management (3)**
Prerequisite: Business Administration 612.
Theory, concepts and decision analysis related to effective utilization of major factors of production in manufacturing and service industries. Utilizes the system approach to achieve unification of the production elements in terms of both analysis and synthesis. Not open to students who have credit for a basic course in production management.

751. *(231.)* **Methods Engineering and Job Design (3)**
Prerequisite: Business Administration 750.
Use of industrial engineering for management decisions—job simplification and motion economy; micromotion analysis, time standards and determination, performance rating, allowances, statistical work measurement, learning curves, formula construction, machine interference and the establishment of production times from standard data.

752. *(232.)* **Quality Control (3)**
Prerequisite: Business Administration 750.
Statistical techniques for controlling quality, reliability and maintainability; types of control and limit charts.

753. *(233.)* **Operations Planning and Control Systems (3)**
Prerequisite: Business Administration 750.
Analysis and design of single- and multiple-product integrated production and inventory control systems. Combined detailed and aggregate planning of operations with deterministic or stochastic demand over finite and infinite horizon.

754. *(234.)* **Seminar in Production and Operations Management (3)**
Prerequisite: Business Administration 750.
Case studies of selected industries, emphasizing integration of the manufacturing and operations functions with the major goals of the organization.

760. *(256.)* **Seminar in Consumer Behavior (3)**
Prerequisite: Business Administration 605.
The study of consumer behavior in relation to marketing strategy and the changing environment of business.

761. *(251.)* **Seminar in New Products Marketing (3)**
Prerequisite: Business Administration 605.
The study of new products management in relation to planning and implementation of marketing strategy.

762. Seminar in Advertising Management (3)
Prerequisite: Business Administration 605.
Advertising and sales promotion in relation to the planning and implementation of marketing strategy.

763. *(254.)* **Seminar in Sales Management (3)**
Prerequisite: Business Administration 605.
Sales management and personal selling decisions and strategies in business organizations.

764. *(253.)* **Seminar in Marketing Price Policy (3)**
Prerequisite: Business Administration 605.
Study of pricing strategy and price determination in business organizations.

765. *(252.)* **Marketing Institutions (3)**
Prerequisite: Business Administration 605.
Analysis of development of wholesaling and retailing and of growth, change, and efficiency of these institutions in the American and other economies.

766. *(259.)* **Market Analysis and Research (3)**
Prerequisites: Business Administration 605 and 612.
Application of statistical and mathematical methods to market problems, consumer research, and product analysis.

767. *(257.)* **Seminar in Industrial Marketing Management (3)**
Prerequisite: Business Administration 605.
The management of marketing decisions and strategies peculiar to the industrial market.

768. *(258.)* **Seminar in Industrial and Government Procurement Management (3)**
Prerequisites: Business Administration 601 and 605.
Procurement methods used in industry and government; internal departmental operations, interrelationships with other departments; supplier selection, pricing/cost analysis; contract negotiations, special characteristics of government procurement.

769. *(255.)* **Seminar in International Marketing (3)**
Prerequisite: Business Administration 605.
The impact of cultural, social, political, economic, and other environmental variables on international marketing systems and the decision-making process of multinational marketing operations.

770. *(250.)* **Seminar in Marketing and the Economy (3)**
Prerequisite: Business Administration 605.
Advertising, selling, sales promotion, and merchandising as they relate to society, business and the economy.

780. *(260.)* **Principles of Real Estate (3)**
Functions and regulation of the real estate market, real estate finance, property management, real estate appraisal theory, specialized properties, urban development, and contemporary real estate problems.

781. *(261.)* **Seminar in Real Estate (3)**
Prerequisite: Business Administration 780.
Current problems in real property. Regional land use planning.

782. *(262.)* **Seminar in Real Estate Investment (3)**
Prerequisite: Business Administration 780.
Investment characteristics of real property. Analysis of real estate investment by institutions, corporations, individuals, and government. Measuring investment yield potential of industrial, commercial, and residential projects. Real estate investment and social policy.

783. *(263.)* **Seminar in Real Estate Finance (3)**
Prerequisite: Business Administration 780.
Theories and factors governing the financial functions of lenders, borrowers, governmental agencies, and collateral in financing real estate.

784. *(264.)* **Seminar in Valuation of Real Property (3)**
Prerequisite: Business Administration 780.
Valuation of real property by the cost, income, and market approaches to value. Evaluation of property taken in eminent domain proceedings, air rights, inverse condemnation, lease-hold interests.

790. *(290.)* **Directed Readings in Business Administration (3)**
Prerequisite: Advancement to candidacy.
Preparation for the comprehensive examination for those students in the M.B.A. program under Plan B.

795. *(295.)* **Seminar in Selected Topics (3)**
Selected areas of concern in business administration; topic to be announced in the class schedule.
Maximum credit six units applicable on a master's degree.

797. *(297.)* **Research (3) Cr/NC**
Prerequisite: Advancement to candidacy.
Research in one of the fields of business administration.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Chemistry

In the College of Sciences

The department is on the approved list of the American Chemical Society.

Faculty

Emeritus: Joseph, Robinson, Rowe, Wick

Professors: Abbott, Bennett, Cobble, Golding, Grubbs, Harrington, Hellberg, Isensee, Jensen, Jones, Landis, Malik, Mathewson, O'Neal, Richardson, Ring, Roeder, Sharts, Spangler, Stewart, Wadsworth (Chairman), Walba, Woodson

Associate Professors: Coffey, Malley

Assistant Professor: Dahms

Offered by the Department

Doctor of Philosophy degree in chemistry.

Master of Arts degree in chemistry.

Master of Science degree in chemistry.

Major in chemical physics with the B.S. degree in applied arts and sciences.

Major in chemistry with the B.S. degree in applied arts and sciences with the Certificate of the American Chemical Society.

Major in chemistry with the A.B. degree in applied arts and sciences, with or without the Certificate of the American Chemical Society.

Major in chemistry with the A.B. degree in liberal arts and sciences.

Minor in chemistry.

Single subject teaching credential in physical sciences in the area of chemistry.

Chemical Physics Major

With the B.S. Degree in Applied Arts and Sciences

Preparation for the major. Chemistry 200A-200B or 204A-204B, 231 and 251; Mathematics 150, 151 and 152; Physics 195A-195B-195C. (43 units.)

Major. Thirty-nine upper division units to include Chemistry 410A-410B, 431, 520A and 550; Mathematics 340A; Physics 311, 350A-350B, 354A-354B, 357 and 510.

Chemistry Majors

In Applied Arts and Sciences

Three majors in chemistry are offered in applied arts and sciences. A chemistry major is also offered in liberal arts and sciences.

The chemistry majors available in applied arts and sciences are as follows:

(1) Chemistry major with the B.S. degree and Certificate of the American Chemical Society, a program designed to qualify graduates for many types of positions as chemists and for admission to graduate work in chemistry;

(2) Chemistry major with the A.B. degree and Certificate of the American Chemical Society, a program designed to prepare students for graduate work in chemistry; and

(3) Related Professions major, a program available only to students who are taking a premedical or predental curriculum.

Certificate of the American Chemical Society

The Department of Chemistry is on the approved list of the American Chemical Society. Programs leading to a chemistry major with the B.S. degree or the A.B. degree are designed to meet the standards prescribed for the Certificate of the American Chemical Society. The program leading to the Related Professions major is not offered with the Certificate. Provision is made for students taking the chemistry major in liberal arts and sciences to obtain the A.B. degree with or without the Certificate.

Chemistry Major

With the B.S. Degree in Applied Arts and Sciences and Certificate of the American Chemical Society

The curriculum outlined below for the B.S. degree in applied arts and sciences is based upon the recommendations of the Committee for Professional Training of Chemists of the American Chemical Society. It qualifies graduates for many types of positions as chemists and provides the training required by most universities for admission to graduate work in chemistry.

A minor is not required with this major.

Preparation for the major. Chemistry 200A-200B, 231, 237, and 251; Mathematics 150, 151, and 152; and Physics 195A-195B-195C. (44 units.)

Major. A minimum of 36 upper division units to include Chemistry 410A-410B, 431, 437, 520A, 550, 457A-457B, 560A, one unit of 498, and 12 units of upper division electives in chemistry or in related subjects with approval of the department.

Foreign language requirement. German 208 or Russian 208.

OUTLINE FOR THE B.S. DEGREE AND CERTIFICATE

	Units	
First year	*1st Sem.*	*2nd Sem.*
Chemistry 200A-200B	5	5
† Mathematics 104, 140, 150	5	5
Physics 195A	—	4
* Basic Subject	3	—
* Social Sciences	3	3
* Physical Activities	1	1
	17	18

	Units	
Second year	*1st Sem.*	*2nd Sem.*
Chemistry 251	4	—
Chemistry 231—431	4	4
Chemistry 237—437	1	1
Mathematics 151, 152	4	4
Physics 195B, 195C	4	4
German 101 or Russian 101	—	4
	17	17

	Units	
Third year	*1st Sem.*	*2nd Sem.*
Chemistry 410A-410B	3	3
Chemistry 550	—	2
German 102, 208 or Russian 102, 208	4	2
# American Institutions	3	3
§ Biology 100	3	—
* Humanities	3	3
	16	13

	Units	
Fourth year	*1st Sem.*	*2nd Sem.*
Chemistry 457A-457B	2	2
Chemistry 560A	3	—
Chemistry 498	1	—
Chemistry 520A	3	—
Chemistry Electives	6	6
General Electives	—	7
	15	15

Chemistry Major

With the A.B. Degree in Applied Arts and Sciences and Certificate of the American Chemical Society

A minor is not required with this major.

Preparation for the major. Chemistry 200A-200B, 231, 237, and 251; Mathematics 150, 151, and 152; and Physics 195A-195B-195C. (44 units.)

Major. A minimum of 24 upper division units in chemistry to include Chemistry 410A-410B, 431, 437, 520A, 550, 457A-457B, one unit of 498, and three units of upper division electives in chemistry to be selected from Chemistry 510, 520B, 530, 537, 560A.

Foreign language requirement. German 208 or Russian 208.

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* Refer to catalog section on General Education requirements.

† Students eligible to take Mathematics 150 in their first semester should do so and substitute for Mathematics 104 and/or 140 two to five units of general electives.

If this requirement is met by examination the appropriate number of units should be added to general electives.

§ Premedical and predental students will also take Biology 100L and decrease general elective units by 1.

OUTLINE FOR THE A.B. DEGREE AND CERTIFICATE

First year	Units 1st Sem.	Units 2nd Sem.
Chemistry 200A-200B	5	5
† Mathematics 104, 140, 150	5	5
Physics 195A	—	4
* Basic Subject	3	—
* Social Sciences	3	3
* Physical Activities	1	1
	17	18

Second year	Units 1st Sem.	Units 2nd Sem.
Chemistry 251	4	—
Chemistry 231—431	4	4
Chemistry 237—437	1	1
Mathematics 151, 152	4	4
Physics 195B, 195C	4	4
German 101 or Russian 101	—	4
	17	17

Third year	Units 1st Sem.	Units 2nd Sem.
Chemistry 410A-410B	3	3
Chemistry 550	—	2
German 102, 208 or Russian 102, 208	4	2
# American Institutions	3	3
§ Biology 100	3	—
* Humanities	3	3
	16	13

Fourth year	Units 1st Sem.	Units 2nd Sem.
Chemistry 457A-457B	2	2
Chemistry 498	1	—
Chemistry 520A	3	—
Chemistry Electives	3	—
General Electives	6	9
	15	11

Chemistry Major

With the A.B. Degree in Applied Arts and Sciences

This plan is designed for only those students who desire the training in a premedical or predental curriculum. This plan cannot be taken by students who intend to become professional chemists or who intend to earn advanced degrees in chemistry or who plan to teach in community colleges. Application for admission to the plan must be made to the department chairman upon achieving junior class standing. All transfer students with upper division standing must apply before the second semester of work at San Diego State University. With an appropriate choice of electives, graduates can meet the requirements for admission to medical, dental, and pharmaceutical schools.

Preparation for the major. Chemistry 200A-200B, 231, 237, 250 (or 251); Physics 195A-195B; Mathematics 104, 140 (unless exempted by examination), 150, 151, and Biology 100, 100L. (46 units.)

Major. A minimum of 24 upper division units in chemistry to include Chemistry (310A-310B, 317, 577) or (410A-410B, 457A-457B, 550), 431, and eight units of upper division electives in chemistry. Chemistry 361A-361B or 560A-560B is recommended for all premedical students.

Minor. A minor in biology or zoology is expected for preprofessional students.

Foreign language requirement. Recommended: German 208 or Russian 208.

Chemistry Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog. It is recommended that students choose German to meet the foreign language requirement for graduation.

A minor is not required with this major.

This major is designed for students desiring emphasis in chemistry as part of a liberal arts and sciences education or as preparation for entering a related profession.

* Refer to catalog section on General Education requirements.
† Students eligible to take Mathematics 150 in their first semester should do so and substitute for Mathematics 104 and/or 140 two to five units of general electives.
# If this requirement is met by examination the appropriate number of units should be added to general electives.
§ Premedical and predental students will also take Biology 100L and decrease general elective units by 1.

Preparation for the major. Chemistry 200A-200B, 231 and 250; Physics 115A-115B, or 124A-124B and 125A-125B; and Mathematics 121 and 122. (33 units.)

Major. A minimum of 24 upper division units in Chemistry to include Chemistry 310A-310B, 317, 431, 577; and eight units of upper division electives.

Chemistry Minor

The minor in chemistry consists of Chemistry 200A-200B, 230 or 231, or 250 or 251, and six upper division units in chemistry. (24 units.)

Courses in the minor may not be counted toward the major or general education.

Chemistry Major

For the Single Subject Teaching Credential in Physical Sciences

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

All candidates for a teaching credential must complete all requirements for a chemistry major for either the A.B. or the B.S. Degree in Applied Arts and Sciences. These are the accepted Single Subject Waivers in chemistry while the requirements for the single subject teaching credential in physical sciences which includes the area of chemistry are being revised.

Chemistry Placement Examination

All students who plan to enroll in Chemistry 200A or 204A and who have not completed Chemistry 100A at San Diego State University with a grade of C or better must take the chemistry placement examination. This test may be used to satisfy the prerequisite requirements for Chemistry 200A and may also serve as a basis for the selection of students for the honors chemistry program. The schedule for this examination will be posted on the chemistry bulletin board. Provision is also made for this examination to be taken by the entering freshman or the transfer student prior to registration. Refer to the calendar.

Graduation with Distinction

A student desiring to graduate with Distinction in Chemistry must meet the university requirements as shown on page 64 and in addition have completed four units of Chemistry 498 by the time of graduation and be recommended by the faculty member directing his Chemistry 498 project.

LOWER DIVISION COURSES

100A. *(2A.)* **Introductory General Chemistry (3) I, II**
Two lectures and three hours of laboratory.
Elementary principles of chemistry. Not open to students with credit in Chemistry 200A.

100B. *(2B.)* **Elementary Organic Chemistry (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Chemistry 100A or 200A.
Introduction to the compounds of carbon including both aliphatic and aromatic substances. Not open to students with credit in Chemistry 200B or 201.

101A-101B. *(7A-7B.)* **Chemical Principles for the Environment (3-3) I, II**
Two lectures and two hours of discussion.
Prerequisite: Chemistry 100B, 101A, 230, or 231 is prerequisite to 101B.
Semester I: Nuclear structure, atomic structure, chemical bonding, organic chemistry. Environment topics include nuclear power, thermal pollution, radiation hazards, ecosystems, ecosphere, energy balances, chemical pollution, biodegradation, water purification, and sewage.
Semester II: Natural products such as steroids, alkaloids, and terpenes; biochemistry; catalysis and enzymes; thermochemistry and metals. Environment topics include contraceptives, chemotherapy, marijuana, addicting drugs, pesticides, nerve gases, fluoridation, corrosion, metal pollutants, and food additives.

107. *(22.)* **Glass Blowing (1) I, II**
Three hours of laboratory.
Prerequisite: Chemistry 200B.
Elementary training in the manipulation of glass.

160. *(3.)* **Introductory Biochemistry (3) I, II**
Prerequisite: Chemistry 100B.
Fundamental principles of the chemistry of living processes. This course intended primarily for majors in home economics, nursing, and related fields.

200A-200B. *(1A-1B.)* **General Chemistry (5-5) I, II**
Three lectures and six hours of laboratory.
Prerequisites: High school chemistry, qualification on Chemistry Placement Examination, and two years of college preparatory mathematics; or a grade of C or better in Chemistry 100A at this university.
General principles of chemistry with emphasis on inorganic materials. Qualitative analysis is included in the second semester. Duplicate credit will not be allowed for the corresponding course in Chemistry 201, 204A or 204B. Students with credit for both Chemistry 100A and 200A will receive a total of 5 units of credit toward graduation.

201. *(1E.)* **General Chemistry for Engineers (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Chemistry 200A.
A continuation of the study of the principles of chemistry with emphasis on the relationships to the field of engineering. Open only to engineering majors. Not open to students with credit in Chemistry 200B.

204A-204B. *(10A-10B.)* **Chemical Principles and Techniques (Honors) (5-5)**
Three lectures and six hours of laboratory.
Prerequisites: High school chemistry, physics, and mathematics, superior qualification on both the Chemistry and the Mathematics Placement Examinations and high ranking on the ACT or SAT tests. Permission card from the department is required for registration in this course.
The application of modern electronic theory to the study of general chemistry with emphasis in the laboratory on analytical methods. Qualitative and quantitative analysis is included. Chemistry 204A-204B takes the place of Chemistry 200A-200B and 251 for these students as prerequisites for further courses in chemistry.

207. *(55.)* **Problem Solving in Chemistry (1) I, II**
Three hours of laboratory.
Prerequisites: Chemistry 231 and 251.
Experimental design, gathering of data, and processing of data in chemistry.

230. *(11.)* **Introductory Organic Chemistry (4) I, II**
Three lectures and three hours of laboratory.
Prerequisite: Chemistry 200B.
Aliphatic and aromatic compounds including reaction mechanisms. For students needing only one semester of organic chemistry. Not open to students with credit in Chemistry 231.

231. *(12.)* **Organic Chemistry (4) I, II**
Three lectures and three hours of laboratory.
Prerequisite: Chemistry 200B.
Properties and synthesis of organic compounds including reaction mechanisms. First half of a year course.
Not open to students with credit in Chemistry 230.

237. *(13.)* **Organic Chemistry Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Open only to students enrolled concurrently in Chemistry 231.
The theory and practice of laboratory operations.

250. *(4.)* **Techniques of Analytical Chemistry (5) I, II**
Three lectures and six hours of laboratory.
Prerequisite: Chemistry 200B or 201.
Fundamentals of gravimetric, volumetric and instrumental methods of chemical analysis. Not applicable to B.S. and A.B. degrees and Certificate of the American Chemical Society for chemistry majors. Not open to students with credit in Chemistry 251.

251. *(5.)* **Analytical Chemistry (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 200B; and credit or concurrent registration in Mathematics 122 or 150.
Theory and practice of volumetric, gravimetric and electrical methods of analysis. Not open to students with credit in Chemistry 250. Duplicate credit will not be allowed for equivalent work in Chemistry 204A-204B.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

307. *(135.)* **CHEM Study (3) II**
One lecture and six hours of laboratory.
Prerequisite: Chemistry 200B.
New approach to the study of major concepts of chemistry. Based on lecture and laboratory materials prepared by the Chemical Education Materials Study Committee. Open only to secondary teacher candidates.

310A-310B. *(109A-109B.)* **Fundamentals of Physical Chemistry (3-3)**
Prerequisites for 310A: Chemistry 250, Mathematics 122, and Physics 124B and 125B. Not open to students with credit in Chemistry 410A.
Prerequisites for 310B: Chemistry 310A. Not open to students with credit in Chemistry 410B.
Fundamental principles of theoretical chemistry. This course cannot apply to the A.B. and certificate or B.S. major in chemistry.

317. *(109C.)* **Fundamentals of Physical Chemistry Laboratory (2) II**
Six hours of laboratory.
Prerequisite: Credit or concurrent registration in Chemistry 310B.
Physico-chemical experiments, errors of measurement and technical report writing.

360A-360B. *(114A-114B.)* **Clinical Biochemistry (4-4)**
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 230 or 231, and 250 or 251.
Principles of biochemistry and analytical methods applied to blood, urine, and other body fluids. This course cannot apply to the major in chemistry.

361A-361B. *(115A-115B.)* **Fundamentals of Biochemistry (3-3) I, II**
Prerequisites: Chemistry 230 or 231, and 250 or 251.
The chemistry of intermediary metabolism and its regulation. Not open to students with credit in Chemistry 560A-560B.

410A-410B. *(110A-110B.)* **Physical Chemistry (3-3) I, II**
Prerequisites: Chemistry 251, Mathematics 152, and credit or concurrent registration in Physics 195C. Not open to students with credit in Chemistry 310A or 310B.
Theoretical principles of chemistry with emphasis on mathematical relations.

431. *(112.)* **Organic Chemistry (4) I, II**
Three lectures and three hours of laboratory.
Prerequisite: Chemistry 231.
A continuation of Chemistry 231.

437. *(113.)* **Organic Chemistry Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Open only to students enrolled concurrently in Chemistry 431.
Theory and practice of laboratory operations.

457A-457B. *(156A-156B.)* **Advanced Laboratory Techniques (2-2) I, II**
Six hours of laboratory.
Prerequisite: For 457A: Credit or concurrent registration in Chemistry 550. Credit or concurrent registration in Chemistry 207 is recommended. Chemistry 457A is prerequisite to 457B.
Instrumental methods and physical chemistry concepts applied to advanced projects in chemistry. Emphasis on maintenance of the laboratory notebook with some report writing.

467. *(117.)* **Biochemistry Laboratory (2) I, II**
Six hours of laboratory.
Prerequisite: Credit or concurrent registration in Chemistry 361A or 560A.
The theory and practice of laboratory procedures used in the study of intermediary metabolism. Includes the purification of enzymes, radioactivity tracer techniques, and the isolation of cell components.

496. *(196.)* **Selected Topics in Chemistry (1-3)**
Prerequisite: Consent of instructor.
Selected topics in modern chemistry. May be repeated with new content. Maximum credit six units.

498. *(198.)* **Senior Project (1-3) I, II Cr/NC**
Prerequisites: Three one-year courses in chemistry and senior standing.
An individual investigation and report on a problem. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor. Open only to students who have shown ability to do A or B work in Chemistry.

500A-500B. *(160A-160B.)* **Principles of Chemical Engineering (3-3)**
(Same course as Engineering 540A-540B.)
Prerequisite: Credit or concurrent registration in Engineering 304 or Chemistry 310A or 410A.
Industrial stoichiometry; fluid flow and heat transfer as applied to unit operations such as evaporation, distillation, extraction, filtration, gas-phase mass transfer, drying, and others. Problems, reports, and field trips.

501. *(180.)* **Chemical Oceanography (3) II**
Three lectures and occasional field trips.
Prerequisite: Credit or concurrent registration in Chemistry 310B or 410B.
The application of the fundamentals of chemistry to the study of oceans.

502. *(191.)* **Chemical Literature (1)**
Prerequisite: Upper division standing in chemistry.
An introduction to the availability, scope and use of the chemical literature.

510. *(118.)* **Advanced Physical Chemistry (3) I**
Prerequisite: Chemistry 410B.
Mathematical tools essential to solving problems in chemical thermodynamics, statistical mechanics, chemical kinetics, quantum chemistry and molecular structure and spectroscopy, with applications.

520A. *(127A.)* **Inorganic Chemistry (3) I, II**
Prerequisite: Credit or concurrent registration in Chemistry 310B or 410B.
The physical basis of the periodic system, complex inorganic compounds, and the nature of the chemical bond.

520B. *(127B.)* **Inorganic Chemistry (3) I, II**
Prerequisite: Chemistry 520A.
An advanced systematic study of representative and transition elements and their compounds.

530. *(131.)* **Theoretical Organic Chemistry (3) I, II**
Prerequisites: Chemistry 310A or 410A, and 431.
The application of modern electronic theory to the physical and chemical properties of organic compounds.

537. *(154.)* **Organic Qualitative Analysis (3) I**
One lecture and six hours of laboratory.
Prerequisites: Chemistry 431 and credit or concurrent registration in Chemistry 310A or 410A.
The identification of organic compounds and mixtures.

550. *(155.)* **Advanced Instrumental Methods (2) I, II**
Prerequisites: Chemistry 431 and credit or concurrent registration in Chemistry 410B.
Advanced theory of chemical instrumentation.

560A-560B. *(116A-116B.)* **General Biochemistry (3-3)**
Prerequisites: Chemistry 310B or 410B, and 431.
The structure, function, metabolism, and thermodynamic relationships of chemical entities in living systems. Not open to students with credit in Chemistry 361A-361B.

577. *(170.)* **Radiochemical Analysis (4) II**
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 310A or 410A.
Principles and techniques of radioactivity applied to the various fields and problems of chemistry. Instrumentation, tracer application, activation analysis, nuclear reactions and radiolysis.

GRADUATE COURSES

710. *(210.)* **Advanced Topics in Physical Chemistry (1-3)**
Prerequisite: Consent of instructor.
Selected topics in physical chemistry. Maximum credit six units applicable on a master's degree.

711. *(211.)* **Chemical Thermodynamics (3)**
Prerequisite: Chemistry 410B.
Chemical thermodynamics and an introduction to statistical thermodynamics.

712. *(212.)* **Chemical Kinetics (3)**
Prerequisite: Chemistry 410B.
Theory of rate processes; applications of kinetics to the study of reaction mechanisms.

713. *(213.)* **Quantum Chemistry (3)**
Prerequisite: Chemistry 410B.
Quantum mechanics of atomic and molecular systems; applications to chemical bonding theory.

714. *(214.)* **Molecular Structure (3)**
Prerequisite: Chemistry 410B.
Theory and techniques used in the determination of molecular structure.

720. *(220.)* **Advanced Topics in Inorganic Chemistry (1-3)**
Prerequisite: Chemistry 520A.
Selected topics in inorganic chemistry. Maximum credit six units applicable on a master's degree.

721. *(221.)* **Mechanisms of Inorganic Reactions (3)**
Prerequisite: Chemistry 520A.
Mechanisms in inorganic reactions with an emphasis on coordination chemistry.

722. *(222.)* **Chemistry of the Nonmetals (3)**
Prerequisite: Chemistry 520A.
An advanced systematic study of the nonmetallic elements and their compounds.

730. *(230.)* **Advanced Topics in Organic Chemistry (1-3)**
Prerequisite: Chemistry 431.
Selected topics in organic chemistry. Maximum credit six units applicable on a master's degree.

731. *(231.)* **Mechanisms of Organic Reaction (3)**
Prerequisites: Chemistry 410B and 431.
Reactivity and mechanism in organic reactions.

732. *(232.)* **Advanced Organic Chemistry (3)**
Prerequisite: Chemistry 431.
Applications and limitations of organic reactions from the viewpoint of synthesis.

750. *(250.)* **Advanced Topics in Analytical Chemistry (1-3)**
Prerequisite: Chemistry 410B.
Selected topics from the field of analytical chemistry. Maximum credit six units applicable on a master's degree.

760. *(260.)* **Advanced Topics in Biochemistry (1-3)**
Prerequisite: Chemistry 560B.
Selected topics in biochemistry. Maximum credit six units applicable on a master's degree.

762. *(262.)* **Enzymology (2)**
Prerequisite: Credit or concurrent registration in Chemistry 310B or 410B.
Theory and techniques used in the study of the mechanism of action of enzymes.

767. *(261.)* **Advanced Biochemical Techniques (2)**
Prerequisite: Chemistry 560A.
Six hours of laboratory. Theory and practice of current research techniques in biochemical research.

770. *(270.)* **Nuclear Chemistry (2)**
Prerequisite: Chemistry 410B.
Theoretical applications of radioactivity to chemistry, radiation chemistry, decay laws and processes, nuclear structure and reactions.

790. *(200.)* **Seminar (1-3)**
An intensive study in advanced chemistry, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

791. *(291.)* **Research Seminar (1)**
Prerequisite: Consent of department chairman.
Discussions on current research by students, faculty, and visiting scientists. Each student will make a presentation based on the current literature.

792. *(290.)* **Bibliography (1)**
Exercise in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Consent of instructor.
Research in one of the fields of chemistry. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

897. Doctoral Research (3-6) Cr/NC
Prerequisite: Admission to the doctoral program.
Independent investigation in the general field of the dissertation.

899. Doctoral Dissertation (3-6) Cr/NC
Prerequisites: An officially constituted dissertation committee and advancement to candidacy.
Preparation of the dissertation for the doctoral degree.

Chinese

In the College of Arts and Letters

Faculty

Assistant Professor: Woo

Offered by the Department of Classical and Oriental Languages and Literatures

Courses in Chinese.
Major or minor work in Chinese is not offered.

LOWER DIVISION COURSES

Native speakers of Mandarin Chinese will not receive credit for taking lower division courses except with advance approval from the department.

101. *(1.)* **Elementary (4) I**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on Chinese culture and civilization, minimum essentials of grammar.

202. *(2.)* **Elementary (4) II**
Four lectures and one hour of laboratory.
Prerequisite: Chinese 101.
Continuation of Chinese 101.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

303. *(103.)* **Readings in Contemporary Chinese (4) I**
Prerequisite: Chinese 202.
Readings in contemporary authors: poetry, short stories, essays.

304. *(104.)* **Readings in Classical Chinese (4) II**
Prerequisite: Chinese 303.
Readings from Hsiao Ching, Mencius, Confucian Analects, and other classical sources.

450. *(155.)* **Advanced Reading in Chinese (3-4)**
Prerequisite: Chinese 304.
Extended, intensive reading in Chinese with emphasis on style, content, interpretation. May be repeated with new content. Maximum credit nine units.

496. *(185.)* **Topics in Chinese Studies (1-4)**
Topics in Chinese language, literature, culture, and linguistics. May be repeated with new content. Maximum credit eight units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

Classical and Oriental Languages and Literatures

In the College of Arts and Letters

Faculty

Emerita: Burnett
Professors: Schaber (Chairman), Warren
Associate Professors: Eisner, Genovese
Assistant Professors: Gefter, Woo
Lecturers: Busool, Naveh, Ogawa

Offered by the Department

Major in classics with the A.B. degree in liberal arts and sciences. (Refer to this section of the catalog under Classics.)

Teaching major in classics (concentration in Latin) for the single subject teaching credential in foreign languages. (Refer to this section of the catalog under Classics.)

Minor in classical humanities. (Refer to this section of the catalog under Classics.)

Minor in classics. (Refer to this section of the catalog under Classics.)

Courses in Arabic. (Refer to this section of the catalog under Arabic.)

Courses in Chinese. (Refer to this section of the catalog under Chinese.)

Courses in classics. (Refer to this section of the catalog under Classics.)

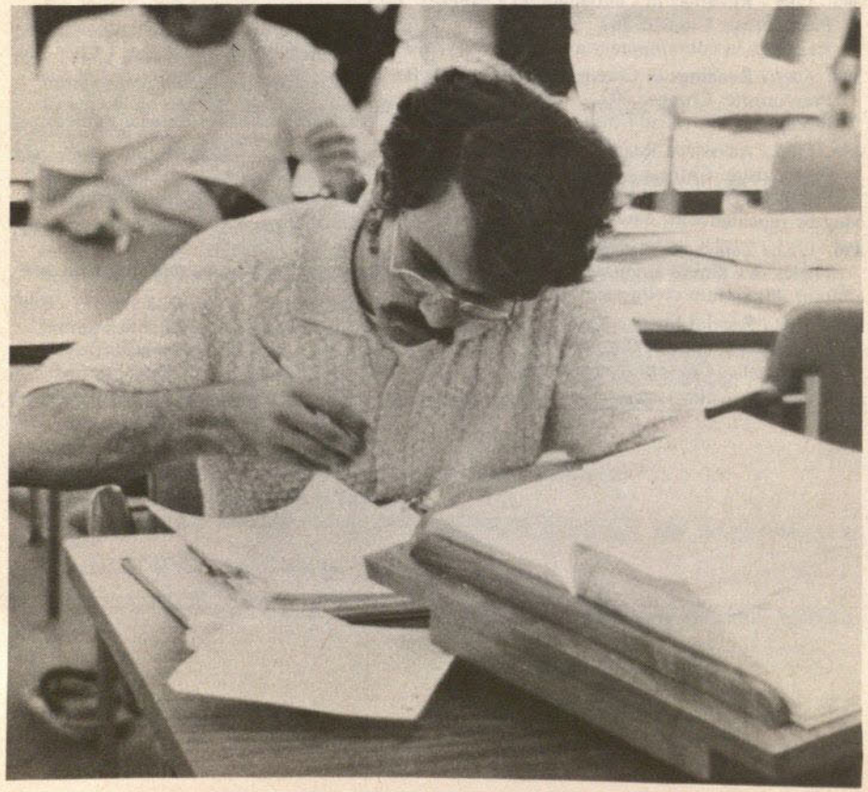
Courses in Greek. (Refer to this section of the catalog under Greek.)

Courses in Hebrew. (Refer to this section of the catalog under Hebrew.)

Courses in Japanese. (Refer to this section of the catalog under Japanese.)

Courses in Latin. (Refer to this section of the catalog under Latin.)

(For other courses in translation see comparative literature, history, humanities and philosophy.)



Classics

In the College of Arts and Letters

Faculty

Professors: Schaber, Warren
Associate Professors: Eisner, Genovese

Offered by the Department of Classical and Oriental Languages and Literatures

Major in classics with the A.B. degree in liberal arts and sciences.

Minor in classical humanities.

Minor in classics.

Teaching major in classics (concentration in Latin) for the single subject teaching credential in foreign languages.

Classics Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Concentration in Classical Humanities

Preparation for the major. Greek 101 and 202, or Latin 101 and 202. (10 units.) Students should note that a number of the upper division required and recommended courses listed below have lower division prerequisites, but these prerequisites do not constitute requirements *per se* for the completion of the major.

Major. A minimum of 30 upper division units to include Classics 320, 330, History 500A-500B, and Philosophy 301 (prerequisites are waived for students in this major); nine units from classics, Anthropology 578, Art 567, Religious Studies 310, or Speech Communication 350; six units of Greek or Latin; and three units of Classics 499 as a directed senior project.

Concentration in One Language

Preparation for the major. Greek 101 and 202, or Latin 101 and 202. (10 units.)

Major. A minimum of 30 upper division units to include 15 units from classics, History 500A, 500B, or Philosophy 301; 12 units of Greek, or 12 units of Latin; and three units of classics, Greek, or Latin.

Concentration in Two Languages

Preparation for the major. Greek 101, 202, and Latin 101, 202. (20 units.)

Major. A minimum of 30 upper division units to include 12 units from classics, History 500A, 500B, or Philosophy 301; nine units of Greek; and nine units of Latin.

Classical Humanities Minor

The minor in classical humanities consists of a minimum of 15 units, nine units of which must be in upper division courses; in addition to courses in classics, up to six units may be selected from Anthropology 578, Art 567, Comparative Literature 220A, History 105A, 500A, 500B, Philosophy 301, Religious Studies 310, or Speech Communication 350. Students should note that a number of the upper division required and recommended courses listed have lower division prerequisites, but these prerequisites do not constitute requirements *per se* for the completion of the minor.

Courses in the minor may not be counted toward the major or general education.

Classics Minor

The minor in classics consists of a minimum of 15 units, six units of which must be selected from upper division classics, Greek, or Latin courses, History 500A, 500B, or Philosophy 301. Nine units must be selected from Latin or from Greek.

Courses in the minor may not be counted toward the major or general education.

Classics Major (Concentration in Latin)

For the Single Subject Teaching Credential in Foreign Languages

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Preparation for the major. Latin 101 and 202. (10 units.)

Major. A minimum of 30 upper division units to include Classics 320 and History 500B; nine additional units selected from classics, History 500A, or Philosophy 301; and 15 units in Latin to include three units of Latin 499 as a course in teaching techniques.

LOWER DIVISION COURSES

(See also courses in Greek and Latin.)

220. *(20.)* **Latin and Greek Word Derivation (3)**
A general and elementary course in philology. A study of Latin and Greek stems of most frequent occurrence in English, and of the English words derived from them.

250. *(50.)* **Scientific Terminology (3) I**
Etymological and grammatical analysis of scientific terminology of Greek and Latin derivation.

270. *(70.)* **The Heritage of Greece and Rome (3)**
Greek and Roman art, literature, and institutions as reflected in the Western tradition.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

310. *(110.)* **Greek and Roman Mythology (3)**
Mythological elements in Greek and Roman art, literature, and religion.

320. *(102A.)* **Classical Literature (3)**
Reading in translation of Greek and Latin masterpieces. Emphasis on epic and prose genres. Authors such as Homer, Herodotus, Plato, Vergil, Apuleius. Literary and historical criticism.

330. *(102B.)* **Classical Drama (3)**
Reading in translation of Greek and Roman tragedies and comedies. Playwrights such as Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, Seneca. Literary, dramatic, historical criticism.

340. *(140.)* **Classical Civilization (3)**
Greek and Roman civilization from Bronze Age to Late Empire. Integration of history, philosophy, literature, the arts, and society.

496. *(185.)* **Topics in Classical Studies (1-4)**
Topics in classical languages, literatures, cultures, and linguistics. May be repeated with new content. Maximum credit eight units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

Comparative Literature

In the College of Arts and Letters

Faculty

Faculty assigned to teach courses in comparative literature are drawn from departments in the College of Arts and Letters.

Offered by Comparative Literature

Major in comparative literature with the A.B. degree in liberal arts and sciences.
Minor in comparative literature.

Comparative Literature Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog. No more than 48 units in comparative literature and English courses can apply to the degree.

A minor is not required with this major.

Preparation for the major. Any two lower division courses in comparative literature.

Major. A minimum of 24 upper division units to include 18 units in comparative literature courses. With the approval of the adviser, six units in one of the following interest areas: (1) Foreign Language Literature. Recommended for students who expect to do graduate work in comparative literature. Courses may be taken in literature of any foreign language. (2) English Language Literature. Courses may be taken in American and British literature. (3) Comparative Studies. Courses may be taken in areas with a "studies" orientation such as Afro-American Studies, Mexican-American Studies, Urban Studies, Women's Studies, Jewish Studies, and the like.

Comparative Literature Minor

The comparative literature minor consists of a minimum of 15 units in comparative literature, nine units of which must be in upper division courses. The comparative literature minor is not available to students majoring in English.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

Since all reading assigned for classes in comparative literature is in English, knowledge of a foreign language is not required.

200. *(90.)* **Topics in Comparative Literature (3) I, II**
An introduction to the subject matter of comparative studies in literature. Focus on a specific movement, theme, figure, genre, etc. May be repeated with new content. Maximum credit six units.

270A-270B. *(52A-52B.)* **World Literature (3-3) I, II**
Selected works from various continents and cultures. Semester I: prior to 1500; Semester II: since 1500.

271A-271B. *(70A-70B.)* **Asian Literature (3-3)**
A survey of the literature of Asia. Semester I: traditional literature; Semester II: modern literature.

272A-272B. *(80A-80B.)* **Third World Literature (3-3)**
Modern literature from Third World cultures. Semester I: Literature from Africa, Asia, and Latin America. Semester II: Literature by ethnic minorities in the U.S.

UPPER DIVISION COURSES

490. *(190.)* **Literary Movements (3) Cr/NC**
A movement or theme in world literature—such as symbolism, realism, existentialism, alienation, or revolution. Maximum credit six units.

495. *(193.)* **Literature and Other Disciplines (3) Cr/NC**
Comparative study of relationship between literature and another field, such as art, music, philosophy, psychology, political science, or social science. Examples: novel and film, black literature and black music, theatre and politics. May be repeated with new content. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

505. *(105.)* **The Bible as Literature (3) I, II**
Same course as English 505.
Prose and poetry of the King James version.

510. *(120.)* **Medieval Literature (3)**
Representative selections from authors of the Middle Ages.

511. *(122.)* **Continental Renaissance (3)**
Representative selections from authors of the Renaissance period in continental Europe.

512. *(124.)* **Seventeenth and Eighteenth Century Continental Fiction (3)**
Selected works by novelists and short story writers of continental Europe prior to 1800.

513. *(125.)* **Nineteenth Century Continental Fiction (3)**
Selected works by novelists and short story writers of continental Europe between 1800 and 1900.

514. *(126.)* **Modern Continental Fiction (3)**
Selected works by novelists and short story writers of continental Europe since 1900.

525. *(185.)* **Yiddish Literature (3) I, II**
Selected works from the Jewish communities of Central Europe.

526. *(186.)* **Modern Jewish Literature (3) I, II**
Selected works by Jewish authors from the last half of the nineteenth century to the present, with emphasis on the United States and Israel.

530. *(170.)* **Asian Literature (3)**
Selections from the literature of Asia: Chinese, Japanese, Indian, etc. Topic to be announced in class schedule. May be repeated with new content. Maximum credit six units.

535. *(175.)* **Near Eastern Literature (3) I, II**
Selections from the literature of the Near East: Persian, Arabic, Turkish, etc. Specific topic to be announced in class schedule. May be repeated with new content. Maximum credit six units.

540. *(180.)* **Afro-American Literature (3)**
Selected works by black authors in Africa, North and South America, and the Caribbean; intercontinental influences and the theme of black identity.

545. *(145.)* **Modern Latin American Literature (3) I, II**
Reading selections from major Latin American authors.

550. *(160.)* **Seminar (3)**
An intensive study of a topic to be selected by the instructor. May be repeated once with new content.

560. *(150.)* **The Epic (3)**
Selected epic poems from world literature; emphasizes the Western epic tradition from Homer to the present.

561. *(151.)* **Fiction (3)**
A comparative approach to themes and forms in fiction (novel and short story). Focus of course to be set by instructor. May be repeated with new content. Maximum credit six units.

562. *(152.)* **Drama (3)**
Forms and themes in drama. Focus of course to be set by instructor. May be repeated once with new content.

563. *(153.)* **Poetry (3)**
A comparative approach to themes and forms in poetry. Focus of course to be set by instructor. May be repeated once with new content.

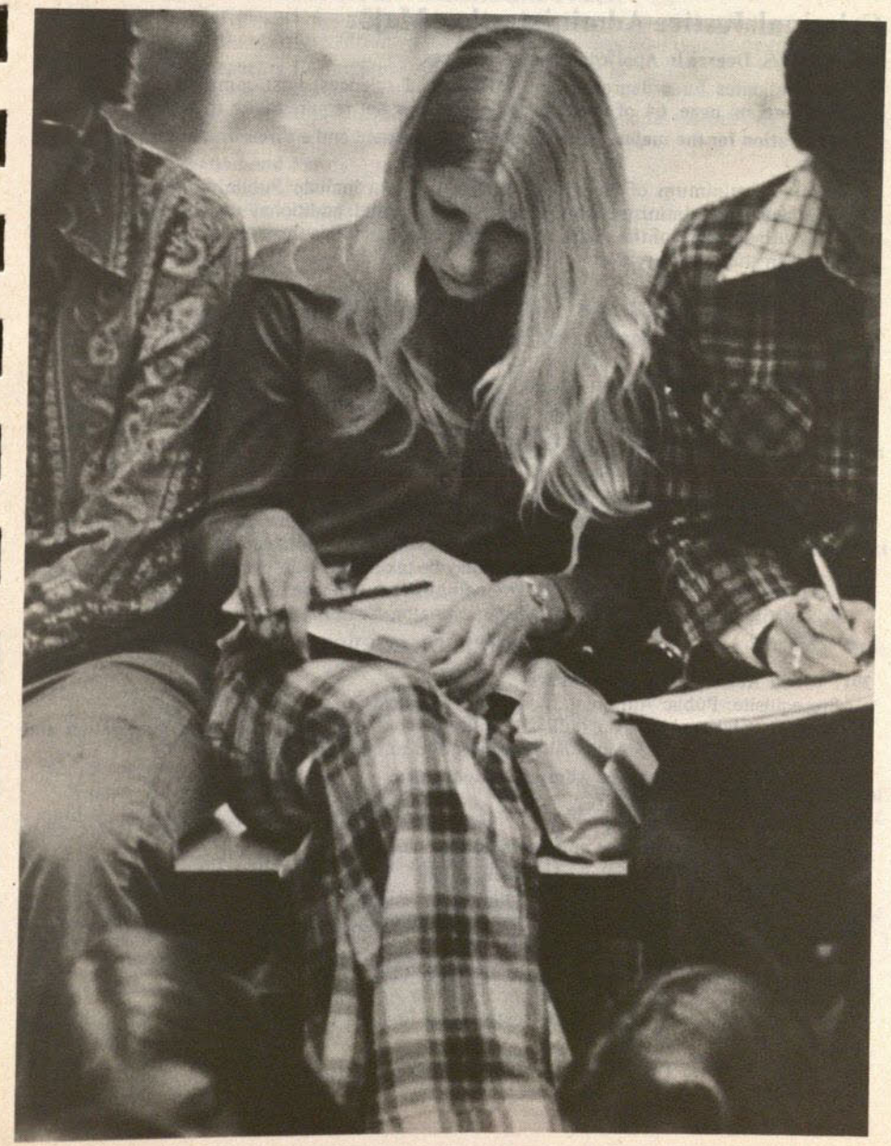
570. *(196.)* **Folk Literature (3)**
Studies in the ballad, bardic poetry, oral and popular literature and folklore. May be repeated with new content. Maximum credit six units.

571. *(191.)* **Literary Use of Legend (3)**
Literary treatment of such legendary figures as Don Juan, Faust, and Ulysses, in a wide range of literature and genres.

577. *(192.)* **Major Individual Authors (3)**
In-depth study of the works of a major author, such as Sophocles, Dante, Cervantes, Goethe, Dostoyevsky or Proust. Maximum credit six units.

580. *(194.)* **Concepts in Comparative Studies (3)**
Basic concepts in comparative studies in literature (e.g., influence, movement, figure, genre, etc.); their validity, usefulness and limitations. May be repeated with new content. Maximum credit six units.

581. *(195.)* **Literary Uses of Languages (3)**
Study of the functions of language in literary writings. May take the form of translation workshop, stylistic studies, etc. May be repeated with new content. Maximum credit six units.



Criminal Justice Administration

In Public Administration and Urban Studies
In the College of Professional Studies

Faculty

Faculty assigned to teach courses in criminal justice administration are drawn from public administration and urban studies.

Offered by Public Administration and Urban Studies

Master of Science degree in criminal justice administration.
Major in criminal justice administration with the B.S. degree in applied arts and sciences.
Certificate in criminal justice administration.

Criminal Justice Administration Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements on page 64 of this catalog. A minor is not required with this major.

Preparation for the major. Nine units of social science and a three-unit course in statistics. (12 units.)

Major. A minimum of 36 upper division units to include Public Administration 301; Criminal Justice Administration 301, 497 or 498; and additional upper division courses selected with approval of the departmental adviser, including a three-unit course in statistics if not taken in the lower division.

Certificate in Criminal Justice Administration

This certificate is designed primarily for persons who hold administrative or managerial positions in the field of criminal justice or for those who seek to prepare for such responsibilities. A certificate in criminal justice administration may be sought by those who: (a) do not meet the prerequisite requirements established for the B.S. degree with a major in criminal justice administration; (b) are not interested in or able to complete nonprofessional offerings which are part of the regular degree program; (c) have already earned a bachelor's or master's degree and are not interested in a second degree.

Candidacy for the certificate program will be established by the Coordinator of the Criminal Justice Administration Program. Awarding of the certificate requires completion of an approved pattern of eight courses (24 units) with a minimum grade point average of 2.5 (C+). Course offerings under this program may be taken in the on-campus program, extension division, external degree program, or any combination of these.

For further information, consult the Coordinator, Criminal Justice Administration.

UPPER DIVISION COURSES

301. *(146.)* **Administration of Justice (3) I, II**
Prerequisite: Public Administration 301 or Political Science 546 or 547A.
Fundamental problems in judicial administration in law enforcement, organization and management, and issues in judicial reform and in public safety.

310. *(110.)* **Law Enforcement Administration (3)**
Prerequisite: Sociology 101.
Administrative relationships within the criminal justice process with special reference to problems of courts and police and probation agencies.

320. *(112.)* **The Administration of Criminal Law (3)**
Prerequisite: Criminal Justice Administration 301 or 310 or Political Science 348 or 547A.
Basic concepts of the criminal law; elements of crime and the administrative processes of law enforcement.

321. *(111.)* **Administration of Juvenile Justice (3)**
Prerequisite: Sociology 514 or Criminal Justice Administration 301 or 310.
Administration of programs for treatment of juvenile offenders by police, probation and courts.

495. *(113.)* **Selected Topics in Criminal Justice Administration (3)**
Selected current topics in criminal justice administration. Maximum credit six units.

497. Investigation and Report (3) I, II
Prerequisite: Consent of instructor.
Analysis of special topics.

498. Internship in Criminal Justice Administration (2-6) I, II
Prerequisite: Consent of instructor.
Students are assigned to various government agencies and work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences.

499. Special Study (1-3) I, II
Individual study. Maximum credit six units.
Prerequisites: Twelve units of upper division criminal justice administration and consent of instructor.

502. *(117.)* **Juvenile Deviance and the Administrative Process (3)**
Prerequisite: Sociology 514, or Criminal Justice Administration 301 or 310.
The activity of those in the administrative system who process juvenile deviance.

530. *(116.)* **Contemporary Correctional Administration (3) II**
Prerequisite: Sociology 513 or 514.
The problems encountered in administering modern correctional institutions, forestry and road camps, detention homes, and jails.

531. *(188.)* **Probation and Parole (3) I**
Prerequisite: Criminal Justice Administration 301 or 530.
Basic concepts, history, legislation, and practices used in work with juveniles and adults who have been placed on probation or parole; criteria of selection, methods of supervision, and elements of case reporting.

GRADUATE COURSES

601. *(210.)* **Seminar in the Administration of Criminal Justice (3)**
Prerequisite: Criminal Justice Administration 301 or 310.
Administrative problems of criminal justice systems.

630. *(216.)* **Seminar in Correctional Administration (3)**
Prerequisite: Criminal Justice Administration 530.
Selected problems in the administration of correctional problems and institutions. Maximum credit six units applicable on a master's degree.

631. *(211.)* **Seminar in Correctional Group Method (3)**
Prerequisite: Sociology 513 or 514 or Criminal Justice Administration 321 or 531.
An exploration of current research and use of group methods in the correctional segment of the criminal justice system.

632. *(212.)* **Seminar in the History of Correctional Reform (3)**
Prerequisite: Criminal Justice Administration 321 or 531 or Sociology 513 or 514.
The historical development of concepts and practices in the field of corrections with emphasis upon developments in the United States.

791. Readings in Criminal Justice Administration (3)
Prerequisite: Six graduate units in criminal justice administration.
Selected readings in the literature of criminal justice administration.

792. Problem Analysis (3)
Analytical treatment of selected problems in criminal justice administration. Review of methods for investigation and reporting of data. Consideration of problems in preparation of projects or theses.

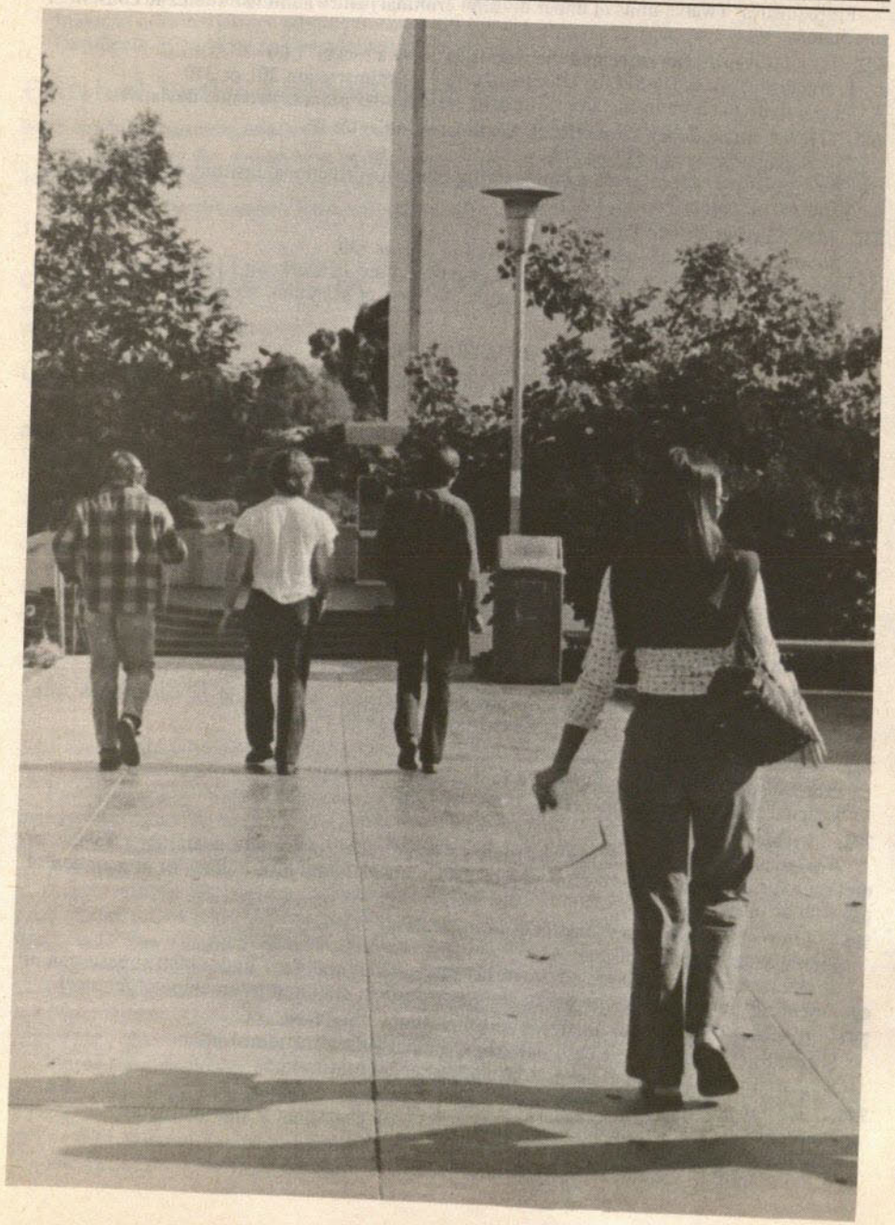
796. Internship in Criminal Justice Administration (1-6)
Prerequisite: Consent of instructor.
Students are assigned to various government agencies and work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences.

797. Research in Criminal Justice Administration (3) Cr/NC
Prerequisite: Consent of Coordinator of Criminal Justice Administration.
Research in one of the areas of criminal justice administration.

798. Special Study (1-3) Cr/NC
Prerequisite: Consent of staff; to be arranged with Coordinator and instructor.
Individual study. Maximum credit six units.

799A. Thesis (3) Cr/NC
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.



Drama

In the College of Professional Studies

Faculty

Emeritus: Povenmire, Sellman
Professors: Amble, Howard, Powell, Stephenson (Chairman)
Associate Professors: Harvey, Lessley, Owen
Assistant Professors: Annas, McKerrow
Lecturer: Bellinghiere

Offered by the Department

Master of Arts degree in drama.
Major in drama with the A.B. degree in applied arts and sciences.
Minor in drama.
Single subject teaching credential in English in area of drama.

Drama Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Drama 105, 130, 231, 240, and 250. (15 units.)
Note: Drama 110 and 120 should be taken as part of the general education requirements.

Major. A minimum of 24 upper division units in drama to include Drama 520, 532, 540A, 557, 558 or 559, 560A-560B, and four units of electives in drama (except Drama 442 and 499) selected with the approval of the adviser.

In addition to course requirements the student must participate in a total of five Major Theatre performances and three Studio or Experimental Theatre activities.

Emphasis in Design for Drama

Preparation for the major. Drama 105, 130, 231, 240, and 250. (15 units.)
Note: Drama 110 and 120 should be taken as part of the General Education requirements.

Major. A minimum of 24 upper division units in drama to include Drama 540A, 540B, 545A, 548, 552A, 557, 560A-560B. In addition to course requirements the student must participate in a minimum of five Major Theatre performances and three Studio or Experimental Theatre activities.

Emphasis in Design for Television

Preparation for the major. Drama 105, 240, 250, Telecommunications and Film 110, 120A-120B, and 280. (23 units.)

Major. A minimum of 24 upper division units to include Drama 540A, 540B, 548, 552A, Telecommunications and Film 450, 520, 550, and 460 or 581.

Drama Minor

The minor in drama consists of a minimum of 21 units in drama to include Drama 105, 130, 231, 240, 250 and six units of upper division electives in drama.

Courses in the minor may not be counted toward the major or general education.

Drama

For the Single Subject Teaching Credential in English

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

The requirements for the single subject teaching credential in English which includes the area of drama are being revised. For further information consult the department.

LOWER DIVISION COURSES

105. *(5.)* **Introduction to the Theatre (3) I, II**
Three lectures per week and 15 hours of laboratory per semester.
A survey of theory and practice in the contemporary theatre, including its literary, critical, and technical aspects viewed against historical backgrounds.

110. *(10.)* **Voice and Diction for the Theatre (3) I, II**
Prerequisite: Drama 105.
Exercises and drills to improve the quality, flexibility and effectiveness of the speaking voice leading to good usage in standard American speech. Preparatory to further courses in drama.

120. *(20.)* **Dramatic Heritage (3) I**
Three lectures and attendance at selected performances.
Survey of dramatic literature from classical to the modern period, including classical, medieval, Renaissance, Restoration, neoclassical, romantic, realistic and modern plays.

130. *(30.)* **Elementary Acting (3) I, II**
Three lectures per week and 30 hours of laboratory per semester.
Prerequisite: Drama 105.
Development of the individual's ability to express thought and emotion through the effective use of the voice and body. These fundamental skills may be applied to stage, radio, and television acting.

147. *(47.)* **Sound in the Theatre (2) I**
One lecture and three hours of laboratory.
Techniques, theory, and procedures necessary to develop sound, music, and effects integrated into theatre production.

231. *(31.)* **Intermediate Acting (3) I, H**
Three lecture-demonstrations per week and 30 hours of laboratory per semester.
Prerequisite: Drama 130.
Continuation of Drama 130, emphasizing the application of fundamental skills to the problems of emotion, timing, characterization, and ensemble acting.

232. *(32.)* **Movement and Mime for the Theatre (3) I**
Two lectures and three hours of laboratory.
Prerequisite: Drama 105.
Basic disciplines of locomotor and axial body movement for the stage director and actor; introduction to mime. The relationship between body expression and character portrayal.

240. *(40.)* **Dramatic Production (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Drama 105.
Technical practices and organization of production for theatre and television. Practice in drafting and construction of scenery for the college productions.

250. *(50.)* **Elementary Stage Costume and Makeup (3) I**
Two lecture-demonstrations and three hours of laboratory.
Prerequisite: Drama 105.
Basic theories, techniques, and procedures of costume production and makeup application for stage, film, and television. Practical training in the construction of stage costumes and application of makeup for departmental productions. One running crew required.

255. *(55.)* **Children's Theatre (3) I**
Examination of existing philosophies and practices dealing with children's theatre presentations. Theory and technique of selecting and producing plays for children. Introduction to directing for children's theatre. Practical experience through participation in university-sponsored productions.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. *(101.)* **Management of Drama Activities (1) I, II**
Planning, preparation, management and supervision of drama tournaments, festivals and other interscholastic and intrascholastic activities under the supervision of the drama staff. Maximum credit two units.

310. *(110.)* **Creative Dramatics (3) I, II**
Instruction and training in the principles and techniques of creative dramatization for work with children in the classroom and recreation. Emphasis on the development of the child emotionally and socially through dramatic improvisation.

315. *(115.)* **Directing for Children's Theatre (3) II**
Prerequisite: Drama 255.
Staging and technical problems relative to the production of plays for children; casting procedures, blocking and characterization principles, rehearsal and scenic techniques. Practical experience through university-sponsored productions.

325. *(125.)* **Original Dramatic Works: Production Laboratory (3) II**
Nine hours of laboratory.
Prerequisites: Drama 231 and consent of instructor.
Staging of original one-act and full-length plays, in traditional and experimental productions, working in conjunction with the students in the playwriting and directing classes.

329A-329B. *(129A-129B.)* **Children's Theatre Workshop (3-3)**
Prerequisite: Drama 315.
Production of plays for child audiences, with emphasis on elementary and junior high levels. Practical experience through participation in university-sponsored productions.

330. *(130.)* **Accents and Dialects for the Stage (3) II**
Prerequisites: Drama 110 and 130.
Various accents and dialects most frequently occurring in stage productions.

442. *(142.)* **.Theatre Workshop (1-3) I, II; (3-6) S Cr/NC**
Two hours of activity per unit.
A laboratory to give the student a variety of experience in the theatre including acting, lighting, scenery, costumes and stage management. Maximum credit six units.

475. *(175.)* **Theatre Management and Promotion (3) II**
Two lectures and three hours of laboratory.
A practical and correlated study of the college, university, high school and children's theatre; principles of organization, programming, production, budgets, ticket office, and promotional procedures.

480. *(180.)* **Methods and Materials of Instruction (2) I**
Professional preparation emphasizing organization and practices in the teaching of Dramatic Arts.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

498. *(198.)* **Selected Topics in Drama (1-3) I, II**
Prerequisite: Twelve units in drama.
A specialized study of selected topics from the areas of drama. May be repeated with new content. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual Study. Maximum credit six units.
Prerequisite: Consent of instructor.

511. *(111.)* **Styles in Creative Dramatics (3) I, II**
Prerequisite: Drama 310.
Advanced techniques and procedures in the teaching of creative dramatics. Lectures and reading on the application of creative dramatics with emphasis on the different styles of creative dramatics available to the practitioner. Practical experience through work with children.

520. *(120.)* **Play Analysis (3) I, II**
Prerequisites: Drama 105 and 120.
Representative dramas for the stage are read, discussed and analyzed in writing in terms of environment, structure, action, character and style.

521. *(121.)* **Theatre Criticism (3) I**
Prerequisite: Drama 520.
A consideration of the problems and practices of dramatic criticism as applied to theatrical production in the past and present.

522. *(122.)* **Playwriting, the One-Act Play (3) I, II**
Lectures, discussion and reading of one-act plays written by the students.

523. *(123.)* **Playwriting, the Long Play (3) II**
Prerequisite: Drama 522.
Lectures and analytical discussions of full-length plays written by students.

526. *(126.)* **Theory of Production for the Musical Stage (3) I**
Prerequisites: Drama 231 and consent of instructor.
Theory and principles of production of modern musicals.

531. *(131.)* **Advanced Acting Theory (3) I**
Prerequisite: Drama 130 or 231.
The theories and principles of acting.

532. *(132.)* **Advanced Acting (3) I, II**
Prerequisite: Drama 231.
Problems in characterization: acting styles of the great periods in theatre history.

537. *(137.)* **High School Play Directing (2)**
Two hours of laboratory.
Prerequisites: Drama 240 and 557.
Theory and practice of selecting, directing, and producing dramatic presentations in high school, with emphasis on low-budget and creative methods and techniques most practicable and effective in the high school drama program.

540A. *(140A.)* **Scenic Design (3) I**
Prerequisite: Drama 240.
Techniques and procedures in the application of principles of design, color and perspective in the designing and painting of scenery for various types of productions for stage, television and cinema.

540B. *(140B.)* **Styles in Scenic Design (3) II**
Prerequisite: Drama 540A.
History of scenic design and the application of contemporary styles to various types of dramatic production for stage, television and cinema.

545A-545B. *(145A-145B.)* **Stage Lighting (3-3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Drama 545A is prerequisite to 545B.
Light, color, lighting instruments, and control equipment, including the design and planning of lighting for plays.

548. *(148.)* **Advanced Dramatic Production (3)**
Two lectures and three hours of laboratory.
Prerequisite: Drama 240.
Scenery drafting and construction, with attention to the multiple-set play. Planning of scenery construction and rigging for stage and television productions.

551. *(151.)* **Costume, Movement, and Manners (3) I**
Prerequisite: Drama 250.
Interrelationship of period costumes on the movement and manners of the time and their application on the stage.

552A-552B. *(152A-152B.)* **Costume History and Design for the Theatre (3-3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Drama 250. Drama 552A is prerequisite to 552B.
Chronological study of clothing and theatrical dress from earliest times to the present, with practical applications in terms of contemporary costume design for the theatre.
A. Egyptian through Cavalier periods. Elements and principles of costume design.
B. Restoration period to the present. Designing costumes for the whole play.

554. *(154.)* **Costume Construction Techniques (3) I**
Two lecture-demonstrations and three hours of laboratory.
Prerequisites: Drama 540A and 552B.
Period pattern drafting, draping, cutting, construction. Wig, millinery, armour, mask, accessory construction. Costume paint and dye techniques.

557. *(157.)* **Stage Diirection (3) I, II**
Two lectures and three hours of laboratory; attendance of one-act plays and selected performances.
Prerequisites: Drama 520, 532 and consent of instructor.
Planned for prospective directors of plays in schools, colleges, and community theatres. A comprehensive study of the various problems confronting a stage director.

558. *(158.)* **Stage Direction: Scenes (2) I, II**
One lecture and three hours of laboratory; attendance of one-act plays and selected performances.
Prerequisites: Drama 557 and consent of instructor.
Experience and group evaluation in directing scenes in acting classes

559. *(159.)* **Stage Direction: One-act Plays (3) I, II**
One lecture and six hours of laboratory; attendance of one-act plays and selected performances.
Prerequisites: Drama 557 and consent of instructor. (May be substituted for Drama 558 as requirement in directing.)
Experience and group evaluation in directing one-act plays before departmental or public audiences.

560A-560B. *(160A-160B.)* **History of the Theatre (3-3) I, II**
The theatre from primitive times to the present. Special attention will be given to the theatre as a mirror of the social and cultural background of the various countries and periods in which it is studied. Drama 560B may be taken without 560A.

578. *(178.)* **Directing the Period Play (3) II**
Two lectures and three hours of laboratory.
Prerequisite: Drama 559.
Staging and directing problems related to the production of plays from the great periods in theatre history. Special attention to dramatic values, style, mood, creative directing and production approaches.

GRADUATE COURSES

600. *(200.)* **Research and Bibliography (3)**
Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research as it relates to the various areas of speech. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.

635. *(235.)* **Seminar in Children's Theatre (3)**
Prerequisites: Drama 310 and 315.
Modern developments and trends in children's theatre in educational, civic, and professional programs in the United States and England.

643. *(243.)* **Seminar in Staging Practices for Theatre and Television (3)**
An investigation of the recent developments of modern staging facilities. The application of technological advances and electromechanical devices to the scenic arts for theatre and television.

644. *(244.)* **Seminar in Stage Direction (3)**
Prerequisite: Drama 557.
Projects in the aesthetic principles and the practices of stage direction with an emphasis on styles and historic periods.

645. *(245.)* **Seminar in Lighting for Stage and Television (3)**
Prerequisite: Drama 545A or 545B.
Projects concerned with the aesthetic and technical problems of stage lighting.

646. *(246.)* **Seminar in Design for Stage and Television (3)**
The principles of design in the theatre with an emphasis on the historical development of theatrical costume or scenic environment. The investigation of recent tendencies in styles and their evolution. Each section may be taken once for credit.
A. Costume Design
Prerequisite: Drama 552A or 552B.
B. Scenery Design
Prerequisite: Drama 540B or 548.

647. *(247.)* **Seminar in History of Theatre and Drama (3)**
Prerequisites: Drama 520, 560A, and 560B.
A. British and Continental Theatre
B. American Theatre

648. *(248.)* **Seminar in Dramatic Theory (3)**
Prerequisites: Drama 520, 560A, 560B, and 600.
Problems in producing works of such playwrights as Ibsen, Strindberg, Chekhov, Shaw. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units applicable on a master's degree.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Economics

In the College of Arts and Letters

Faculty

Emeritus: Chadwick, McClintic, Ryan
Professors: Anderson, Babilot, Barckley, Bridenstine, Evans, Flagg, Gifford, Jencks, Leasure, Madhavan, Neuner, Poroy, Turner, Venieris
Associate Professors: Clement, Hambleton, Hardesty, Kartman, Nam, Popp, Sebold (Chairman)
Assistant Professors: Holt, Stewart
Lecturers: Bolton, Hayakawa, Parti, Vogt

Offered by the Department

Master of Arts degree in economics.
Major in economics with the A.B. degree in liberal arts and sciences.
Minor in economics.

Economics Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Two plans are provided for the major in economics: Plan A for those students expecting to pursue the study of economics beyond the A.B. degree; and Plan B for those students with a liberal arts interest, or for those who are interested in prelegal education or a combined economics-business program.

Plan A

Preparation for the major. Economics 120 and 121 (303 and 304), 142, and Mathematics 150. (14 units.) With approval of the department, Economics 103 may substitute for either Economics 120 (303) or Economics 121 (304). Mathematics 107 is recommended.

Major. A minimum of 24 upper division units in economics to include Economics 324, 325, 447, 541, and 12 units of electives. Economics 303 and 304 may not be used to fulfill minimal upper division requirements.

Minor. A minor is not required with this major; however, the student is strongly advised to take a minor in mathematics. Recommended courses are Mathematics 140, 150, 151, 152, 521A-521B, 534A-534B, and 551A-551B.

Plan B

Plan B is a flexible program to meet the needs of several groups of students. Advisory programs of study are available in the Economics Department office for the following groups: (a) prelaw majors; (b) a broad-ranging liberal arts interest; and (c) a combined economics and business interest.

Preparation for the major. Economics 120 and 121 (303 and 304) and 142. (9 units.) With approval of the department, Economics 103 may substitute for either Economics 120 (303) or Economics 121 (304). Students planning careers in law or business are advised to take at least one semester of accounting.

Major. A minimum of 24 upper division units in economics to include Economics 320, 321, and 18 units of electives. Six of the 24 units may be in a related field to be selected with the approval of the departmental Academic Requirements Committee. Economics 303 and 304 may not be used to fulfill minimal upper division requirements in the major.

Minor. A minor is not required with this major.

Economics Minor

The minor in economics consists of a minimum of 15 units in economics, nine units of which must be in upper division courses; Economics 303 and 304 are not acceptable.
Courses in the minor may not be counted toward the major or general education.

Economics

For the Single Subject Teaching Credential in Social Science

Economics is an area of concentration for the Social Science Major, a program leading to a secondary education credential in Social Science. The requirements are those established for the Social Science Credential. See page 433.

LOWER DIVISION COURSES

103. *(3.)* **Contemporary Economic Problems (3) I, II**
Investigates economic bases for such current problems as inflation, unemployment, economic power, consumer protection, poverty, discrimination, urban and environmental deterioration, and international domination. Examines such policies as fiscal-monetary policy, tax reform and government controls and provision of services.

120. *(1A.)* **Principles of Economics (3) I, II**
An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon macroanalysis including national income analysis, money and banking, business cycles, and economic stabilization. Not open to students with credit in Economics 303.

121. *(1B.)* **Principles of Economics (3) I, II**
An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon the direction of production, the allocation of resources, and the distribution of income, through the price system (microanalysis); and international economics. Not open to students with credit in Economics 304.

142. *(2.)* **Statistical Methods (3) I, II**
Prerequisite: Mathematics 103 or qualification on the Mathematics Placement Examination.
Introduction to descriptive statistics, statistical inference, correlation, index numbers, and time series. Not open to students with credit or concurrent enrollment in another course in statistics.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

Note: Wherever Economics 120 (303) is listed as a prerequisite, Economics 320 (324) satisfies the requirement; wherever Economics 121 (304) is listed as a prerequisite, Economics 321 (325) satisfies the requirement.

300. *(166.)* **Honors Course (1-3)**
Refer to Honors Program.

303. *(103A.)* **Economic Principles, Institutions, and Policies (3)**
Prerequisite: Six units in history, political science, or sociology.
Income and employment theory and its applications. Not open to students with credit in Economics 120. May not be used to fulfill minimal upper division requirements in the economics major or minor or liberal studies major.

304. *(103B.)* **Economic Principles, Institutions, and Policies (3)**
Prerequisite: Six units in history, political science, or sociology.
Price theory and its applications. Not open to students with credit in Economics 121. May not be used to fulfill minimal upper division requirements in the economics major or minor or special major.

311. *(101.)* **History of Economic Thought (3)**
Prerequisites: Economics 120 (303) and 121 (304).
The development of economics. Contributions of schools of thought and individual writers are examined with regard to their influence on economic theory and policy.

313. Marxian Economic Theory (3)
Prerequisite: Six units in economics.
Analysis of the theories of Marx, Engels, Lenin, Mao Tse-tung, Baran, Sweezy and others as they pertain to the periods in which they were conceived and to modern times.

320. *(100B.)* **Intermediate Economic Theory (3) I, II**
Prerequisite: Economics 120 (303), or Economics 103 with approval of department.
Economic theory with special reference to national income analysis and the theory of investment. Credit will not be given for both 320 and 324.

321. *(100A.)* **Intermediate Economic Theory (3) I, II**
Prerequisite: Economics 121 (304), or Economics 103 with approval of department.
Economic theory with special reference to the theory of the firm and the industry; value and distribution. Credit will not be given for both 321 and 325.

324. *(104B.)* **Macroeconomic Analysis (3)**
Prerequisites: Economics 120 (303), or Economics 103 with approval of department, and Mathematics 150.
Mathematical interpretation of macroeconomic theory. Credit will not be given for both 320 and 324.

325. *(104A.)* **Microeconomic Analysis (3)**
Prerequisites: Economics 121 (304), or Economics 103 with approval of department, and Mathematics 150.
Mathematical interpretation of microeconomic theory. Credit will not be given for both 321 and 325.

330. *(102.)* **Comparative Economic Systems (3)**
Prerequisite: Economics 120 (303) or 121 (304) or 103.
The economic aspects of laissez-faire and regulated capitalism, cooperatives, socialism, communism, nazism, fascism. Criteria for evaluating economic systems. The individual and government in each system. Planning in a liberal capitalistic society.

332. *(112.)* **Capitalist Economy (3)**
Prerequisite: Economics 120 (303) or 121 (304) or 103.
The relationship between the dominant economic and political institutions of capitalist organization and the major social problems of modern capitalism.

335. *(110.)* **Economic History of Europe (3)**
Prerequisite: Economics 120 (303) or 103.
Economic development from the Middle Ages to the present. Particular attention is given to the impact of the Industrial Revolution on national economies, especially on England's commerce and industry.

336. *(116.)* **Economic History of Emerging Nations (3)**
Prerequisite: Economics 120 (303) or 103.
Evolution of economic organization, institutions, and policies of Africa, Asia, and Latin America. Regional emphasis will vary. Maximum credit six units.

338A-338B. *(111A-111B.)* **Economic History of the United States (3-3)**
Prerequisite: Economics 120 (303) or 103.
American economic development and national legislation in the fields of agriculture, industry, and commerce. Semester I: 1600-1865. Semester II: 1865 to the present.

347. *(197.)* **Research Design and Method (3)**
Prerequisite: Economics 142.
Instruction in the practical application of the various techniques of economic research to a range of problems typically encountered in the economics profession; sources and limitations of basic data, survey research, industry studies, economic forecasting, national impact studies, area and regional studies.

360. *(190.)* **International Economic Problems (3)**
Prerequisites: Economics 120 (303) and 121 (304). Not open to students with credit in Economics 561 or 592.
International problems, economic communities, organizations, and other selected topics.

365. *(195.)* **Economics of Underdeveloped Areas (3)**
Prerequisite: Economics 121 or 304.
The nature and causes of economic underdevelopment. Problems of and policies for the economic development of underdeveloped areas of the world.

370. *(170.)* **Government and Business (3)**
Prerequisite: Economics 103 or 121 (304).
Governmental activities affecting business; the state as an entrepreneur and manager; governmental assistance to business; governmental regulation of business in its historical, legal and economic aspects, including recent developments in the United States and abroad; proposed policies.

380. *(150.)* **Labor Problems (3)**
Prerequisite: Economics 103, 120 (303), or 121 (304).
Labor organizations and their policies, wages, strikes, unemployment, social insurance, child labor, labor legislation, plans for industrial peace, and other labor problems.

385. *(185.)* **Poverty in the United States (3)**
Prerequisite: Economics 121 (304) or 103.
Economic aspects of poverty and racial discrimination. Relation of poverty to the general economic structure and to macroeconomic conditions such as unemployment and inflation. Possible solutions.

401. *(131.)* **Public Finance (3)**
Prerequisites: Economics 120 (303) and 121 (304).
Principles and practices of taxation and public expenditures. Economic effects of public spending, debts and taxation. Financing social security and other services. Fiscal policy and prosperity. Relation to inflation and deflation. Special emphasis on social problems involved.

422. *(142.)* **Business Cycles (3)**
Prerequisites: Economics 120 (303) and 121 (304).
Fundamental factors in economic fluctuations. Examination of business cycle theories, and various policy proposals for economic stabilization. A consideration of current economic conditions and an examination of methods employed in preparing national economic forecasts.

426. *(136.)* **Policies for Macroeconomic Stabilization (3)**
Prerequisite: Economics 120 or 303.
Alternative policies for macroeconomic stabilization, including neo-Keynesian, Chicago, radical, and ecological views. Topics include GNP forecasting, dynamic models, monetary vs. fiscal tools, economic surplus, and zero GNP growth.

447. *(107.)* **Quantitative Economics (3)**
Prerequisites: Economics 120 (303) and 121 (304), and Mathematics 150.
The quantitative approach to economic problems. The use of mathematics in economic analysis.

453. *(173.)* **Economics and Ecology (3)**
Prerequisites: Economics 120 (303) and 121 (304).
Relation of ecological problems to basic economic institutions. Examination of the apparent conflict between economic needs and ecological requirements. Economics of air, fresh water, ocean and land pollution, overpopulation and natural resource utilization. Investigation of possible solutions.

454. *(120.)* **Economics of the Ocean (3)**
Prerequisites: Economics 120 (303) and 121 (304).
Economic analysis of fisheries, seabed resources, shipping lanes, allocation of the coastal zone, and ocean pollution. Economic implications of alternative legal arrangements concerning the ocean.

458. *(138.)* **Urban and Regional Economics (3)**
Prerequisite: Economics 120 and 121, or 303 and 304.
Major influences on the economic conditions of urban and nonurban areas; specific urban problems including housing, land use, and growth. Discussion of San Diego problems.

464. *(114.)* **Economic Problems of Latin America (3)**
Prerequisite: Economics 120 (303) or 121 (304) or 103.
Economic development, institutions, and problems of Latin America.

465. *(115.)* **Economic Problems of South and East Asia (3)**
Prerequisite: Economics 120 (303) or 121 (304) or 103.
Economic development, institutions, and problems of China, India and Pakistan, Japan, and Southeast Asia.

468. *(118.)* **The Economies of the Soviet Union and Eastern Europe (3)**
Prerequisite: Economics 120 (303) or 121 (304) or 103.
The development, institutions, and problems of the Soviet and East European economies.

469. *(119.)* **Economic Problems of Africa and the Middle East (3)**
Prerequisite: Economics 120 (303) or 121 (304) or 103.
Economic development, institutions, and problems of Africa and the Middle East.

474. *(174.)* **Economic Concentration and Monopoly Power (3)**
Prerequisites: Economics 120 (303) and 121 (304).
The implications of economic concentration and monopoly. The evaluation of mergers, consolidations and other forms of monopoly power in terms of social and economic goals. Attempts to control monopoly power by antitrust laws, by policies regarding competitive practices and by other means.

475. *(175.)* **Industry Studies (3)**
Prerequisites: Economics 120 (303) and 121 (304).
Evaluation of the structure, conduct and performance of selected industries in terms of social and economic goals.

476. *(171.)* **Transportation Economics (3)**
Prerequisites: Economics 120 (303) and 121 (304).
Economic impact of the availability and cost of transportation service. Organization, rate-making practices, financing and regulation of transportation agencies: air, surface, and water. Current issues of national transportation policy.

477. *(172.)* **Public Utilities (3)**
Prerequisites: Economics 120 (303) and 121 (304).
Economics and regulation of utility enterprises. Growth, pricing, demand and cost behavior, financing, regulatory principles and techniques. Public power and other current policy issues.

482. *(152.)* **Collective Bargaining (3)**
Prerequisites: Economics 120 (303) and 121 (304).
Structures of labor relations; management and union problems; public policy and collective bargaining; simulation of collective bargaining experiences.

483. *(153.)* **Comparative Labor Problems (3)**
Prerequisites: Economics 120 (303) and 121 (304).
Comparative study of labor relations systems and labor movements in both advanced and developing nations. Individual study of a particular country of the student's choice.

484. *(154.)* **Economic Aspects of Human Resources (3)**
Prerequisite: Economics 120 (303) or 121 (304) or 103.
Analysis of health, education, and manpower within the context of government expenditure, economic growth, and the theory of human capital.

489. *(189.)* **Population and Economic Growth (3)**
Prerequisite: Economics 120 (303) or 121 (304) or 103.
Interrelationship between the components of population change (fertility, mortality, and migration) and economic growth in developed and underdeveloped areas.

490. *(135.)* **Money and Banking (3) I, II**
Prerequisites: Economics 120 (303) and 121 (304).
The elements of monetary theory. History and principles of banking with special reference to the banking system of the United States.

496. *(167.)* **Contemporary Issues (3)**
Prerequisite: Consent of instructor.
Current policy issues and problems from an economic point of view. Maximum credit six units.

497. *(198.)* **Investigation and Report (3) I, II**
Open to economics majors only.
Independent study and investigation. Guidance in the collection, organization, and presentation of factual material. May be repeated for a maximum of six units; maximum credit in 497 and 499 limited to six units.

499. *(199.)* **Special Study (1-3) I, II**
Prerequisite: Consent of instructor.
Individual study. May be repeated for a maximum of six units; maximum credit in 497 and 499 limited to six units.

502. *(132.)* **Public Economics (3)**
Prerequisite: Economics 321 (325) or 401.
General equilibrium. Externalities of consumption and production, their impact on allocative efficiency. Theory of social wants and public goods supply. Theoretical treatment of individual and community preference ordering and decision making. Proposals for improving the allocation of resources.

505. *(105.)* **Welfare Economics (3)**
Prerequisites: Economics 121 or 304, and 321 (325).
Theories of individual and social well-being; economic and ethical bases of optimum welfare arrangements; individual values and social decision making; tests of improvement; interdependence and externalities; public and private sectors; properties of social welfare functions.

520. *(109.)* **Advanced Economic Theory (3)**
Prerequisites: Economics 320 (324) and 447.
Recent contributions to the advanced theory of the firm, consumer demand, employment and growth.

524. *(194.)* **Capital and Growth Theory (3)**
Prerequisites: Economics 320 and 321, or 324 and 325.
Factors affecting the capital supply and the rate of growth of a developed economy.

541. *(141.)* **Econometrics (3)**
Prerequisites: Economics 142 and 447.
Measurement in economics. The construction and testing of simple economic hypotheses. Use of economic models involving multiple-regression analysis.

559. *(139.)* **Location Theory (3)**
Prerequisite: Economics 458.
The optimal location of economic activities. The effects of spatial distribution of resources and markets on the locational equilibrium of the firm.

561. *(191.)* **International Trade Theory (3)**
Prerequisites: Economics 320 and 321, or 324 and 325.
The pure theory of international trade and commercial policy.

592. *(192.)* **International Monetary Theory and Policy (3)**
Prerequisite: Economics 320 (324) or 490.
Balance of payments, international capital movements and foreign exchange in relation to current theories and policies.

GRADUATE COURSES

603. *(203.)* **Economic Analysis (3)**
Prerequisite: Classified graduate standing.
The theory of the firm in a market economy. Not open to students with credit in Economics 320 and 321; not applicable toward a master's degree in economics.

606. *(206.)* **The Public Economy (3)**
Prerequisite: Economics 401 or Public Administration 550.
Determinants of the supply and demand for public goods; the social decision-making processes in determining public goods; supply; financing public goods; taxes and expenditures; planned program budgeting and cost-benefit analysis. Not applicable toward a master's degree in economics.

611. *(201A.)* **Seminar in the Development of Economic Thought (3)**
Prerequisite: Twelve units in economics.
A critical study of the development of economic thought.

620. *(200B.)* **Seminar in Advanced Economic Theory (3)**
Prerequisites: Economics 320 and 321, or 324 and 325; and 447.
Theory of money, employment, and income determination. Alternative theories of consumption, investment, price level and rate of interest. Causes of instability in short and long run.

621. *(200A.)* **Seminar in Advanced Economic Theory (3)**
Prerequisites: Economics 320 and 321, or 324 and 325; and 447.
Theory of consumer and producer behavior. Determination of prices and resource allocation patterns in a market economy; partial and general equilibrium.

630. *(202.)* **Seminar in Comparative Economic Systems (3)**
Prerequisite: Economics 330 or 465 or 468.
Topics in comparative economic systems; the Soviet economy, the economy of communist China, and related subjects.

635. *(210.)* **Seminar in Economic History (3)**
Prerequisite: Economics 335 or 338A or 338B.
Individual study and group discussion on selected topics in economic history.

660. *(292.)* **Seminar in International Economics (3)**
Prerequisite: Economics 360 or 561.
Resource allocation, income distribution, commercial policies, capital movements, balance of payments, and international monetary institutions.

665. *(295.)* **Seminar in the Economics of Underdeveloped Countries (3)**
Prerequisite: Economics 365.
Theories regarding underdevelopment and policies for development of economically underdeveloped countries.

680. *(250.)* **Seminar in Labor Economics (3)**
Prerequisite: Economics 380 or 482.
Individual study and group discussion of selected topics in labor economics.

701. *(231.)* **Seminar in Public Finance (3)**
Prerequisite: Economics 401.
Advanced study of public finance problems and literature; research.

728. *(208.)* **Development Planning (3)**
Prerequisite: Economics 365.
Role of government in development. Choice of target and policy variables. Planning techniques and their application to the national development problems.

741. *(241.)* **Seminar in Econometrics (3)**
Prerequisite: Economics 541.
The construction of large economic models. Identification, causal ordering and estimation. Simultaneous-equation techniques and other selected topics.

758. *(238.)* **Seminar in Urban and Regional Economics (3)**
Prerequisite: Economics 458.
Urban and regional economics; individual research and reports.

774. *(274.)* **Seminar in Economic Concentration and Monopoly Power (3)**
Prerequisites: Economics 321 (325) and 370, or 474.
Selected topics in the field of economic concentration and monopoly.

777. *(272.)* **Seminar in Utilities and Water Resources (3)**
Prerequisite: Economics 453 or 477.
Advanced study and group discussion of selected topics in utility economics and regulation, and the economics of water resource development.

783. *(253.)* **Comparative Labor Seminar (3)**
Prerequisite: Economics 380 or 483.
Research in comparative labor problems, including problems of labor and social legislation, medical economics, poverty problems, labor force structural problems, and international labor movements.

790. *(235.)* **Seminar in Monetary Economics (3)**
Prerequisite: Economics 490.
Analysis of theoretical issues associated with the demand for money, the money supply and process of money creation. Emphasis upon interaction of monetary and real factors in domestic-international money and financial markets.

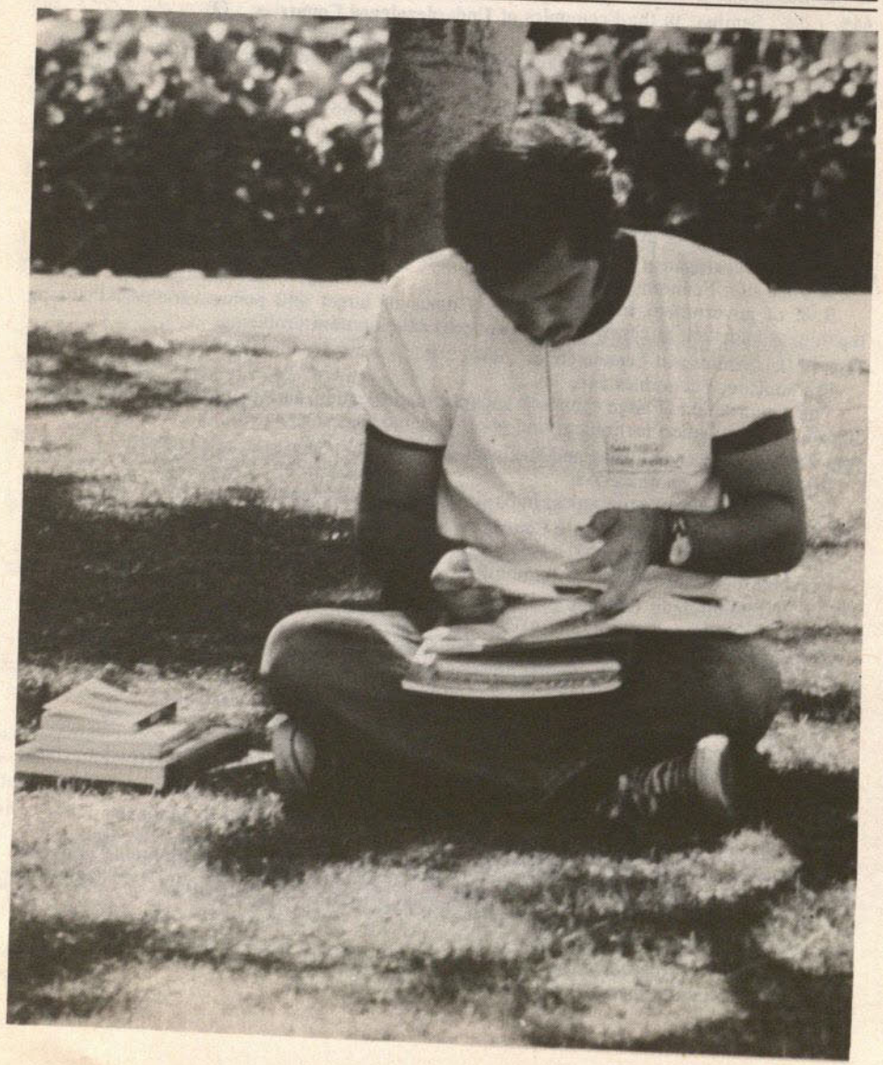
796. *(290.)* **Bibliography (1)**
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's thesis.

797. *(297.)* **Research (3) Cr/NC**
Prerequisites: Classified graduate standing and consent of instructor.
Independent research project in an area of economics.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.



Education

In the School of Education

Member of the American Association of Colleges for Teacher Education

Faculty

Dean: Arciniega

Counselor Education

Professors: Bruce, Carnevale, Cummins, Hawley, Malcolm, Miller
Associate Professors: Chamley (Chairman), Howard, Manjos, Thompson
Assistant Professor: McFarlane
Lecturers: Jones, Trujillo

Educational Administration

Professors: Holt (Chairman), Lienert, Wetherill
Associate Professors: Merino, Warburton

Educational Technology and Librarianship

Associate Professor: Harrison (Chairman)
Assistant Professors: Koller, McAllister, Weir
Lecturer: Sharpe

Elementary Education

Emeritus: Bacon, Campbell, Corbett, Hammack, I., LuPone, Madden
Professors: Anderson, Baker, Blanc, Brydegaard, Burnside, Charles, Fisher, Gast, Gates, Gega, Goodson, Groff, Hill, W., Huls, Inskeep, Kendall, LaPray, Nardelli (Associate Dean), Petteys, Retson, Rixman, Ross, Rowland, Servey, Stough, Strom, Tossas, Wilding
Associate Professors: Becker, Berg, Botkin, Clark, Cleveland, Elliott, Ford, Kaatz (Chairman), Mazon, Melton, Mooers, Moreno, Morris, Murphy, Nagel, Reel, Treadway, Walsh
Assistant Professors: Birch, Hill, P., Klann

Secondary Education

Emeritus: Alcorn, Apple, Bradley, Hunter, Kinder, Linley, White, Yarborough
Professors: Anthony, Becklund, Briggs, Crum, Erickson, Fishburn, Friedrich, Gray, Halfaker, McCoy, Meek, Person, Platz, Prouty, Samuels, Schrupp, Smith, H., Smith, R., Stautland (Chairman), Steckbauer
Associate Professors: Bee, Duckworth, Holman, McCabe, McLevie, Morris, Pehrson, Richman, Shaw, Yesselman
Assistant Professors: Altamura, Curry
Lecturers: Fisher, Flood, Waymon

Special Education

Professors: Ballantine (Chairman), McClard, Mitchell, Singer, Trimmer
Associate Professors: Doorlag, Fearn, Forbing

Offered by the School of Education

Master of Arts degree in education with concentrations in eleven areas and a Master of Science degree in counseling. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the School of Education.)
B.V.E. degree. (Described in the section on the School of Education.)
Teaching credentials in all areas. Refer to the section on the School of Education.
Minor in Educational Technology and Librarianship.

Educational Technology and Librarianship Minor

The minor in educational technology and librarianship consists of a minimum of 15 units in education in the area of educational technology and librarianship, six units of which must be in upper division courses.
Courses in the minor may not be counted toward the major or general education.

Education

LOWER DIVISION COURSES

299. *(99.)* **Experimental Topics (2-4)**
Refer to catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to the Honors Program.

375. *(128A.)* **Principles of Adult Education (2)**
History, philosophy, objectives and administration of adult education.

380. *(156.)* **Community College Occupational Education (3)**
Prerequisite: Two years of occupational experience in a community college subject matter area.
Principles, practices, scope and functions of education.

381. *(157.)* **Community College Occupational Curriculum (3)**
Prerequisite: Education 380.
Materials and methods of instruction, curriculum development and evaluation.

382. *(159.)* **Directed Teaching (2 or 4)**
Prerequisite: Education 380, 381 or 565.
Systematic observation, participation, and teaching under supervision in an occupational area in a community college.

383. *(101.)* **History and Philosophy of Education (2) I, II, S**
Historical backgrounds and underlying philosophies upon which the public school system has been established. Meaning of education, educational aims and values, and democracy and education.

397. *(197.)* **Problems in Education (Credit to be arranged)**
Offered only in Extension.
Prerequisite: Consent of instructor.
Class study of specially selected problems in education. Does not apply to pattern requirements for credentials.

435. *(105.)* **Education for Minority Youth (3) I, II, S**
Specific behavior patterns of minority youth and their effect upon the school learning process.

484. *(184.)* **Directed Teaching: Speech Correction (4) I, II Cr/NC**
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

485. *(185.)* **Directed Teaching: Hearing Impaired (4) Cr/NC**
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of hearing impaired.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor. Open only to senior and graduate students in education who have shown ability to work independently.

513-S. *(190-S.)* **Conference on the Teaching of Mathematics (1) S**
Lectures, discussions and demonstrations on problems in teaching of mathematics in the elementary and secondary schools. Designed for teachers, supervisors and administrators interested in current developments in this area. Maximum credit three units.

550. Philosophy of Cultural Pluralism in Education (3)
Study of culture from a multidisciplinary and holistic perspective provides a thorough understanding of the interrelationship between education and cultural patterns and the roots of cultural pluralism; emphasis on establishing a theoretical framework for appreciating cultural and linguistic diversity in children.

553. Multicultural Oral Language Assessment Training (3)
Prerequisite: Education 550.
Orientation to study of selected culture's linguistic characteristics; comparison with Standard American English for distinguishing problems of linguistic interference on oral language performance of pupils as a basis for prescribing individualized instruction; emphasis on home/community context of child language.

565. *(158.)* **Occupational Student (3)**
Prerequisite: Education 380 or 381.
The learning process and individual differences, behavioral characteristics of youth, race and ethnic relations in the schools.

Counselor Education

UPPER DIVISION COURSE

506-S. *(191-S.)* **Guidance Conference (1) S**
Prerequisite: Consent of conference director.
A series of lecture and discussion sessions centering on current problems in counseling and guidance. Designed to serve the needs of any person desiring to keep informed of developments in this area. Maximum credit three units.

Educational Technology and Librarianship

UPPER DIVISION COURSES

349. *(149.)* **History of Books and Libraries (3) II**
Books and libraries from earliest times to the present; their influence on our schools and culture.

445. *(145.)* **School Library Media Programs (3) I, II**
Backgrounds of media centers in education. Objectives, standards and activities involved in planning, organizing, administering and integrating the school library media program with the instructional program of the school.

483. *(183.)* **Directed Teaching: Educational Technology and Librarianship (2-4) I, II Cr/NC**
Prerequisites: Admission to teacher education and concurrent completion of a teaching minor in educational technology and librarianship.
Systematic observation and participation in library and audiovisual service under supervision in a school library and/or teaching materials center. A weekly seminar or conference is required.

540. *(140.)* **Educational Technology (3) I, II, S**
Two lectures and three hours of laboratory.
Applications of educational technology to instruction and learning. Individualization through the use of media. Includes film, TV, simulation, programmed instruction, computers and multi-media.

541. *(141.)* **Production of Instructional Materials (3) I, II, S**
Two lectures and three hours of laboratory.
Planning and preparing instructional materials for classroom use. Independent study centers, transparencies, film, charts, lettering aids, learning games.

544. *(144.)* **Instructional Materials Design (3) I, II, S**
Systematic approach to instructional design. Review of research and theory in materials design and programmed instruction. Development and validation of programmed materials in various formats.

546. *(146.)* **Basic Reference Materials (3) I, II**
General reference books, bibliographies and source materials with emphasis on their use in the school library media center.

547. *(147.)* **Selection of Instructional Materials (3) I, II**
Prerequisite: Educational Technology and Librarianship 445.
Selection criteria and development of written policy statements. Annotations, reviewing media, standard catalogs and bibliographies.

548. *(148.)* **Cataloging and Classification (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Educational Technology and Librarianship 445.
A practical approach to organizing instructional materials in school library media centers. Descriptive cataloging, classification, and choice of subject headings. Basic knowledge of typing helpful.

550. *(150.)* **Workshop in Educational Technology and Librarianship (1-3)**
Selected problems in educational technology and librarianship. Maximum credit six units.

553-S. *(143-S.)* **Workshop in Educational Television (6) S**
(Same course as Telecommunications and Film 320-S.)
Open to teachers and students interested in instruction by television.
The procedures and theories of television production as it pertains to closed circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated.

592-S. *(192-S.)* **Audiovisual Conference (1) S**
Course does not fulfill credential requirement.
A series of lectures, discussions and demonstrations centering on problems in the use of audiovisual instructional materials. Designed for teachers, administrators, audiovisual representatives, and others interested in current developments in this area. Maximum credit three units.

Elementary Education

UPPER DIVISION COURSES

301. Basic Student Teaching Seminar (2) I, II
Prerequisites: Admission to elementary education and concurrent registration in Elementary Education 401.
Discussion of immediate problems in student teaching with emphasis on children's growth and development.

303. Advanced Student Teaching Seminar (2) I, II
Prerequisites: Elementary Education 301, 401; and concurrent registration in Elementary Education 403.
Discussion of immediate problems in student teaching with emphasis on the influence of philosophical, social and cultural factors on learning.

307. Seminar in Student Teaching (3) I, II
Prerequisite: Concurrent registration in Elementary Education 407.
Diagnosing and remediating elementary school children's difficulties in speech, spelling and handwriting, the individualization of instruction, professional self-evaluation, assessing learners' achievement, and counseling with learners and parents.

310. *(138A.)* **Curriculum in Elementary Education (3) Irregular**
Emphasis on the selection and development of content, teaching methods and materials as they relate to social needs; evaluation procedures; psychological principles and the nature of the learner.

311. Child-Study Skills (2) I, II, S
Four hours of activity.
Prerequisites: Psychology 101 and provisional or complete admission to elementary education.
Skills in observing and interpreting the behavior of elementary school children as influenced by physical, emotional, social, and intellectual growth.

312. Community-Study Skills (2) I, II, S
Four hours of activity.
Prerequisite: Provisional or complete admission to elementary education.
Skills in observing and interpreting professional values and the diversity of social, cultural, economic and educational values within elementary school communities.

313. Classroom Management Skills (1) I, II, S
Two hours of activity.
Prerequisite: Provisional or complete admission to elementary education.
Skills in interpreting the legal aspects of education, identifying various kinds of school and classroom organization, and using instructional media and verbal stimuli to facilitate learning.

314. Field Experience in Classroom Management (1) I, II, S
Prerequisites: Provisional or complete admission to elementary education and concurrent enrollment in Elementary Education 313.
Field experience in assuming responsibility for managing an elementary classroom.

315. Skills in Applying Instructional Principles (2) I, II, S
Four hours of activity.
Prerequisite: Admission to elementary education.
Skills in using the principles of instruction related to readiness, motivation, efficiency of learning and transfer of learning to organize an effective learning environment for children.

316. Skills in Teaching Critical Thinking (2) I, II
Four hours of activity.
Prerequisite: Admission to elementary education.
Skills in developing instructional strategies to guide children in concept development, inquiry, exploration of creativity, and learning in the affective domain.

317. Skills in Curriculum Organization (2) I, II
Four hours of activity.
Prerequisite: Admission to elementary education.
Skills in planning, following and evaluating long-range instruction in the various school subjects.

361. Psychological Foundations of Education (3) I, II, S
Six hours of activity.
Prerequisites: Psychology 101 and admission to elementary education.
Implementing the learning process through interactive skills, using instructional principles to facilitate learning and changes in behavior and techniques used in assessing instruction and pupil growth.

362. *(112.)* **The Learning Process in the Elementary School (3) I, II, S**
Prerequisite: Elementary Education 372.
Psychological principles for effective classroom teaching; techniques of measurement and evaluation for the diagnosis and improvement of learning.

372. *(111.)* **The Learner in the Elementary School (3) I, II, S**
Prerequisites: Psychology 101 and admission to elementary education.
Intellectual, emotional, social, and physical development during childhood and early adolescence, including basic principles of child guidance and counseling. Directed observation required. Not open to students with credit in Family Studies and Consumer Sciences 270 and Psychology 330.

373. *(139.)* **Kindergarten-Primary Practicum (3) I, II, S**
The theory of early childhood education and the materials and teaching techniques used in the kindergarten.

374. *(115.)* **Guidance in Elementary Education (3) I, II, Irregular**
A study of the basic principles of guidance and their function in the educational process as applied in the elementary school.

375. *(116A-116B-116C.)* **Child Study Laboratory (1-3) I, II**
Offered only in Extension.
Development of background and procedures for child study and their application to field situations. Field work required. For teachers in service. Maximum credit six units.

401. Basic Student Teaching (1-8) I, II Cr/NC
Prerequisites: Admission to elementary education and concurrent registration in Elementary Education 301.
Day-to-day teaching experiences including selected instructional activities for which a teacher in a classroom is normally responsible.

403. Advanced Student Teaching (1-8) I, II Cr/NC
Prerequisites: Satisfactory completion of Elementary Education 301, 401, and concurrent registration in Elementary Education 303.
Teaching experiences including all the instructional activities for which a teacher in a classroom is normally responsible.

405. Beginning Student Teaching (2) I, II
Prerequisite: Concurrent registration in Elementary Education 315 and 421.
Emphasis on day-to-day teaching with daily planning in the various school subjects, particularly reading.

406. Intermediate Student Teaching (3) I, II
Prerequisite: Credit or concurrent registration in Elementary Education 405.
Emphasis on planning and teaching in accord with the needs of children.

407. Transitional Student Teaching (8) I, II
Prerequisites: Elementary Education 406 and concurrent registration in Elementary Education 307.
Emphasis on making the transition from student teacher to the professional prepared to assume complete responsibility for an elementary classroom.

411. Teaching Reading in the Elementary School (3) I, II, S
Six hours of activity.
Prerequisite: Admission to elementary education.
The nature of reading as a human behavior, the various approaches and materials used in teaching reading and coping with diversity among children as they learn to read.

412. Teaching Language Arts in the Elementary School (2) I, II, S
Four hours of activity.
Prerequisite: Admission to elementary education.
Selecting, designing and evaluating appropriate learning experiences in handwriting, spelling, oral and written composition, grammar and usage, and listening to assure children's growth in language skills.

413. Teaching Mathematics in the Elementary School (2) I, II, S
Four hours of activity.
Prerequisite: Admission to elementary education.
Procedures for instruction, including using and developing materials in elementary mathematics and program development to meet children's needs in understanding the structure of mathematics.

414. Teaching Social Studies in the Elementary School (2) I, II (3) S
Four hours of activity; (summer) three hours of lecture.
Prerequisite: Admission to elementary education.
Developing curriculum, principles and materials of instruction, including instructional media and participation in elementary social studies education.

415. Teaching Science in the Elementary School (2) I, II (3) S
Four hours of activity; (summer) three hours of lecture.
Prerequisite: Admission to elementary education.
Developing curriculum, principles and materials of instruction, including instructional media and participation in elementary science education.

416. Teaching Art in the Elementary School (2) I, II, S
Four hours of activity.
Prerequisite: Admission to elementary education.
Developing curriculum, principles, and materials of instruction, including instructional media and participation in elementary art education.

417. Teaching Music in the Elementary School (2) I, II, S
Four hours of activity.
Prerequisite: Admission to elementary education.
Developing curriculum, principles and materials of instruction, including instructional media and participation in elementary music education.

418. Teaching Science and Social Studies in the Elementary School (3) I, II, S
Six hours of activity.
Prerequisite: Admission to elementary education.
Developing and using instructional programs to facilitate growth in critical thinking and using informational resources to learn and apply concepts and generalizations from the various sciences and social sciences.

421. Skills in Teaching Reading (2) I, II, S
Four hours of activity.
Prerequisite: Admission to elementary education.
Skills in teaching beginning reading, word analysis, comprehension, literary interpretation and independent investigation.

431. Skills in Teaching Remedial Reading (1) I, II
Two hours of activity.
Prerequisites: Admission to elementary education and Elementary Education 421.
Skills in diagnosing and remediating children's reading difficulties.

512. *(133.)* Children's Literature in Elementary Education (3) Irregular
A survey of children's literature; the selection and use of material in the elementary classroom.

514. *(138B.)* Social Studies Unit Construction in Elementary Education (3) Irregular
Prerequisite: Elementary Education 414.
Selecting and organizing content, analyzing materials, and developing instructional units in elementary social studies for classroom use.

521. *(137.)* Reading Difficulties (3) I, S
Two lectures and three hours of laboratory.
Prerequisites: Elementary Education 362 and 411, or Secondary Education 531.
Reading difficulties, their causes, prevention and correction. Remedial practices in reading useful to the classroom teacher, school counselor and reading specialist.

561. *(117.)* Teacher Effectiveness Training (2 or 3)
Prerequisites: Psychology 101 and credit or concurrent registration in student teaching.
Skill training in modifying undesirable behavior of individuals or groups, resolving conflicts, solving problems, and fostering improved thinking through group discussion.

562. *(151.)* Measurement and Evaluation in Elementary Education (3) I, II, S
The use of intelligence and achievement tests in the diagnosis and improvement of learning; construction of objective examinations; problems of evaluation in education; the elements of statistical techniques.

571. *(114-S.)* Interpretation of Early Childhood Behavior (3) Irregular
For kindergarten-primary teachers, treating the analysis and interpretation of early childhood behavior. Emphasis on understanding and interpreting the causative factors in typical behavior of children to parents, social workers, teachers, and others concerned with the guidance of kindergarten-primary children.

596. *(135.)* Workshop in Elementary Education (1-6) Irregular
To meet the needs of individuals or groups of teachers who desire to study selected problems in elementary education. The observation of classroom teaching will be provided for members in attendance. Interested persons should contact the Coordinator of Elementary Education. May be repeated with new content for more than six units. Maximum credit six units applicable on a master's degree.

Secondary Education

UPPER DIVISION COURSES

376. *(128B.)* Methods and Materials in Adult Education (2)
Identification, selection and utilization of teaching methods, techniques and materials appropriate for adults.

377. *(128C.)* Psychological Foundations of Adult Education (2)
Educational psychology and developmental problems of adults.

400. *(100A.)* **The Secondary School (3) I, II**
To screen, advise, and complete admission requirements. Includes field work assignment, demonstration of oral and writing competencies, and initial teacher professional competencies.

401. *(100B.)* **Humanistic and Social Aspects of Teaching (4) I, II**
Prerequisites: Secondary Education 400 and admission to secondary education. To be taken concurrently with Secondary Education 402 and 405.
Teacher competencies as they relate to values, awareness, self-concept, rights and responsibilities, school organization, and secondary school problems.

402. *(100C.)* **Behavioral and Psychological Aspects of Teaching (4) I, II**
Prerequisites: Secondary Education 400 and admission to secondary education. To be taken concurrently with Secondary Education 401 and 405.
Teacher competencies as they relate to learning theories, adolescent growth, self-assessment, measurement and evaluation.

403. *(100D.)* **Teaching of Reading in the Secondary School (3) I, II**
Teacher competencies as they relate to the teaching of reading in content areas, including techniques and materials, reading programs, classroom diagnosis, developmental and corrective reading methods.

404. *(100E.)* **Instructional Media, Equipment and Production (1) Cr/NC I, II**
Basic audiovisual equipment operation, production of inexpensive instructional materials, and application of learning theory to the utilization of instructional materials.

405. *(100F.)* **Student Teaching (3) I, II Cr/NC**
Prerequisites: Secondary Education 400 and admission to secondary education. To be taken concurrently with Secondary Education 401 and 402.
On-site, part-time experience to implement teacher competencies developed in Secondary Education 401 and 402.

406. *(100G.)* **Student Teaching II (9) I, II Cr/NC**
Prerequisites: Secondary Education 400, 401, 402, 403, 404, 405. To be taken concurrently with Secondary Education 407.
On-site, full-time experience to implement teacher competencies as developed from the total professional sequence.

407. *(100H.)* **Student Teaching Seminar (3) I, II Cr/NC**
Prerequisites: Secondary Education 400, 401, 402, 403, 404, 405. To be taken concurrently with Secondary Education 406.
To plan and organize instruction in relation to all competencies acquired and to be implemented in an on-site, full-time student teaching assignment.

411. *(110.)* **Psychological Foundations of Education for Secondary Teachers (5) I, II**
Five lectures and instructional media laboratory.
Prerequisites: Admission to teacher education and education program approved by the Coordinator of Secondary Education. To be taken concurrently with Secondary Education 420A.
The nature of growth and development, principles and theories of learning, guidance practices, tests and measurements. Not open to students with credit in Elementary Education 362 or Secondary Education 412.

412. *(113.)* **Growth and Development of the Adolescent (3) Irregular**
Adolescent physiological, psychological, social and emotional development, including principles of mental hygiene and guidance. Field work with adolescent groups in the community is required.

413. *(120.)* **The Teaching Process (3) I, II**
To develop teacher competency at the secondary level in professional and community relationships, general methods and materials, planning for teaching, and evaluating learning activities.

414. *(121.)* **Methods and Materials of Instruction:**
Major (2) Minor (2) except Secondary Education 414E (3)
Lecture courses, except that Secondary Education 414K meets for one lecture and three hours of laboratory.
Professional courses in specific teaching fields usually taken concurrently with directed teaching. Each course emphasizes the application of best practices with reference to each subject area named.
Subject fields for Secondary Education 414 are as follows:

Offered in the Fall Semester
B. Methods in English
C. Methods in Home Economics
D. Methods in Industrial Arts
E. Methods in Foreign Languages
F. Methods in Mathematics
K. Methods in Physical Science
L. Methods in Speech Communication
M. Methods in Social Science

Offered in the Spring Semester
B. Methods in English
C. Methods in Home Economics
D. Methods in Industrial Arts
E. Methods in Foreign Languages
F. Methods in Mathematics
K. Methods in Physical Science
M. Methods in Social Science
V. Methods in General Science

Offered Irregularly
P. Methods in Health Education
H. Methods in Phys. Ed. (Men)
J. Methods in Phys. Ed. (Women)

420A-420B. *(180A-180B.)* **Directed Participation: Secondary (1-1) I, II**
A comprehensive orientation to a secondary school with directed observation and participation in the classroom.

422A-422B. *(180C-180D.)* **Directed Teaching: Secondary (3-3) I, II Cr/NC**
Systematic observation, participation and teaching under supervision in a junior or senior high school. A weekly seminar or conference is required. Secondary Education 422B is also offered in the summer.

563. *(152.)* **Measurement and Evaluation in Secondary Education (3) Irregular**
Problems of evaluation in secondary education; construction of examinations; elements of statistics; selection and interpretation of standardized measures.

564. *(153.)* **Quantitative Methods in Educational Research (3) I, II**
Basic tests of statistical significance with special reference to the interpretation of educational data.

568. *(128D.)* **Human Relations and Counseling in Adult Education (2)**
Prerequisite: Possession of a valid teaching credential.
Principles, procedures and issues appropriate to human relations and counseling in adult education.

593. *(128E.)* **Workshop in Adult Education (1-3)**
Prerequisite: Possession of a valid teaching credential.
Designed to meet the needs of individuals or groups of adult educators who wish to study special problems in adult education.

596. *(126.)* **Workshop in Secondary Education (1-3 or 6) Irregular**
Designed to meet the needs of individuals or groups of teachers who wish to develop or continue the study of some problem with the consultation of the university staff and the San Diego County Curriculum staff. May be repeated with new content. Maximum credit six units.

Special Education

UPPER DIVISION COURSES

371. *(171.)* **Practicum in Mental Retardation (2) I, II**
One lecture and two hours of laboratory.
Prerequisites: Admission to special education, and credit or concurrent registration in Psychology 454.
Supervised observation and participation in classroom and related school activities for mentally retarded. Course work includes discussion, analysis and reports of observations.

475. *(179.)* **Curriculum and Instruction for Teaching the Deaf (3) II**
Prerequisite: Concurrent registration in Education 485.
General elementary curriculum principles, methods and materials of instruction in teaching elementary subjects, including reading, to deaf children. Twenty-six hours observation in programs for the deaf.

482. *(182.)* **Directed Teaching: Mentally Retarded (4) I, II Cr/NC**
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

550. *(170.)* **Workshop in Special Education (2-4) I, II, S**
Curriculum and methods of teaching in an area of exceptionality; observation of demonstration class; development of materials of instruction. May be repeated once in a second area of exceptionality. Maximum credit six units applicable on any degree.

561. *(161.)* **Measurement and Evaluation in Special Education (4) II**
Three lectures and three hours of laboratory.
Prerequisites: Elementary Education 562 or Secondary Education 563; Secondary Education 413; and Psychology 405.
Consideration of representative tests and evaluation procedures appropriate to the several areas of exceptionality; problems in psychoeducational diagnosis and appraisal; assembling and utilizing test results for the educational and/or rehabilitation program.

562. *(162.)* **Emotionally Disturbed Children and Youth (3) I, S**
Prerequisite: Special Education 567.
Nature, needs and problems of emotional deviants; survey of settings and roles of those who help, and ways they help.

563. *(163.)* **Curriculum and Methods for Teaching Emotionally Disturbed Children and Youth (3) II or Irregular**
Prerequisites: Special Education 562 or 567.
Selection, organization and presentation of curricular materials for emotionally disturbed children and youth.

564. *(164.)* **Education of the Neurologically Handicapped (3) I**
Prerequisites: Special Education 567 and Psychology 452.
Educational and psychological problems of brain-injured children and youth; identification procedures, educational programs, instructional methods, preparation of materials.

567. *(167.)* **Exceptional Children (3) I, II, S**
Characteristics and adjustment problems of mental, physical and emotional deviants.

568. *(168.)* **Curriculum and Methods for Teaching Mentally Retarded Children in the Elementary School (3) II, S**
Prerequisite: Psychology 452 or Special Education 567.
Selection, organization and presentation of curricular materials for mentally retarded children at all levels in the public schools. Concentration will be on the elementary level. (Recommended for students in elementary education.)

569. *(169.)* **Curriculum and Methods for Teaching Mentally Retarded Children in the Secondary School (3) I, S**
Prerequisite: Psychology 452 or Special Education 567.
Selection, organization and presentation of curricular materials for mentally retarded children at all levels in the public schools. Concentration will be on the secondary level. (Recommended for students in secondary education.)

572. *(172.)* **Counseling Exceptional Children (3) I, S**
Prerequisites: Elementary Education 362, and Special Education 567 or Psychology 454.
Educational, mental, social and vocational counseling of exceptional individuals and their parents. Interrelationships of home, school and community agencies.

573. *(173.)* **Education of the Severely Mentally Retarded (3) II, S**
Prerequisites: Special Education 567 and Psychology 454, and admission to special education.
Organization and planning of instructional activities; materials and equipment; utilization of resources, records, and reports; and classroom management of those under 50 IQ and those with neurological impairments.

Education

GRADUATE COURSES

Students with undergraduate standing are not admitted to 600- and 700-numbered courses in Education.
Twelve units of professional education are prerequisite for enrollment in all graduate courses, except Education 630, 666 and 680, which require special clearance from the Coordinator of Higher Education Programs; and courses in Counselor Education.

630. *(251.)* **Instructional Methods and Materials: Community College (2)**
Prerequisites: Education 666 and concurrent registration in Education 700.
The teaching process at the community college level, including lesson planning, utilization of audiovisual and other instructional materials, and procedures of evaluation.

650. Bilingual/Cross-Cultural Curriculum Development (3)
Prerequisite: Advancement to candidacy or teaching credential.
Study of competency-based education techniques; development of skills in devising performance criteria and criterion-referenced tests in bilingual-bidialectal/cross-cultural situations; development of individualized instruction and program planning strategies.

651. Bilingual/Cross-Cultural Teaching Strategies (3)
Prerequisite: Advancement to candidacy or teaching credential.
Examination of existing bilingual/cross-cultural teaching materials and skills in adapting these materials for instruction; emphasis on methodology for the bilingual/cross-cultural classroom.

660. *(220.)* **Advanced Educational Psychology (3)**
Prerequisite: Elementary Education 362 or Secondary Education 411.
Advanced study of the research in educational psychology and its application to learning and human growth.

661. *(221.)* **Seminar in Educational Measurement (3)**
Problems in educational testing. Emphasis on construction, administration and validation of teacher-made tests.

666. *(223.)* **Educational Psychology: Community College (2)**
Prerequisite: Credit or concurrent registration in Education 680.
The nature of the community college student; the learning process, including contributions of audiovisual materials. The functions of student personnel services in the community college.

680. *(201.)* **The Community College (3)**
Two lectures and three hours of activity.
Overview of philosophy, history, aims, scope, function, outcomes, principles and problems of the community college. Relation of the community college to secondary and higher education.

682. *(202.)* **Social Foundations (2 or 3)**
Prerequisite: Admission to teacher education.
Sociological, historical, and philosophical foundations of American education and their influences on present-day educational practices.

683. *(204.)* **Comparative Education (3)**
The contemporary educational ideas and practices of various countries of the world and their impact on our culture and education.

685. *(206.)* **Philosophy of Education (3)**
Prerequisite: Education 383.
Advanced study of philosophical backgrounds of educational thought; a study of comparative philosophies, and an analysis of selected current trends and problems.

686. *(207.)* **Educational Sociology (3)**
Prerequisite: Education 383.
A study of the social, economic, political and moral setting in which present-day American education functions.

687. *(208.)* **Workshop in Community Influences on Learning and Curriculum Planning (1-3)**
Prerequisite: Teaching experience.
Advanced study of community influences on learning and child growth and development, and of group techniques; implications for curriculum planning. Provides opportunity for work on individual problems of the participants. Maximum credit six units.

688. *(209.)* **Workshop in Community College Education (2-6)**
Prerequisite: Teaching or administrative experience in a community college.
To provide community college faculty members with opportunities to explore ways to improve curriculum and instruction in the community college.

690. *(211.)* **Procedures of Investigation and Report (3)**
Research methods in education. Location, selection and analysis of professional literature. Methods of investigation, data analysis and reporting. Required of all applicants for advanced degrees in education.

691. *(212.)* **Educational Research Design (3)**
Prerequisite: Education 690.
Principles and methods of planning and conducting systematic investigations of educational problems—including historical, descriptive and experimental methods of research. Practice in the definition of problems, formulation of hypotheses, construction of samples, control of variables, and interpretation of results.

700. *(316.)* **Directed Teaching: Community College (4)**
Prerequisites: Education 666 (not required for psychology majors) and 680, approval of the Community College Admissions Committee, and concurrent registration in Education 630.
Systematic observation, participation, and teaching under supervision in a community college. A weekly seminar or conference is required. Application to take this course must be made in the preceding semester by preregistration with the Higher Education Programs Coordinator.

795A-795B. *(295A-295B.)* **Seminar (3-3)**
Prerequisites: Education 690 and advancement to candidacy for the Master of Arts degree in education.
An intensive study in selected areas of education culminating in a written project. Limited to students following Plan B for the Master of Arts degree in education.

798. *(298.)* **Special Study (1-6) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Counselor Education

GRADUATE COURSES

600. *(224.)* **Administration of Pupil Personnel Services (3)**
Prerequisite: Secondary Education 667.
The organization and administration of school guidance services, including the use of community resources and a study of laws relating to children and child welfare.

610A-610B. *(225A-225B.)* **Determinants of Human Behavior (3-3)**
Implications of theory and research in behavioral sciences for the understanding of human behavior. Counselor Education 610A deals with personality theories and psychological determinants of behavior; 610B with social and cultural determinants.

620. *(226.)* **Guidance Services in Public Education (3)**
Prerequisite: Counselor Education 561, or Elementary Education 362 and 372.
Historical, philosophical and legal bases of pupil personnel services; staff roles and relationships in a variety of organizational patterns.

630. *(229.)* **Workshop in Counseling (3)**
Prerequisite: Consent of instructor.
Application of principles and procedures to specific situations for improvement of counseling services. Individual problems emphasized.

640. *(231.)* **Theory and Process of Appraisal (4)**
Three lectures and three hours of laboratory.
Measurement theory and procedures, including interpretation of test results. Not open to students with credit in Counselor Education 690-S. Offered during summer sessions only in combination with Counselor Education 650 as 690-S.

650. *(232.)* **Theory and Process of Vocational Choice (4)**
Three lectures and three hours of laboratory and/or field work.
Vocational choice theory, occupational and educational materials used in career planning. Not open to students with credit in Counselor Education 690-S. Offered during summer sessions only in combination with Counselor Education 640 as 690-S.

660. *(233.)* **Theory and Process of Counseling (4)**
Prerequisites: Counselor Education 610A and 640.
Counseling process theories, approaches to and techniques for counseling, and research concerning counseling effectiveness. Supervised practice in counseling, analyzing counseling, and writing counseling reports. Not open to students with credit in Counselor Education 700-S or Psychology 452 or 650. Offered during summer sessions only in combination with Counselor Education 670 as 700-S.

670. *(234.)* **Theory and Process of Group Counseling (4)**
Three lectures and three hours of laboratory.
Prerequisites: Counselor Education 610B and 660.
Group process and individual growth, theories of group interaction, sensitivity training and group leadership techniques. Not open to students with credit in Counselor Education 700-S. Offered during summer sessions only in combination with Counselor Education 660 as 700-S.

680A. *(235A.)* **Introduction to the Rehabilitation Process (3)**
Two lectures and three hours of laboratory.
Prerequisite: Admission to counselor education.
Background and legislation related to vocational rehabilitation; overview of client services and role and function of the rehabilitation counselor as a professional person. Orientation to community rehabilitation agencies.

680B. *(235B.)* **Medical Aspects of Disability (3)**
Two lectures and three hours of laboratory.
Prerequisite: Counselor Education 680A.
Orientation to medicine and illness in relation to work capacity and work outlook. Focus on major diseases and impairments resulting in vocational disability. Lecture and clinical seminars.

680C. *(235C.)* **Psychological Aspects of Disability (3)**
Two lectures and three hours of laboratory.
Prerequisite: Counselor Education 680B.
Analysis of the psychological component to illness and disease. Focus on functional disorders and vocational implications. Lecture and clinical seminars.

680D. *(235D.)* **Placement of the Disabled (3)**
Two lectures and three hours of laboratory.
Prerequisite: Counselor Education 680C.
Determination of employment needs of disabled clients, case study method. Follow-through to placement. Continuous survey of employment needs and opportunities in the wider community.

690-S. *(237-S.)* **Appraisal and Vocational Choice (6) S**
Five lectures and three hours of laboratory.
Measurement theory, interpretation of test results, vocational choice theory, occupational and educational information in career planning. Not open to students with credit in Counselor Education 640 or 650. Application to take the course must be made early during the preceding semester.

700-S. *(238-S.)* **Counseling: Individual and Group (6) S**

Five lectures and three hours of laboratory.

Counseling theory and techniques, individual and group. Not open to students with credit in Counselor Education 660 or 670. Application to take the course must be made early during the preceding semester.

710A-710B. *(239A-239B.)* **Seminar in Guidance (3-3)**

Prerequisites: Education 690-S; six units from Counselor Education 640, 650, 660 and 670.

Study of selected areas in counseling and rehabilitation culminating in a written project with emphasis on research, counseling, and/or rehabilitation as a profession. Topic to be announced in class schedule.

720. *(330.)* **Internship (2-6) Cr/NC**

Supervised internship experience in counseling activities. Application to take the course must be made early during the preceding semester. May be repeated with new content. Maximum credit six units applicable on a master's degree.

730. *(331.)* **Field Work in Counseling (2-6) Cr/NC**

Application of concepts and procedures of counseling services in appropriate school or agency setting. Daily observation and practice. Weekly seminar sessions with university staff. Application to take the course must be made early during the preceding semester. May be repeated with new content. Maximum credit six units applicable on a master's degree.

740. *(332.)* **Practicum in Counseling (3) Cr/NC**

Supervised experience in group and individual counseling and career planning. Application to take the course must be made early during the preceding semester. Maximum credit six units applicable on a master's degree.

750. *(333.)* **Advanced Seminar and Practicum in Counseling (3-6) Cr/NC**

Supervised experience in group and individual counseling and study of problems, issues, and research. Application to take the course must be made early during the preceding semester.

Educational Administration

GRADUATE COURSES

600. *(260.)* **Principles of School Administration (3)**

Federal, state and local school administrative relationships including the financial and legal structure at these three levels.

610. *(261.)* **Education Leadership (3)**

Prerequisite: Teaching credential.

Concepts and techniques of leadership, analysis of the factors and practice in the procedures of group and individual leadership in four areas: (a) the community; (b) the teaching staff; (c) the student personnel; (d) the professional field of educational administration and supervision.

620. *(262.)* **Legal and Financial Aspects of School District Policies (3)**

Prerequisite: Teaching credential.

Relationship of the school district to attendance units. The legal basis for policy formation in the selection and retention of certified personnel, in the admission and assignment of pupils, in the instructional programs and in related budgetary considerations.

630. *(263.)* **Curriculum Development and Evaluation (3)**

Prerequisite: Teaching credential.

Curriculum development in both elementary and secondary schools, with emphasis on interrelationships between these levels, responsibilities of curricular and supervisory personnel, and use of research.

640A-640B-640C. *(264A-264B-264C.)* **Seminar in Elementary School Administration and Supervision (2-2-2)**

Prerequisites: Educational Administration 600, 610, 620, 630, and admission to Program of Educational Administration; concurrent registration in 660A-660B-660C.

Analysis of theories and practices in the administration and supervision of the elementary school.

650A-650B-650C. *(265A-265B-265C.)* **Seminar in Secondary School Administration and Supervision (2-2-2)**

Prerequisites: Educational Administration 600, 610, 620, 630, and admission to Program of Educational Administration; concurrent registration in 670A-670B-670C.

Analysis of theories and practices in the administration and supervision of the secondary school.

660A-660B-660C. *(266A-266B-266C.)* **Field Experience in Elementary School Administration and Supervision (1-1-1) Cr/NC**

Prerequisite: Concurrent registration in Educational Administration 640A-640B-640C.

Field experience in the elementary schools. Approval of local school district required in the semester prior to registration.

670A-670B-670C. *(267A-267B-267C.)* **Field Experience in Secondary School Administration and Supervision (1-1-1) Cr/NC**

Prerequisite: Concurrent registration in Educational Administration 650A-650B-650C.

Field experience in the secondary schools. Approval of local school district required in the semester prior to registration.

680. *(268.)* **Seminar in School Administration and Supervision (3)**

Prerequisites: Teaching credential, Educational Administration 600, 610, 620, 630, consent of instructor, and admission to Program of Educational Administration.

School administration and supervision in a specialized field, such as the community college, a subject field, or designated services. Field experience required. May be substituted for Educational Administration 640C or 650C.

700. *(280.)* **Legal and Financial Aspects of School District Management (3)**

Prerequisites: Teaching credential, and Educational Administration 600, 610, 620, 630.

Principles and practices of law and finance as an aspect of school business administration, school plant planning and development, and the operation and maintenance of school facilities and services.

710. *(281.)* **School-Community Relationships (3)**

Prerequisites: Teaching credential, and Educational Administration 600, 610, 620, 630.

Sociological aspects of school administration with particular emphasis on broad social policy, contemporary issues, community-school relationships, other social and service agencies of the community.

720. *(282.)* **School District Personnel Management (3)**

Prerequisites: Teaching credential, and Educational Administration 600, 610, 620, 630.

Personnel relationships to include administrative relationships with the Board of Education and the school staff. Central office personnel procedures including recruitment, employment, placement, evaluation, promotional and training procedures.

730. *(283.)* **District Curriculum Development, Evaluation and Improvement (3)**

Prerequisites: Teaching credential, and Educational Administration 600, 610, 620, 630.

School district curricular development from kindergarten through community college, relationships of the superintendent and central administrative staff to regular staff and supervisory staff.

740. *(284.)* **Advanced Seminar in School Administration and Supervision (3)**

Prerequisites: Teaching credential, and Educational Administration 700, 710, 720, 730.

An intensive study of a selected area in school administration and supervision. Typical courses in this area are school law, school finance, school supervision, personnel procedures. May be repeated with new content. Maximum credit nine units.

750A-750B. *(286A-286B.)* **Seminar in School Building Construction and Utilization (3-3)**

Prerequisite: Possession of Administration or Supervision Credential, or consent of instructor. Credit or concurrent registration in Educational Administration 750A is prerequisite to 750B.

School building construction and utilization: the development of new facilities from the planning stage to complete utilization; remodeling.

760. *(360.)* **Internship in School Administration and Supervision (3-6) Cr/NC**

Prerequisites: Teaching credential and consent of instructor.

Internship for prospective school administrators in the public schools. Released time, permission of school district, and preregistration with Coordinator of Program of Educational Administration previous semester required.

Educational Technology and Librarianship

GRADUATE COURSES

674. *(274.)* **Seminar in Educational Technology (3) I**
Prerequisite: Educational Technology and Librarianship 540.
Research reviewed and the findings related to current practices. Relationships of educational technology to educational philosophies and current issues. Recent trends evaluated.

675. *(275.)* **Seminar in the Administration of Instructional Media Centers (3) I, II**
Prerequisites: Educational Technology and Librarianship 445 and 540.
The relationship of school, district, and regional media centers to the educational program. Concepts of leadership and management, review of current practices and policies.

676. *(276.)* **Seminar in Instructional Design (3) I, II**
Prerequisite: Educational Technology and Librarianship 541.
Design and production of self-instructional sequences. Instructional materials design will be investigated. Student entry behavior, objectives, media characteristics and learning will be considered.

677. *(277.)* **Reference Materials in Subject Areas (3)**
Prerequisite: Educational Technology and Librarianship 546.
Reference materials in humanities, social sciences, and sciences with emphasis on their use in the school library media center.

678. *(278.)* **Literature for Children (3)**
Prerequisite: Educational Technology and Librarianship 547.
Literature and other library materials suited to the elementary school student. Standard, classic and current books for children; aids and criteria for selection.

679. *(279.)* **Literature for Adolescents (3)**
Prerequisite: Educational Technology and Librarianship 547.
Literature and other library materials suited to the high school student. Standard, classic and current books for the adolescent; aids and criteria for selection.

775. *(375.)* **Directed Internship for the Instructional Media Specialist (2-6) Cr/NC**
Application to take the course must be made during the preceding semester. Supervised internship in an instructional media center.

Elementary Education

GRADUATE COURSES

610. *(240.)* **Curriculum Construction and Evaluation in Elementary Education (3)**
Prerequisite: Credit or concurrent registration in Education 690.
Advanced study of the research in curriculum development, construction and evaluation.

611. *(242.)* **Seminar in Reading in Elementary Education (3)**
Prerequisite: Credit or concurrent registration in Education 690.
Advanced study of trends in reading instruction. Topics include developmental sequences in reading skills and abilities, reading in the content fields, individual differences and interests. Students will develop individual projects or problems.

612. *(244.)* **Seminar in Language Arts in Elementary Education (3)**
Prerequisite: Credit or concurrent registration in Education 690.
Advanced study of problems in teaching language arts in the elementary school, including spelling, literature and written and oral communication. Emphasis will be on the study of the scientific research in the field.

613. *(241.)* **Seminar in Mathematics in Elementary Education (3)**
Prerequisite: Credit or concurrent registration in Education 690.
A study of research and practice in the methods of teaching and in the curriculum of elementary and junior high school mathematics.

614. *(243A.)* **Seminar in Social Studies in Elementary Education (3)**
Prerequisite: Credit or concurrent registration in Education 690.
Problems in teaching social studies in the elementary school with emphasis on the study of the scientific research in the field.

615. *(248.)* **Seminar in Science in Elementary Education (3)**
Prerequisite: Credit or concurrent registration in Education 690.
Advanced study of the problems of teaching science in the elementary school with emphasis on the literature of science education.

618. *(247.)* **Advanced Diagnosis and Treatment of Learning Difficulties (3)**
Prerequisites: A teaching credential and Elementary Education 562 or Secondary Education 563.
Principles and techniques of diagnosis and treatment of difficulties in learning the school subjects. Supervised experience in working with individual pupils and their parents.

621. *(246.)* **Advanced Diagnosis in Reading (3)**
Prerequisites: Psychology 654 and Elementary Education 521.
Principles and techniques of individual and group diagnosis of reading difficulties. Experience in administration and interpretation of individual and group instruments in diagnosis.

624. *(243B.)* **Seminar in Elementary Social Studies Curriculum Development (3)**
Prerequisite: Elementary Education 414, and credit or concurrent registration in Education 690.
Current theories of instruction pertaining directly to elementary social studies teaching and curriculum development; critique of current social studies courses of study and guides; experience in elementary social studies curriculum planning at the classroom, school and district levels.

Secondary Education

GRADUATE COURSES

610. *(250.)* **Curricular Problems in Secondary Education (3)**
Prerequisite: Student teaching or teaching experience.
Present status and development of the secondary school curriculum with emphasis on curriculum construction and curriculum evaluation. Opportunities provided for study of problems submitted by students.

613. *(254.)* **Advanced Problems in Secondary School Instruction (3)**
Prerequisites: Teaching experience and consent of instructor.
An analysis of the scientific research and philosophical principles in secondary school instruction.

614. *(255.)* **Advanced Curriculum and Instruction in Mathematics (3)**
Factors directing the changing mathematics curriculum; recent trends and current research in the teaching of secondary mathematics.

616. *(256.)* **Recent Trends in Secondary Curriculum (3)**
Prerequisites: Twelve units in secondary education and consent of instructor.
Current practices and trends in secondary schools. Extensive individual work on related problems of interest to members of the class.

617. *(258.)* **Research in Curricular Problems (1-3)**
Prerequisites: Consent of the Coordinator of Secondary Education and instructor.
Individual study by graduate students who have demonstrated exceptional ability.

618. Simulation and Games (3)
Prerequisite: Open to teachers and those enrolled in education credential programs.
The use and construction of simulations and games for education.

667. *(230.)* **Guidance Problems in Secondary Education (3)**
The theory and practice of guidance, emphasizing advanced mental hygiene concepts needed by teachers and counselors.

681. *(259.)* **Seminar in Secondary School Reading (3)**
Prerequisite: Education 690.
Sources of research on reading; reading and criticism of selected studies; identification of research trends and needs.

685. Schools and Changing Sex Roles (3) I
Prerequisite: Open to teachers and those enrolled in education credential programs.
Impact of schools upon the role of males and females and the role the educational systems play in maintaining traditional roles.

689. *(257.)* **Workshop in Intercultural Education (4)**
A cooperative workshop sponsored by the university and the San Diego City Schools to study trends in intercultural education in American schools, including units, curricular and instructional materials and techniques.

Special Education

GRADUATE COURSES

622. *(222.)* **The Gifted Child (3)**
Prerequisites: Elementary Education 362 and 372, or Secondary Education 411.
The abilities and characteristics of the intellectually gifted or talented; related problems of curriculum, teaching, administration and guidance.

670. *(270.)* **Seminar in Education of Exceptional Children (3)**
Prerequisite: Special Education 567.
Principles, trends and research in the education of exceptional children.

671. *(271.)* **Seminar in Emotionally Disturbed Children and Youth (3)**
Prerequisites: Special Education 562 or 563, and 670.
Advanced study of the theories, principles and practices in working with the emotionally handicapped.

672. *(272.)* **Seminar in Education of the Gifted (3)**
Prerequisites: Special Education 622 and 670.
Review of studies and investigation in learning and adjustment of the gifted, including assessment, classification, curriculum provisions, and social and emotional adjustment.

673. *(273.)* **Seminar in Education of the Mentally Retarded (3)**
Prerequisites: Special Education 568 or 569, and 670.
Review of studies and investigation in learning and adjustment of retarded children including etiology, classification, diagnosis and assessment.

771. *(371.)* **Directed Internship: Mentally Retarded (4) Cr/NC**
Application to take the course must be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

774. *(374.)* **Directed Internship: Speech Correction (4) Cr/NC**
Application to take the course must be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

Engineering

In the School of Engineering

The undergraduate curriculum in Engineering, with options in aerospace, civil, electrical, and mechanical engineering, is accredited by the Engineers' Council for Professional Development.

Faculty

Dean: Capp
Emeritus: Stone, H., Walling
Professors: Bauer, Bedore, Chan, Chang, Conly, Dharmarajan, Fitz, Golding, Johnson, Krishnamoorthy, Learned, Lin, Lodge, McGhie, Morgan, Murphy, Noorany, Ohnysty, Quiett (Associate Dean), Rao, Shutts, Skaar, Stone, S., Stratton
Associate Professors: Chou, Craig, Crooker, Eggleston, Harris, Hussain, Mann, Mansfield, Narang, Panos
Assistant Professors: Bakhru, Bilterman, Brown, Drake, Marino, McElmury, Stuart
Lecturer: Raghu

Offered by the School of Engineering

Master of Science degree in aerospace, civil, electrical and mechanical engineering. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major with the B.S. degree in engineering, with options in aerospace, civil, electrical, and mechanical engineering. (Described in the section of this catalog on the School of Engineering.)

Minor in engineering. (Described in the section of this catalog on the School of Engineering.)

LOWER DIVISION COURSES

100. *(5.)* **Introduction to the Engineering Profession (2) I, II Cr/NC**
An overall view of engineering education and professional practice. An introduction to basic skills useful in acquiring engineering problem-solving capabilities.

110. *(10.)* **Control of Man's Environment (3) I, II**
Man's interaction with the land, water and air environment; environmental pollution; role of engineering in controlling man's environment.

150. *(1.)* **Engineering Drawing (2) I, II**
Six hours of laboratory.
Development of skills and techniques of drawing for engineers. Elementary orthographic and pictorial drawing theory. Introduction to basic theorems of descriptive geometry. Theories of size description.

151. *(20.)* **Engineering Graphics (2) I, II**
Six hours of laboratory.
Prerequisites: Credit or concurrent registration in Mathematics 140 and either Engineering 150 or qualification on the Engineering Graphics Placement Examination.
Graphic communication for engineers. Presentation and interpretation of engineering plans, using both standard projection systems and freehand sketching. Introduction to nomography; graphic presentation and analysis of data.

160. *(30.)* **Engineering Measurement Analysis (2) I, II**
Prerequisite: Mathematics 140.
Methods of data presentation. Analysis and treatment of engineering data. Design of engineering experiments. Correlation and regression analysis. Practical applications are stressed.

170. *(40.)* **Engineering Problem Analysis I (2) I, II**
One lecture and three hours of laboratory.
Prerequisite: Mathematics 150.
Analysis of engineering problems and solutions using the digital computer. Fundamentals of programming and programming language commands.

200. *(50A.)* **Engineering Mechanics I (3) I, II**
Prerequisites: Credit or concurrent registration in Physics 195E and Mathematics 151.
Static equilibrium of particles and rigid bodies; vector algebra and calculus; friction, virtual work; kinematics of a particle; kinetics of a particle; engineering applications.

210. *(25.)* **Engineering Materials (3) I, II**
Prerequisite: Chemistry 200A.
Atomic and molecular structure of materials utilized in engineering. Analysis of the relationships between structure of materials and their mechanical, thermal, electrical, corrosion and radiation properties, together with examples of specific application to engineering problems.

250. *(50B.)* **Engineering Mechanics II (3) I, II**
Prerequisites: Engineering 200 and credit or concurrent registration in Mathematics 152.
Kinetics of a particle; central force motion; systems of particles; work and energy; impulse and momentum; moments and products of inertia; Euler's equations of motion; vibration and time response; engineering applications.

260. *(60.)* **Electric Circuits (3) I, II**
Prerequisites: Physics 195E and Mathematics 151.
Circuit analysis by reduction methods, source transformations, loop and nodal analyses; alternating-current circuits, impedance, power and phasor diagrams.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. *(187A.)* **Methods of Analysis (3) I, II**
Prerequisite: Mathematics 152.
Selected topics from ordinary differential equations, the Laplace transform, Fourier series, and linear algebra, with engineering applications.

302. *(115.)* **Fluid Mechanics (3) I, II**
Prerequisites: Engineering 250, and credit or concurrent registration in Engineering 301.
Fluid statics. Laminar and turbulent flow of liquids and gases in pipes, nozzles, and channels. Dimensional analysis and modeling. Drag forces on moving or immersed objects.

302L. *(115L.)* **Fluid Mechanics Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 302.
Flow measuring devices. Experimental applications of continuity, Bernoulli and momentum equations. Model studies. Pipe and channel flows. Flow visualization techniques. Operating characteristics of wind tunnel and water table.

303. *(103.)* **Electronics, Instrumentation, and Electrical Energy Conversion (3) I, II**
Prerequisite: Engineering 260.
Theory and application of electron tubes, diodes, and transistors in typical electronic circuits. Instrumentation and electronic measuring devices. Fundamentals of electromechanical energy conversion including motors and transformers. Not open to students in electrical engineering option.

303L. *(103L.)* **Electrical Engineering Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 303.
A laboratory course to include selected experiments in electrical circuits, electronics, and electrical machinery.

304. *(108.)* **Thermodynamics (3) I, II**
Prerequisite: Mathematics 152.
Development of the basic laws of thermodynamics from the macroscopic and microscopic viewpoints and their application to engineering systems.

304L. *(108L.)* **Thermal Science Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 304 or 305.
Laboratory studies of the basic concepts of thermal science.

305. *(110.)* **Thermodynamics and Heat Transfer (3) I, II**
Prerequisite: Mathematics 152.
First and second laws of thermodynamics; materials, heat conduction, convection, and radiation. Not acceptable for mechanical engineering majors.

306. *(116.)* **Introduction to Solid Mechanics (3) I, II**
Prerequisites: Engineering 210 and 250; and credit or concurrent registration in Engineering 301.
Mechanics of solid deformable bodies involving analytical methods for determining strength, stiffness, and stability of load-carrying members.

306L. *(116L.)* **Solid Mechanics Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 306.
Laboratory studies in solid mechanics. Experimental stress analysis. Experimental confirmation of theory.

310. *(120A.)* **Structural Analysis I (4) I, II**
Prerequisite: Engineering 306.
Principles of mechanics applied to analysis of beams, frames, trusses, and three-dimensional frameworks. Graphical methods, influence lines; deflections; introduction to statically indeterminate structures and moment distribution.

318. *(128A.)* **Surveying for Civil Engineers (3) II**
Two lectures and three hours of laboratory.
Prerequisite: Engineering 160.
Principles of plane surveying. Measurement of horizontal distance, difference in elevation, and angles. Traverse surveys and computations. Horizontal and vertical curves. Principles of stadia. Topographic surveys. Earthwork.

330. *(107.)* **Metallic Materials and Processes (4) I, II**
Three lectures and three hours of laboratory.
Prerequisites: Engineering 210 and Physics 195C.
Physical metallurgy and properties of metals. Influence of processing on the properties of metals. Design criteria for selection of materials.

331. *(145.)* **Engineering Design: Mechanisms (3) I**
Prerequisite: Engineering 170 and 250.
Design of mechanisms wherein displacement, velocity, acceleration are paramount considerations.

332. *(146A.)* **Elements of Machine Design (3) I, II**
Prerequisite: Engineering 306.
Application of mechanics, physical properties of materials, and strength of materials to the design of machine elements.

336. *(118.)* **Transfer and Rate Processes (3)**
Prerequisite: Engineering 301.
Fundamentals of rates of change in enthalpy and composition of matter; heat and mass transfer and chemical reaction rates.

350. *(100.)* **Electrical Energy Conversion (3) I, II**
Prerequisite: Engineering 260.
Magnetic circuits, transformers and polyphase AC networks. Fundamentals of electromechanical energy conversion; induction motors, synchronous machines and DC machines.

350L. *(100L.)* **Electrical Energy Conversion Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 352.
Experimental study of DC, single and polyphase AC circuits, transformers, and machines.

351. *(111.)* **Network Analysis (3) I, II**
Prerequisites: Engineering 260 and Mathematics 152.
Loop and nodal analysis using general network equations; network theorems; frequency and time response using poles and seros. Two-port parameters.

352. *(101.)* **Fundamentals of Engineering Electronics (3) I, II**
Prerequisite: Engineering 260.
Application of diodes, transistors, electron tubes, and thyristors, in typical electronic circuits. Analysis and design of rectifiers and filters, and elementary amplifiers. Emphasis on their utilization in engineering equipment and systems.

352L. *(101L.)* **Engineering Electronics Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 352.
Experimental study of laboratory instruments, diodes, rectifier circuits, filters, silicon controlled rectifiers, tubes, transistors, and amplifiers.

354. *(102.)* **Electric and Magnetic Fields (3) I, II**
Prerequisites: Engineering 250 and 260.
Electrostatic and magnetostatic field theory using vector notation; Coulomb's Law, Gauss' Law and potential theory. Solutions to Poisson's and Laplace's equations; capacitance and inductance. Time-varying electric and magnetic fields; Maxwell's equations.

361. *(112.)* **Advanced Network Analysis (3) I, II**
Prerequisites: Engineering 351, and 301 or Mathematics 340A.
Transient analysis of circuits containing resistance, inductance, and capacitance with various input wave forms by means of the Laplace-transform method.

362. *(114.)* **Analysis and Design of Electronic Circuits (3) I, II**
Prerequisites: Engineering 351, 352, and 301 or Mathematics 340A.
A unified treatment of vacuum-tube and transistor voltage and power amplifiers utilizing graphical methods and equivalent circuits; feedback theory and tuned amplifiers.

362L. *(114L.)* **Electronic Circuits Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 362.
Vacuum-tube and transistor dynamic characteristics; single stage and multistage amplifier circuits including feedback and tuned amplifiers.

370. *(176.)* **Logic Design and Switching Circuits (3) I, II**
Prerequisite: Engineering 352.
Combinational switching networks. Introduction to sequential circuits.

380. *(150A.)* **Low Speed Aerodynamics (3) I**
Prerequisites: Credit or concurrent registration in Engineering 302 and 302L.
Subsonic flow, airfoil and wing theory, experimental characteristics of wing sections, high lift devices.

381. *(150B.)* **High Speed Aerodynamics (3) II**
Prerequisites: Engineering 380 or 538.
Supersonic flow, two- and three-dimensional compressible flow, wings in compressible flow, two- and three-dimensional method of characteristics, transonic flow.

382. *(154.)* **Experimental Aerodynamics (2) II**
One lecture and three hours of laboratory.
Prerequisites: Credit or concurrent registration in Engineering 380.
Operating characteristics of subsonic and supersonic wind tunnels. Aerodynamic characteristics of wings and bodies. Flow visualization techniques. Force, moment and pressure distribution measurement. Use of hot-wire anemometer and schlieren equipment.

386A-386B. *(151A-151B.)* **Aerospace Structural Analysis (3-3) I, II**
Prerequisites: Engineering 306 and credit or concurrent registration in Engineering 501 or Mathematics 340B. Engineering 386A is prerequisite to 386B.
Methods of structural analysis including both the static and dynamic aspects of problems encountered in the flight of aerospace vehicles.

390. *(153A.)* **Aerospace Flight Mechanics (3) II**
Prerequisites: Engineering 250, and 301 or Mathematics 340A.
Aerodynamics and dynamics of ballistic missiles; guidance systems; orbits and space trajectories; effects of aerodynamics, mass, rotation and shape of the earth on ballistic and space trajectories. Computer programming and problem solutions will be emphasized.

400. *(170.)* **Intermediate Engineering Problem Analysis (3) I, II**
Prerequisite: Engineering 170.
Advanced use of Fortran and other computer programming languages for engineering problem analysis.

401. *(180.)* **Principles of Engineering Economy (3) I, II**
Application of the mathematics of finance to engineering and managerial decision making.

402. *(192A.)* **Air Environment (2) I, II**
Effects of air pollution, sources of pollution, atmospheric chemistry, measurement and instrumentation, automobile development and emissions.

403. *(192B.)* **Land Environment (2) I, II**
Man's interaction with the land environment; extraction of natural resources; disposal of wastes; land development; seismic problems related to land usage.

404. *(192C.)* **Water Environment (2) I, II**
Man's interaction with the water environment; water quality criteria, water pollution and water reuse. Not open to students in civil engineering.

410. *(121.)* **Reinforced Concrete (3) II**
Prerequisite: Engineering 310.
Properties and characteristics of reinforced concrete; design of structural components. Introduction to plastic theory and limit design.

411. *(190A.)* **Civil Engineering Structural Design (3) II**
One lecture and six hours of laboratory.
Prerequisites: Engineering 310 and 416.
Structural design in steel; structural connections; tension and compression members; beams; building code requirements applied to design of buildings of various structural materials including steel.

412. *(184.)* **Experimental Strain Measurements and Analysis (3)**
Two lectures and three hours of laboratory.
Prerequisites: Engineering 260 and 306.
Laboratory methods for measuring deformation, strains, and forces. Emphasis on instrumentation.

414. *(123A.)* **Water Resources Engineering I (2) I**
Prerequisite: Credit or concurrent registration in Engineering 302.
Open channel and pressure conduit flow, pumps and turbines, hydroelectric power, and water law.

415. *(123B.)* **Water Resources Engineering II (2) II**
One lecture and three hours of laboratory.
Prerequisite: Engineering 414.
Hydrographs and frequency analysis as applied to flood flow determination; multiple regression in hydrologic applications; design of hydraulic systems.

416. *(122.)* **Soil Mechanics (3) I**
Two lectures and three hours of laboratory.
Prerequisites: Geology 153, Engineering 306, and credit or concurrent registration in Engineering 302.
Mechanics of soils; physical and mechanical properties; soil classification, compaction, swelling, consolidation, and shear strength. Laboratory tests and related design problems.

417. *(124.)* **Foundation Engineering (3) II**
Prerequisite: Engineering 416.
Soil mechanics theories applied to the design of shallow and deep foundations; lateral pressure of soils; design of retaining walls.

420. *(126.)* **Transportation Engineering (3) I**
Prerequisite: Upper division standing in engineering or in any other area dealing with urban problems.
Function and design of different modes of transportation for moving people and goods; and corresponding terminal facilities.

421. *(127.)* **Highway Engineering (3) I, II**
Two lectures and three hours of laboratory.
Prerequisites: Engineering 318 and credit or concurrent registration in Engineering 414.
Highway planning, economics, and administration; geometric design; traffic engineering; subgrade structure; bituminous and portland-cement concrete pavements.

436. *(148.)* **Engineering Thermodynamics (4) I, II**
Three lectures and three hours of laboratory.
Prerequisite: Engineering 302.
Further development of the laws of classical thermodynamics. Applications to energy conversion devices.

437. *(140.)* **Principles of Heat Transfer (3) I, II**
Prerequisites: Engineering 301, and 304 or 305.
Heat transfer by conduction, convection, radiation, and combinations thereof; introduction to aerodynamic heating and heat transfer by phase change.

438. *(141.)* **Internal Combustion Engines (3) II**
Prerequisite: Engineering 436.
Analysis of idealized and real internal combustion engine cycles; combustion problems; performance of reciprocating and rotary types of internal combustion engines. Principles of reaction motors.

441. *(161.)* **Creativity in Design (3) II**
Methods to stimulate creativity in design. Investigation of hidden blocks to creative thought. Emphasis on placing students in a design situation requiring an inventive or creative solution.

445A-445B. *(190C-190D.)* **Mechanical Engineering Applications (2-2) I, II**
Six hours of laboratory.
Prerequisites for 445A: Engineering 304, 306 and 330.
Prerequisites for 445B: Engineering 331, 332, 436 and 445A.
Applications of engineering principles to design of machinery and energy conversion systems. Individual student projects.

456. *(137.)* **Communication Networks (3) I**
Prerequisites: Engineering 351, 354, and 301 or Mathematics 340A.
Theory and application of transmission lines, including analysis by matrix notation; use of Smith chart and other transmission line charts; impedance-matching with transmission line stubs and lumped constants; theory and design of constant-k, m-derived, and other types of filter networks.

462. *(172.)* **Interactive Computing (2) I, II**
One lecture and three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 362.
Use of electronic calculators and timesharing terminals for circuit analysis computation and plotting.

465. *(165.)* **Biomedical Instrumentation (3) I**
Prerequisite: Engineering 303 or 352.
Instrumentation systems to monitor, control and record physiological functions.

467. *(167.)* **Control System Components (3) II**
Prerequisites: Engineering 350, 351 and 352.
Position transducers, phase-sensitive demodulators, static magnetic and rotating amplifiers, and servomotors. Derivation of component transfer functions.

467L. *(167L.)* **Control Systems Components Laboratory (1) II**
Prerequisite: Credit or concurrent registration in Engineering 467.
Experimental determination of transfer functions for control system components.

468L. *(113L.)* **Analog Computation of Electrical Engineering Problems (1)**
Three hours of laboratory.
Prerequisites: Engineering 301, 352, and credit or concurrent registration in Engineering 361.
Use of the analog computer in the solution of typical electrical engineering problems.

470. *(174.)* **Pulse and Digital Circuits (3) I, II**
Prerequisite: Engineering 362.
Diodes, transistors, and integrated circuits in switching systems. Device switching characteristics. Characterization of commercially available complex-function microcircuits.

472L. *(179L.)* **Switching Circuits Laboratory (1) II**
Prerequisites: Engineering 370 and 470.
Switching diodes, bipolar transistors, FETs, and integrated circuits. Combinational and sequential switching systems.

491A-491B. *(190G-190H.)* **Aerospace Engineering Applications (2-2) I, II**
Six hours of laboratory.
Prerequisites for 491A: Engineering 381, 382 and 386A.
Prerequisites for 491B: Engineering 491A.
Student projects in aerospace design.

493. *(159.)* **Aircraft Stability and Control (3)**
Prerequisites: Engineering 382, and credit or concurrent registration in Engineering 501.
Static stability and control, general equations of unsteady motion, stability, derivatives, stability of uncontrolled motion, response of aircraft to actuation of controls.

496. *(196A.)* **Advanced Engineering Topics (1-3) I, II**
Prerequisites: Minimum grade point average of 2.0 in engineering or approval of the Academic and Ethical Standards Committee of the School of Engineering.
Modern developments in engineering. Maximum credit six units for any combination of Engineering 496, 499 and 503.

499. *(199.)* **Special Study (1-3) I, II**
Prerequisites: Minimum grade point average of 2.0 in engineering or approval of the Academic and Ethical Standards Committee of the School of Engineering.
Individual study. Maximum credit six units for any combination of Engineering 496, 499 and 503.

501. *(187B.)* **Methods of Analysis (3) I, II**
Prerequisite: Engineering 301.
Selected topics from vector calculus, partial differential equations, and complex analysis, with engineering applications.

502. *(188.)* **Digital Solutions of Engineering Problems (3) I, II**
Prerequisites: Engineering 170 or Mathematics 107, and Engineering 301.
Digital solution of classes of engineering problems. Application of numerical methods with consideration of limitations imposed by computer and programming language characteristics.

503. *(196B.)* **Advanced Engineering Topics (1-3) I, II**
Prerequisites: Minimum grade point average of 2.0 in engineering or approval of the Academic and Ethical Standards Committee of the School of Engineering.
Modern developments in engineering. Maximum credit six units for any combination of Engineering 496, 499 and 503.

510. *(120B.)* **Structural Analysis II (3) I**
Prerequisite: Engineering 310.
Analysis of statically indeterminate structures by virtual work. Advanced treatment of slope deflection, moment distribution. Arch analysis, secondary stresses in trusses. Advanced treatment of influence lines.

514. *(125.)* **Sanitary Engineering (3) II**
Prerequisite: Engineering 414.
Unit processes used in water treatment and wastewater disposal; physical and chemical tests used in the analysis of water and wastewater.

518. *(128B.)* **Advanced Surveying and Photogrammetry (3) I**
Two lectures and three hours of laboratory.
Prerequisite: Engineering 318.
Theory and application of precise control surveys; specialized survey operations. Principles of metrical photogrammetry as applied to engineering. Map compilation from aerial photographs.

521. *(129.)* **Highway Materials (3) II**
Two lectures and three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 416 or 421.
Selection, design, and control of mixes of various materials used in highway construction practice. Emphasis on strength and properties of plain concrete and asphalts.

530. *(109.)* **Nonmetallic Materials (3) I**
Two lectures and three hours of laboratory.
Prerequisite: Engineering 330.
Fundamentals of plastics, reinforced plastics, and ceramics. Analysis of effect of physical properties upon selection of a material for use in design.

532. *(146B.)* **Advanced Machine Design (3) II**
Prerequisite: Engineering 332.
Advanced topics in strength of materials including energy methods, stress concentrations, curved beams, and thick-walled cylinders. Applications to design of machine elements.

533. *(147A.)* **Introduction to Mechanical Vibrations (3) I**
Prerequisite: Engineering 306.
Analysis of mechanical vibration; single- and multi-degree of freedom systems; free and forced vibrations; vibration isolation; vibration absorbers. Theory of vibration measuring instruments.

534. *(147B.)* **Vibration, Shock and Noise Measurements (3) II**
Prerequisite: Engineering 533.
Experimental problems utilizing vibration excitation equipment, recording systems, transducers, sound analysis systems and analog computers.

535. *(189.)* **Automatic Control Systems (3) II**
Prerequisites: Engineering 250, 301 and 350.
Not open to students filing an electrical engineering master plan.
Analysis of the input-output characteristics of linear, mechanical, electrical, hydraulic, and pneumatic control systems.

536. *(149.)* **Advanced Thermodynamics (3) I**
Prerequisite: Engineering 436.
Statistical thermodynamics with engineering applications. Consideration of material properties and chemical equilibrium.

537. *(142.)* **Elements of Energy Conversion (3) II**
Prerequisite: Engineering 304.
Principles of physics and chemistry applied to the analysis of a broad spectrum of energy conversion devices from an engineering point of view.

538. *(143.)* **Gas Dynamics (3) I**
Prerequisites: Engineering 302 and 304.
Thermodynamics of high velocity compressible fluid flow. Shock regions; adiabatic and diabatic flow. Applications to the propulsive duct and discharge nozzles.

539. *(144.)* **Thermal Environmental Engineering (3) II**
Prerequisite: Engineering 437.
Psychrometrics. Mass transfer. Two-phase flow. Heat transfer. Thermoelectric refrigeration. Change of phase.

540A-540B. *(160A-160B.)* **Principles of Chemical Engineering (3-3)**
(Same course as Chemistry 500A-500B.)
Prerequisite: Credit or concurrent registration in Engineering 304 or Chemistry 310A or 410A.
Industrial stoichiometry; fluid flow and heat transfer as applied to unit operations such as evaporation, distillation, extraction, filtration, gas-phase mass transfer, drying, and others. Problems, reports, and field trips.

541. *(183.)* **Simulation of Engineering Systems (3) I, II**
Two lectures and three hours of laboratory.
Prerequisites: Engineering 170 and 301.
Analysis and design of engineering systems using modern analog and digital computers. Simulation of dynamic systems. Application to problems in mechanics, heat transfer, thermodynamics, and control systems.

550. *(193.)* **Modern Power Systems I (3) I**
Prerequisites: Engineering 301, 350 and 351.
Modern power system elements; calculation of load flow, fault currents, and system stability.

551. *(194.)* **Modern Power Systems II (3) II**
Prerequisite: Engineering 550.
Transient response of modern power system elements; positive, negative and zero sequence impedance; subharmonic effects.

553. *(133.)* **Stochastic Signals (3) II**
Prerequisite: Engineering 301 or Mathematics 340A.
Random signals, correlation functions, power spectral densities, the Gaussian process, narrow band processes. Applications to communication systems.

554. *(134.)* **Communication Principles and Circuits (3) I**
Prerequisite: Engineering 362.
Signal transmission in linear networks; modulators and detectors; wide-band and narrow-band amplifiers; oscillators; AM, FM, and phase modulation; transient response of amplifiers.

554L. *(134L.)* **Communication Circuits Laboratory (1) I**
Three hours of laboratory.
Prerequisite: Engineering 362L.
Regulated power supply systems; oscillator, modulator, detector, and switching circuits; superheterodyne receivers and television circuitry.

555. *(135.)* **Modulation Theory (3) I**
Prerequisite: Engineering 361.
Theory and performance characteristics of modulation and demodulation; spectral characteristics and noise performance of carrier systems: amplitude, frequency and phase, pulse coded, and compound modulation.

556. *(139.)* **Microwave Communications (3) II**
Prerequisites: Engineering 362 and 456.
Applications of Maxwell's equations to wave propagation; skin effect, circuit impedance elements; vector potential, and other time-varying electrical phenomena; waveguides and resonators, strip line circuits, electromagnetic radiation.

556L. *(139L.)* **Microwave Measurements Laboratory (1) II**
Three hours of laboratory.
Prerequisites: Credit or concurrent registration in Engineering 362L and 556.
Experimental study of microwave generation including klystrons, Gunn and IMPATT oscillators. TWT and microwave transistor amplifiers. Microwave modulation and detection. Microwave transmission and antennas.

557. *(191.)* **Microwave Devices (3) II**
Prerequisite: Credit or concurrent registration in Engineering 556.
Varactor diodes and applications, microwave switches, limiters and phase shifters, detector and mixer diodes and circuits, avalanche transit-time devices, bulk-effect devices, microwave transistors and circuits.

562. *(162.)* **Transistor Circuit Analysis (3) I, II**
Prerequisite: Engineering 362.
Analysis and design of transistor voltage and power amplifier circuits by use of duality and matrix methods. Feedback amplifiers, audio amplifiers, video amplifiers, power supplies, and oscillators; transient analysis and noise considerations.

564. *(164.)* **Solid-State Devices (3) I**
Prerequisite: Engineering 362.
Conduction theory of solids. Characteristics of tunnel, backward, breakdown, multilayer and varactor diodes; silicon controlled-rectifiers and switches, unijunction transistors, hot electron devices. Lasers and laser applications.

568. *(168.)* **Feedback Control Systems (3) I**
Prerequisites: Engineering 467.
Analysis of regulatory systems including servomechanisms by the Laplace transform method. System performance and stability; Nyquist, Bode, and root-locus diagrams; elementary synthesis techniques. Practical components and examples of typical designs.

569. *(169.)* **Advanced Feedback Control Systems (3) II**
Prerequisite: Engineering 568.
A continuation of Engineering 568 to include feedback compensation, advanced compensation techniques, signal flow theory, state-variable techniques, introduction to nonlinear and sampled-data control systems.

569L. *(169L.)* **Feedback Control Systems Laboratory (1)**
Three hours of laboratory.
Prerequisites: Engineering 362L, 467, and credit or concurrent registration in Engineering 568.
Analysis of steady-state and transient response of uncompensated and compensated feedback control systems using transfer functions and frequency response techniques.

570. *(175.)* **Advanced Pulse and Digital Circuits (3) II**
Prerequisite: Engineering 470.
Digital system design using linear elements. Microcircuit amplifiers, sweep circuits, JFETs and MOS devices, A/D and D/A converters.

571. *(177.)* **Advanced Logic Design and Switching Circuits (3) I, II**
Prerequisite: Engineering 370.
Detailed synthesis of synchronous and asynchronous sequential circuits. Impact of microcircuit technology on practical logic design.

573. *(178.)* **Computer Organization (3) I, II**
Prerequisites: Engineering 170 or Mathematics 107, and Engineering 370.
Data and information structure, machine and assembly language programming, arithmetic and control units microprogramming, memory devices, input-output devices, channels and operating systems concepts.

583. *(157.)* **Intermediate Fluid Mechanics (3)**
Prerequisites: Credit or concurrent registration in Engineering 302, and 501 or Mathematics 340B.
Kinematics of fluid motion. Conservation of mass, momentum, and energy. Ideal and viscous flows and applications. Boundary layer approximations.

584. *(152.)* **Aircraft Propulsion Systems (3)**
Prerequisite: Engineering 380 or 436.
Theory and performance characteristics of aircraft propulsion systems including reciprocating engines, turbojets, ramjets, etc.

585. *(181.)* **Hydrodynamics (3)**
Prerequisites: Engineering 250, and 301 or Mathematics 340A or 530 or 533.
Kinematics, equations of continuity, energy, and momentum of perfect fluids. Introduction to conformal transformations. Three-dimensional and two-dimensional irrotational motion, with applications to physical problems. Vector notation will be used.

587. *(155.)* **Matrix Methods in Aerospace Structures (3)**
Prerequisite: Engineering 386B.
Static and dynamic analysis of aerospace structures utilizing matrix methods.

588. *(156.)* **Intermediate Dynamics (3)**
Prerequisites: Engineering 250, 260, and 301 or Mathematics 340A.
Kinematics and kinetics of systems of particles and rigid bodies. Dynamic analysis procedures for studying mechanical, electrical, and electromechanical systems. Variational methods.

590. *(153B.)* **Intermediate Aerospace Flight Mechanics (3) I**
Prerequisite: Engineering 390.
A continuation of Engineering 390 to include orbit determination techniques, general and special perturbations, artificial satellites, rocket dynamics and transfer orbits, earth-moon trajectories, and interplanetary trajectories.

591. *(158.)* **Aircraft Design and Performance (3)**
Prerequisite: Engineering 381.
Aircraft design and evaluation including choice of airfoil and wing planform, aircraft fuselage design, control surfaces, power plants, and integration of the separate aircraft components.

Aerospace Engineering

GRADUATE COURSES

600. *(200.)* **Seminar (1-3)**
Prerequisite: Consent of the graduate adviser and instructor.
Intensive study of topics in aeroelasticity, aerodynamic noise, aerothermal structural analysis, hydrodynamic stability, hypersonic flow theory, magnetofluidmechanics, rarified and real gas flows, electromagnetic propulsion, boundary layers, and other areas of aerospace engineering.

612. *(243.)* **Supersonic Flow Theory (3)**
Prerequisite: Engineering 381.
Theory of flow at supersonic speeds. Linearized theory, three-dimensional wings in steady flight, slender-body theory, methods of characteristics.

671. *(205.)* **Flight Dynamics—Theory of Flight Paths (3)**
Prerequisite: Engineering 381.
Analysis of trajectories of aircraft, missiles, satellites, and spacecraft subjected to uniform or central gravitational forces, aerodynamic forces, and thrust.

716. *(242.)* **Theory and Aerodynamics of Transonic Flight (3)**
Prerequisite: Aerospace Engineering 612.
Application of engineering principles to the analysis of transonic flight.

771. *(204.)* **Flight Dynamics—Stability and Control (3)**
Prerequisite: Credit or concurrent registration in Engineering Mechanics 601.
Dynamic stability and control of aerospace vehicles. Stability derivatives, stability of uncontrolled motion, response to actuation of controls, automatic stability and control.

796. *(296.)* **Advanced Topics in Aerospace Engineering (2 or 3)**
Advanced study in the field of aerospace engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units applicable on a master's degree.

Civil Engineering

GRADUATE COURSES

600. *(200.)* **Seminar (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in advanced civil engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

601. *(201.)* **Advanced Theory of Structures (3)**
Prerequisites: Engineering 510 and Mathematics 340A.
Analysis of statically indeterminate structures based on principles of deflected structures. Approximate analysis of structures under lateral loads for rigid and shear wall structures.

602. *(202.)* **Design of Thin Shell Structures (3)**
Prerequisite: Engineering 510.
Analysis and design of typical civil engineering thin shell structures.

603. *(203.)* **Plastic Design in Steel (3)**
Prerequisite: Engineering 510.
Analysis and design of steel framed structures for ultimate load. Connections, secondary design problems, column stability, and repeated loading.

605. *(205.)* **Prestressed Concrete Structures (3)**
Prerequisite: Engineering 310.
Fundamental concepts of prestressed concrete theory. Design applications to various types of structures.

606. *(206.)* **Matrix Analysis of Structures (3)**
Prerequisite: Engineering 310.
Development of matrix methods for the analysis of structural systems. Force methods, displacement methods. Application of the digital computer to structural analysis.

607. *(207.)* **Dynamics of Structures (3)**
Prerequisite: Engineering 310.
Dynamic disturbances, structures with variable degrees of freedom, free vibrations of slender elastic beams; continuous beams, rigid frames, floor systems. Energy methods in structural dynamics.

608. *(208.)* **Numerical Methods in Structural Engineering (3)**
Prerequisite: Engineering 510.
Moments and deflections in beam systems; elastic and inelastic stability, columns and beams on elastic supports, vibration of structural systems.

609. *(209.)* **Computer Analysis of Structures (3)**
Prerequisites: Engineering 170 and 510.
Fundamentals of matrix notation, equilibrium equations, compatibility relations, constitutive equations, joint releases. General algorithms for writing computer programs for space structures, trusses and frames. Use of existing programs such as ICES/STRUDL, NASTRAN, etc., for solving structural problems.

610. *(210.)* **Finite Element Analysis of Structures (3)**
Prerequisites: Engineering 170 and 510.
General procedure, various types of finite elements; analysis and design of isotropic and orthotropic plates and shells, deep beams, and shear walls using finite element technique; use of digital computers for solutions. Application to civil engineering structures.

620. *(220.)* **Traffic Engineering (3)**
Prerequisite: Engineering 421.
Traffic characteristics and studies. Control and regulation of street and highway traffic. Parking facilities, mass transportation, traffic engineering administration.

622. *(222.)* **Mass Transit Engineering (3)**
Prerequisite: Engineering 420.
Urban transportation and land use, characteristics of urban travel patterns, estimation of transit usage, planning of transit systems, economic problems of mass transportation. Case studies of existing and proposed systems.

630. *(230.)* **Open Channel Hydraulics (3)**
Prerequisite: Engineering 414.
Open channel flow theory, analysis, and problems, including studies of critical flow, uniform flow, gradually varied and rapidly varied flow, all as applied to the design of channels, spillways, energy dissipators, and gravity pipelines.

631. *(231.)* **Engineering Hydrology (3)**
Prerequisite: Engineering 414.
Measurement and interpretation of precipitation, evapotranspiration, stream flow and groundwater flow; hydrologic methodology and applications.

632. *(232.)* **Fluvial Hydraulics (3)**
Prerequisite: Engineering 414.
Characteristics of rivers; mechanics of sediment transport; hydraulics and design of alluvial channels; channel stability; model studies.

635. *(235.)* **Water Quality Engineering (3)**
Prerequisite: Engineering 514.
Development of water quality criteria. Survey of current methods of water treatment, wastewater treatment and water renovation. Economic considerations of water quality management.

636. *(236.)* **Water Quality Processes (3)**
Two lectures and three hours of laboratory.
Prerequisite: Engineering 514.
Theoretical and laboratory study of the chemical and microbiological processes which govern modern water and wastewater treatment.

640. *(240.)* **Advanced Soil Mechanics (3)**
Prerequisite: Engineering 416.
Advanced theories of soil mechanics and their applications to design, including physicochemical behavior of soils, theories of compaction, consolidation, stress distribution, shear strength, settlement analyses, lateral pressures, and bearing capacity of soils.

641. *(241.)* **Advanced Foundation Engineering (3)**
Prerequisite: Engineering 417.
Advanced theories of soil bearing capacity and stress distribution in soils. Analysis and design of foundations and retaining walls. Shallow foundations, piles, piers and caissons. Design of foundations for dynamic loads. Dewatering and other field problems.

642. *(242.)* **Seepage and Earth Dams (3)**
Prerequisite: Engineering 416.
Principles governing the flow of water through soils and their application in the design of earth and rock fill dams. Stability analysis and design of earth dams.

643. *(243.)* **Experimental Soil Mechanics (2)**
One lecture and three hours of laboratory.
Prerequisite: Credit or concurrent registration in Civil Engineering 640.
Techniques of laboratory testing for the determination of the engineering properties of soils. Applications in foundation engineering, earth dams, highways, airports and underwater soil engineering.

644. *(244.)* **Soil Structure Interaction (3)**
Prerequisite: Credit or concurrent registration in Civil Engineering 640.
Analysis of stresses and deformations of structural elements supported by soil. Analysis of pile foundations subject to lateral, vertical and combined loads by numerical and finite element methods. Solutions of slabs and mat foundations.

780. *(280.)* **Seminar in Structural Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in structural engineering. Maximum credit six units applicable on a master's degree.

781. *(281.)* **Seminar in Transportation Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in transportation engineering. Maximum credit six units applicable on a master's degree.

782. *(282.)* **Seminar in Soil Mechanics and Foundation Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in soil mechanics and foundation engineering. Maximum credit six units applicable on a master's degree.

785. *(285.)* **Seminar in Construction Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in construction engineering. Maximum credit six units applicable on a master's degree.

796. *(296.)* **Advanced Topics in Civil Engineering (2 or 3)**
Advanced study in the field of civil engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units applicable on a master's degree.

Electrical Engineering

GRADUATE COURSES

600. *(200.)* **Seminar (1-3)**
An intensive study in advanced electrical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

601. *(201.)* **Seminar in Electromagnetic Systems (1-3)**
An intensive study in electromagnetic systems. Maximum credit six units applicable on a master's degree.

602. *(202.)* **Seminar in Electronic Design (1-3)**
An intensive study in electronic design. Maximum credit six units applicable on a master's degree.

603. *(203.)* **Seminar in Digital Systems (1-3)**
An intensive study in digital systems. Maximum credit six units applicable on a master's degree.

604. *(204.)* **Seminar in Feedback Control Systems (1-3)**
An intensive study in feedback control systems. Maximum credit six units applicable on a master's degree.

605. *(205.)* **Seminar in Communications Systems (1-3)**
An intensive study in communication theory and systems. Maximum credit six units applicable on a master's degree.

606. *(206.)* **Seminar in Computer Engineering (1-3)**
Intensive study in computer engineering topics. Maximum credit six units applicable on a master's degree.

610. *(210.)* **Linear System Analysis (3)**
Prerequisites: Engineering 351 and credit or concurrent registration in Engineering 501 or Mathematics 340B.
Loop and nodal system equations based on topological considerations, four-terminal network theory using matrices. Fourier integral transform theory as applied to linear system analysis. Positive real functions and associated testing methods.

611. *(211.)* **Synthesis of Active and Passive Networks (3)**
Prerequisite: Electrical Engineering 610.
Frequency-domain synthesis of driving point and transfer impedances in passive and active networks. Canonical forms and network equivalents. Time-domain synthesis and considerations of pulsed-data systems.

614. *(214.)* **Computer-aided Network Analysis and Design (3)**
Prerequisites: Engineering 361 or equivalent computer-aided circuit design, Electrical Engineering 610, and Fortran programming.
Approximation theory, device modeling, topological analysis of networks, applications of general purpose, computer programs, passive and active filter design, circuit optimization.

616. *(216.)* **Noise in Electrical Devices (3)**
Prerequisite: Engineering 562.
Major types and origins of electrical noise and the effects of noise on system behavior. Emphasis on concepts of noise as a random process, as distinguished from systematic or periodic interference.

620. *(220.)* **Feedback Control Systems (3)**
Prerequisite: Engineering 568.
Analysis and synthesis of feedback control systems using feedback compensation. Multiple-loop control systems; a-c feedback control systems; optimization.

622. *(222.)* **Sampled-Data Systems (3)**
Prerequisite: Engineering 568.
Analysis and synthesis of sampled-data and digital control systems; techniques for the design of time optimal sampled-data control systems; z-transform calculus and difference equation synthesis techniques for determining stability and system response.

625. *(225.)* **State Space Analysis of Control Systems (3)**
Prerequisite: Engineering 568.
State space representation of control systems, state transition flow graphs, methods of solution of the state equation, controllability and observability, and introduction to optimal control systems.

631. *(231.)* **Integrated Circuits (3)**
Prerequisite: Engineering 470.
Fabrication methods, logic gates, multivibrators, medium- and large-scale integration techniques and devices. Linear integrated circuits and MOS technology. Emphasis on proper application of devices through knowledge of circuit operation and interpretation of manufacturers' specification sheets.

632. *(232.)* **Linear Semiconductor Circuit Design (3)**
Prerequisite: Engineering 562.
Field effect transistors and circuits; quantitative variable nature of transistor parameters; differential and chopper stabilized dc amplifiers; high efficiency switching mode power amplifiers, converters and inverters; noise, reliability considerations and high speed switching.

650. *(250.)* **Quantum Electronics (3)**
Prerequisite: Engineering 564.
Quantum mechanics for engineers concerned with its application to solid-state devices. Basic principles and engineering applications of lasers.

652. *(252.)* **Optical Communications (3)**
Prerequisite: Electrical Engineering 650.
Fundamentals of electro-optical technology from ultraviolet through infrared. Characteristics of thermal and laser radiation including generation, transmission, detection, data processing and display.

653. *(263.)* **Coding Theory (3)**
Prerequisite: Engineering 553.
The theory of coding to combat noise over communication channels. Redundancy added to messages to assure arbitrarily small error rates at a given information rate. Discussion of channels and capacity. Block codes, cyclic codes, BCH codes, convolutional code.

654. *(234.)* **Semiconductor RF Circuit Design (3)**
Prerequisite: Engineering 554.
Wide band amplifiers, low level RF amplifiers and mixers, IF amplifiers, AGC, tuning and stability problems, unilateralization and mismatching techniques, harmonic oscillators, VHF power amplifiers including varactor multipliers.

655. *(240.)* **Antennas and Propagation (3)**
Prerequisite: Engineering 556.
Impedance characteristics and radiation patterns of thin linear antenna elements; field intensity calculations. Tropospheric and ionospheric propagation; propagation anomalies.

656. *(242.)* **Microwave Networks (3)**
Prerequisite: Engineering 556.
Equivalent circuits for waveguide discontinuities developed on the basis of mode theory, linearity, reciprocity, and symmetry. Application of general network theory to wave guides, cavity resonators and antennas.

657. *(246.)* **Radar Systems (3)**
Prerequisite: Engineering 556.
The radar equation; characteristics of CW, FM, MTI, pulse-doppler and tracking radar system; transmitters, antennas and receivers; detection of signals in noise, extraction of information; propagation effects; system engineering and design.

658. *(264.)* **Digital Processing of Signals (3)**
Prerequisite: Engineering 555.
Theory of digital signal processing. Emphasis on digital filters, discrete spectrum analysis, and windows. Fast Fourier transforms. Generalized linear filtering; Cepstral analysis and deltic loops.

660. *(260.)* **Modern Communication Theory I (3)**
Prerequisite: Engineering 553 or Mathematics 550.
Probability theory, random variables, random processes, Gaussian process, random signals through linear systems, noise considerations, optimum receiver design, applications to digital and wave-form communication.

661. *(261.)* **Modern Communication Theory II (3)**
Prerequisite: Electrical Engineering 660.
Estimation of signal parameters in noise. Estimation of spectral densities and correlation functions. Intersymbol interference. Adaptive and feedback systems.

670. *(270.)* **Microprogramming (3)**
Prerequisite: Engineering 573.
Fundamentals of microprogramming and read only storage technology as related to the design of digital computers.

671. *(271.)* **Computer Input/Output Devices and Systems (3)**
Prerequisite: Engineering 573.
Control programs, interrupt procedures, I/O programming techniques, interfaces, channels, magnetic recording techniques, I/O devices.

672. *(272.)* **Minicomputer Design and Applications (3)**
Prerequisite: Engineering 573.
Current minicomputer architectures. CPU-oriented and universal bus-oriented machines.

676. *(276.)* **Fault Tolerant Computing (3)**
Prerequisite: Engineering 370.
Triple modular redundancy, standby sparing, quaded logic, parity and residue checking of computer systems and subsystems. Diagnostic programming and fault testing fundamentals.

677. *(277.)* **Topics in Logic Design (3) II**
Prerequisite: Engineering 571.
Review of current technical periodic literature in logic design and digital systems. Stress on specialized synthesis techniques and recent theoretical developments.

678. *(278.)* **Electronic Digital Systems (3)**
Prerequisite: Engineering 573.
Design of arithmetic, control and memory units. Detailed comparative analysis of the system organization and operation of several digital computers, with special attention to the interdependence of design decisions and their dependence upon the intended system application.

796. *(296.)* **Advanced Topics in Electrical Engineering (2 or 3)**
Advanced study in the field of electrical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units applicable on a master's degree.

Engineering Mechanics

GRADUATE COURSES

600. *(200.)* **Seminar (1-3)**
Prerequisite: Consent of the graduate adviser and instructor.
Intensive study of topics in nonlinear vibrations, random vibrations, continuum mechanics, anisotropic elasticity, energy methods, plasticity, and other areas of engineering mechanics.

601. *(201.)* **Advanced Dynamics (3)**
Prerequisites: Engineering 250, and 301 or Mathematics 340A.
Kinematics and kinetics of systems of particles and rigid bodies with special reference to engineering problems. Moving reference axes, generalized coordinates, Lagrangian equations, Hamilton's principle and variational methods.

621. *(221.)* **Theory of Elasticity (3)**
Prerequisites: Engineering 306 and credit or concurrent registration in Engineering 501 or Mathematics 340B.
Analysis of stress and strain: stress-strain relations; the equations of elasticity; uniqueness theorem; compatibility conditions; flexure and torsion. Vector and tensor notation will be used.

643. *(243.)* **Advanced Fluid Mechanics I (3)**
Prerequisites: Engineering 302 and credit or concurrent registration in Engineering 501 or Mathematics 340B.
Fluid kinematics and kinetics. Conservation of mass, energy, and momentum, applied to Newtonian fluids. Navier-Stockes equations. Couette and Poiseuille flow. Potential flow. Introduction to turbulence and boundary layer theory. Vector and tensor notation will be used.

703. *(203.)* **Theory of Vibrations (3)**
Prerequisites: Engineering Mechanics 601 and credit or concurrent registration in Engineering 501 or Mathematics 340B.
Linear and nonlinear periodic phenomena as applied to discrete systems and continuous media with application to physical problems.

725. *(225.)* **Theory of Plates (3)**
Prerequisite: Engineering Mechanics 621.
Bending and buckling theory of plates; application of small deflection and large deflection theories to plates with various boundary conditions; use of approximate methods and exact methods in solution.

726. *(226.)* **Theory of Shells (3)**
Prerequisite: Engineering Mechanics 621.
Membrane and bending theory of shells of revolution and shells of arbitrary shape; exact and approximate methods of solution of shells subjected to axisymmetric and arbitrary loads.

727. *(227.)* **Theory of Elastic Stability (3)**
Prerequisite: Engineering Mechanics 621.
Stability of elastic systems. Differential equations of stability by summation of forces and movements, and by the variational method. Applications.

744. *(244.)* **Advanced Fluid Mechanics II (3)**
Prerequisite: Engineering Mechanics 643.
A continuation of Engineering Mechanics 643. Further work in laminar and turbulent flow, and boundary layer theory. Diffusion. Applications to engineering problems.

796. *(296.)* **Advanced Topics in Engineering Mechanics (2 or 3)**
Advanced study in the field of engineering mechanics, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units applicable on a master's degree.

Mechanical Engineering

GRADUATE COURSES

600. *(200.)* **Seminar (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in advanced mechanical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

611. *(221.)* **Stress Analysis (3)**
Prerequisites: Engineering 501 and 532.
Topics in applied elasticity, advanced study of the resistance of materials and experimental stress analysis. Failure theories, energy methods, limit design, theory of plates and shells., Photoelasticity, brittle lacquers, strain gages, and analogs in determining static, dynamic and residual stress distributions.

613. Engineering Design: Advanced Mechanisms (3)
Prerequisites: Engineering 331, 501 and 541.
A continuation of Engineering 331. Problems from recent publications.

616. *(276.)* **Bearing Design and Lubrication (3)**
Prerequisite: Engineering 501.
Friction and wear of materials. Boundary and thick film lubrication. Design of incompressible and compressible fluid bearings; rolling-element bearings.

621A-621B. *(220A-220B.)* **Mechanical Vibrations (3-3)**
Prerequisites: Engineering 501, 534 and 541.
Topics in vibration relating to mechanical design such as nonlinear vibrations, distributed mass systems, random vibrations, mobility analysis, isolater design.

631. *(224.)* **Fluid Power and Control Systems (3)**
Prerequisite: Engineering 535.
Analysis of dynamic performance of physical systems such as pneumatic, hydraulic and hot-gas. Transient forces and valve instability. Servo characteristics.

632. *(246.)* **Advanced Topics in Automatic Controls (3)**
Prerequisite: Engineering 535.
Synthesis of linear control systems. Analysis of nonlinear systems by describing function and phase plane methods. Sampled data systems analysis; statistical design techniques and adaptive control.

641. *(231.)* **Advanced Science of Materials (3)**
Prerequisite: Engineering 330.
Structure and physical properties of solids. Imperfections in materials and their effect on various properties. Elasticity, plasticity, and fracture of metals related to atomic and crystal structure.

643. *(232.)* **Physical Metallurgy for Engineers (3)**
Prerequisites: Engineering 304 and 330.
Fundamentals of crystallography, imperfections, alloying and deformation. Composition, temperature, prior thermal and mechanical treatment on structure of metal; relationship of structure to mechanical properties.

645. *(233.)* **Mechanical Metallurgy for Engineers (3)**
Prerequisites: Engineering 304 and 330.
Fundamentals of plastic deformation of crystalline solids; elementary theory of statics and dynamics of dislocations, deformation, fracture and metallurgical variables on mechanical properties; environment-failure interactions.

647. *(234.)* **High Temperature Materials (3)**
Prerequisite: Engineering 330.
Behavior of metals, cermets, and nonmetallic materials at high temperatures. Effect of environment and service conditions on composition, structure, and physical properties.

651. *(250.)* **Analytical Thermodynamics (3)**
Prerequisite: Engineering 301.
Advanced concepts of macroscopic thermodynamics. Application of thermodynamics to special systems.

661. *(270.)* **Gas Dynamics (3)**
Prerequisites: Engineering 501 and 538.
Further consideration of the flow of compressible fluids in conduits. Shock fronts, unsteady flow and real gases.

663. *(274.)* **Boundary Layers in Internal Flows (3)**
Prerequisites: Engineering 437 and 501.
Conservation laws applied to boundary layers in viscous, heat conducting fluids; analysis of the boundary layer equations; applications to internal flows.

671. *(260.)* **Conduction Heat Transfer (3)**
Prerequisites: Engineering 437 and 501.
Conduction heat transfer, multidimensional conduction processes, transient analysis.

673. *(262.)* **Convection Heat Transfer (3)**
Prerequisite: Mechanical Engineering 663.
Convection heat transfer. Advanced theories of forced and free convection.

675. *(264.)* **Radiation Heat Transfer (3)**
Prerequisites: Engineering 437 and 501.
Radiation heat transfer. Solid body and gaseous radiation.

681. *(267.)* **Cryogenic Engineering (3)**
Prerequisite: Engineering 436.
Analysis of low-temperature processes and equipment. Physical properties of structural and other materials used in producing, maintaining, and using low temperatures.

682. *(280.)* **Aircraft and Missile Propulsion (3)**
Prerequisites: Engineering 501, 537 and 538.
Analysis of ideal gas turbine cycles. Principles of regeneration, reheat and intercooling. Thermodynamic analysis and performance of turbojet engines, ramjet engines and rocket motors. Rocket jet propellant systems. Dynamics of rocket propulsion free of gravity and air resistance.

683. *(281.)* **Propulsion Systems for Spacecraft (3)**
Prerequisites: Engineering 436 and 501.
The physical and chemical laws that govern the performance, selection and design of nonair-breathing propulsion systems for space applications.

684. *(284.)* **Theory of Turbomachines (3)**
Prerequisite: Engineering 380 or 538.
Application of the fundamental laws of fluid mechanics to the problems of energy transfer between fluid and rotor. Performance characteristics or turbomachines. Study of loss mechanisms.

685. *(285.)* **Direct Energy Conversion (3)**
Prerequisites: Engineering 536 or Mechanical Engineering 651, and Engineering 301.
Application of physical and chemical laws to the analysis, design, and evaluation of various direct energy conversion systems.

696. *(296.)* **Advanced Topics in Mechanical Engineering (2 or 3)**
Advanced study in the field of mechanical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

697. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units applicable on a master's degree.

Engineering

GRADUATE COURSES

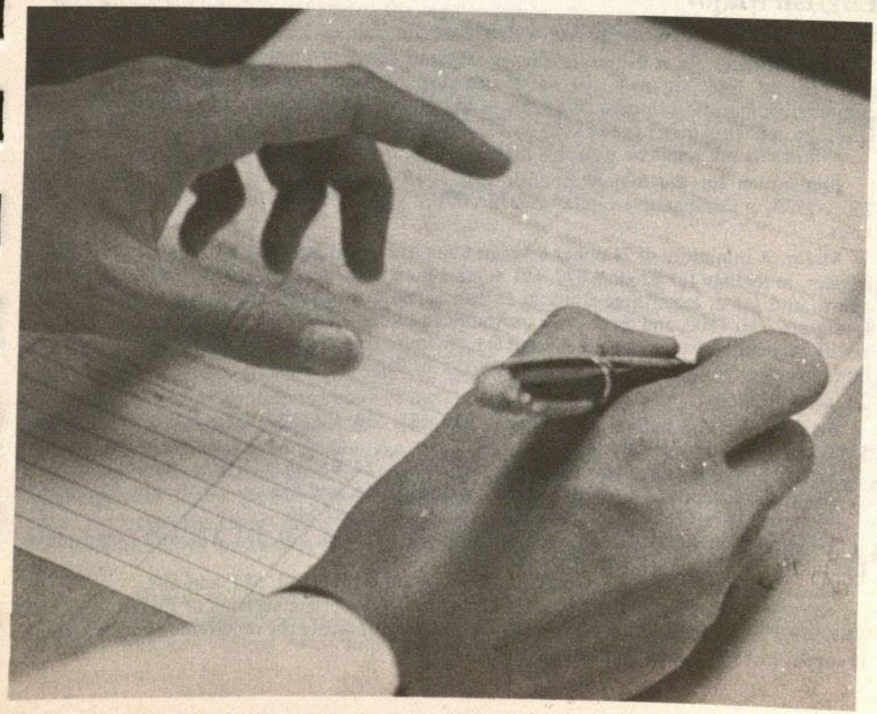
790. *(290.)* **Problem Analysis (3)**
Prerequisite: Consent of graduate adviser.
Review of methods for investigation and reporting of data. Consideration of problems in preparation of project or thesis.

795. *(295.)* **Seminar in Environmental Engineering (3)**
Prerequisite: Engineering 402, 403, or 404.
Environmental problems including an intensive investigation of selected topics.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Three units maximum credit.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.



English

In the College of Arts and Letters

Faculty

Emeritus: Adams, J., Burnett, Gulick, Haskell, Johnson, Kennedy, Marchand, Phillips, Shouse, Theobald

Professors: Baker, Benson, Brashers, Dickinson, Gellens, Henig, Ingham, Keller, Monteverde, Perkins, Sanderlin, Sandstrom, Santangelo, Tozer, Vanderbilt, Widmer

Associate Professors: Adams, E., Bumpus, Chater, Davis, Farber, Hinkle, Kehler, H., Kohler, McCoy, McLeod, Moramarco (Director), Nelson, Nichols, Patterson, Redding, M., Redding, R., Rother, J., Savvas, Stiehl, Taylor, Thrane, Tunberg

Assistant Professors: Aninger, Barry, Boe, Borkat, Brown, Butler, DeMarinis, Forrey, Gervais, Karnath, Kehler, D., Malmsheimer, O'Reilly, Rogers, Rush, Sheres, Shojai, Sullivan, Wall, Wheeler

Lecturers: Davidson, Denman, Hall, Olafioye, Rother, C.

Offered by the Department

Master of Arts degree in English.
Major in English with the A.B. degree in liberal arts and sciences.
Minor in English.
Teaching major in English for the single subject teaching credential.
Courses in comparative literature. (Refer to this section of the catalog under Comparative Literature.)

English Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog. No more than 48 units in English and comparative literature courses can apply to the degree. To satisfy the requirement in foreign language, students may not use courses in conversation.

A minor is not required with this major.

Preparation for the major. English 101, 260A-260B; six units selected from English 250A-250B, or Comparative Literature 270A-270B; and three units of electives in English. (18 units.)

Major. A minimum of 24 upper division units in English, selected with the approval of the adviser, to include (a) English 533, (b) at least nine units in one of the areas of study listed below, and (c) at least three units in British Literature before 1800, three units in British Literature after 1800, and three units in American Literature. The same course may be used to satisfy requirements under both (b) and (c). No more than six units of courses in comparative literature may be included as part of the major in English.

Areas of Study:

British Literature before 1800: English 530, 531, 534, 536, 537, 538A, 538B, 540A, 541A, 541B, and Comparative Literature 510.

British Literature after 1800: English 540B, 542A, 542B, 543, 544, 545, and 546.

American Literature: English 510, 511, 512, 513, 514, and 516.

Modern Literature: English 513, 514, 516, 544, 545, and 546.

Literary Types, Theory, and Criticism: English 507, 508, 570, 571, 572, and Comparative Literature 512, 513, 514, 560, 562, and 563.

Creative Writing: English 570, 571A-571B, 572, 579, 580, 581, 582, and 589.

NOTE: In addition to the courses listed above, appropriate sections of English 496, 499, 520, 549, 579, and American Studies 580 may be used to satisfy the requirements for the major if approved by the departmental adviser.

Selection of Courses

Prospective majors of sophomore standing may, with the consent of the course instructor and subject to general university regulations (see "Credit for Upper Division Courses" in the section of this catalog on General Regulations), substitute six units of upper division electives for six units of lower division work. These courses must be in the same field as those which they replace, and must be approved by the departmental adviser.

Students of junior or senior standing may substitute for any deficiencies in lower division requirements in English (except English 101) an equivalent number of units of upper division courses selected with the approval of the departmental adviser.

English Minor

The minor in English consists of a minimum of 15 units in English, nine units of which must be in upper division courses. The English minor is not available to students majoring in comparative literature.

Courses in the minor may not be counted toward the major or general education.

English Major

For the Single Subject Teaching Credential

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

The requirements for the English major for the single subject teaching credential are being revised. For further information consult the department.

Course Sequences

All year courses in English may be taken in either semester, and either semester may be taken singly for credit.

Student Initiated Courses

Students may petition for a course which falls within the competency of the English Department but which is not among the regular course offerings for the present or following semester. Petition forms may be obtained from the Department Secretary.

Undergraduate Seminars

Each semester, if adequate staffing permits, the Department may offer several of its courses as special, limited-enrollment seminars. These seminars are designed to give English majors (or anyone who has the consent of the instructor) the opportunity as juniors and seniors to engage in advanced work in small discussion groups.

LOWER DIVISION COURSES

General

100. *(5.)* **Composition and Reading (3) I, II**
Practice in composition based on the study of outstanding expository writing in contemporary affairs, the sciences, and the arts. Not open to students with credit for Mexican-American Studies 111B.

101. *(6.)* **Composition and Literature (3) I, II**
Practice in composition, based on the study of representative works of imaginative literature. Introduction to one or more of the major literary genres: poetry, drama, and fiction.

200. *(75.)* **Intermediate Composition (3) I, II**
Practice in formal composition, based on an analysis of the rhetorical structures of exposition, persuasion, and familiar writing, together with the study of outstanding writing in contemporary affairs, the sciences, the arts, and literature.

210. *(54.)* **Literary Theory and Criticism (3) I, II**
Introduction to the various theories of literature and approaches to literary creation and criticism.

220. *(89.)* **Studies in Literature (1-3) I, II**
Representative literary works of a major author, period, genre, theme, or the like. May be repeated with new content. Maximum credit six units.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

American Literature

250A-250B. *(53A-53B.)* **American Literature (3-3) I, II**
Semester I: Major American writers from the beginning to 1860. Semester II: American literature from 1860 to the present.

British Literature

260A-260B. *(51A-51B.)* **English Literature (3-3) I, II**
English literature from the Anglo-Saxon period to the present, with emphasis on the major works in the literary tradition. Semester I: Ends with the neoclassical period. Semester II: Begins with the Romantic writers.

Comparative Literature

(See page 193)

Creative Writing

280. *(70.)* **Creative Writing (3) I, II**
Introduction to the theory and practice of writing in the major genres, with emphasis on basic concepts and techniques.

281. *(71.)* **Creative Writing: Selected Genres (3) I, II**
Prerequisite: English 280.
Guidance and extensive practice in writing in one or more of the major genres: poetry, drama, fiction, or the essay.

UPPER DIVISION COURSES

General

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

496. *(190.)* **Selected Topics in English (2-3) I, II**
Specialized study of a selected topic in literature. May be repeated with new content. Maximum credit six units.

497. *(194.)* **Individual Reading (1) I, II**
Selected works by a major author. May be repeated with new content. Maximum credit two units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

500. *(175.)* **Advanced Composition (3) I, II**
The theory and practice of expository writing, including the contributions of semantics, rhetoric, and logic.

505. *(105.)* **The Bible as Literature (3) I, II**
(Same course as Comparative Literature 505.)
Prose and poetry of the King James version.

507. *(150.)* **The History of Literary Criticism (3) I**
Principles and practices of literary criticism from Greek times to the nineteenth century.

508. *(153.)* **Modern Criticism (3) II**
The theory and practice of selected nineteenth and twentieth century critics, with emphasis on the distinctive features of their approaches to literature.

American Literature

510. *(130.)* **Early American Literature (3) I**
American Literature from its beginning to 1830.

511. *(131.)* **The American Renaissance (3) I, II**
Major American writers and their works in the period 1830-1865.

512. *(133.)* **American Realism and Naturalism (3) I, II**
American fiction from the Civil War to 1920.

513. *(134.)* **Modern American Fiction (3) I, II**
American fiction from 1920 to the present.

514. *(135.)* **Modern American Poetry (3) I, II**
American poetry from 1865 to the present.

516. *(136.)* **American Drama (3) I, II**
Dramatic literature by American writers from its beginnings to the present.

520. *(139.)* **Topics in American Literature (3) I, II**
Emerson and Thoreau, Black Writers in America, The Literature of the American South, The Frontier and American Literature, and the like. May be repeated with new content. Maximum credit six units.

British Literature

530. *(103.)* **Chaucer (3) I, II**
Chaucer's works, with emphasis on *The Canterbury Tales* and *Troilus and Criseyde.*

531. *(111.)* **Renaissance Literature (3) I, II**
English poetry and prose from 1485 to 1603.

533. *(101.)* **Shakespeare (3) I, II**
An introduction to the writings of Shakespeare.

534. *(102.)* **Study of Shakespeare (3) II**
Prerequisite: English 533.
Advanced study of Shakespeare's achievement as a poet and playwright.

536. *(112.)* **Seventeenth Century Literature (3) II**
English poetry and prose from 1603 to 1660.

537. *(104.)* **Milton (3) II**
Milton's writings, with emphasis on *Paradise Lost.*

538A-538B. *(113A-113B.)* **Restoration and Eighteenth Century Literature (3-3) I, II**
English literature in the neoclassical era. Semester I: Dryden, Swift, Pope, and their contemporaries. Semester II: Writers of the middle and late eighteenth century.

540A-540B. *(121A-121B.)* **English Fiction (3-3) I, II**
The development of English fiction from its beginnings to the end of the nineteenth century. Semester I: The eighteenth century. Semester II: The nineteenth century.

541A-541B. *(122A-122B.)* **English Drama (3-3) I, II**
English dramatic literature from its beginnings to the nineteenth century. Semester I: The period from the beginning to 1642. Semester II: The period following reopening of the theatres in 1660.

542A-542B. *(114A-114B.)* **Nineteenth Century British Poetry (3-3) I, II**
Semester I: The Romantic movement. Semester II: The Victorian period.

543. *(115.)* **Nineteenth Century British Prose (3) I, II**
Nonfictional prose of the Romantic and Victorian periods.

544. *(117.)* **Modern British Fiction (3) I, II**
British fiction since 1900.

545. *(116.)* **Modern British Poetry (3) I, II**
British poetry since 1900.

546. *(118.)* **Modern British Drama (3) I, II**
British drama since 1890.

549. *(129.)* **Topics in English Literature (3) I, II**
The Works of Spenser, The Metaphysical School of Poetry, The English Satirists, Major Movements in Contemporary English Fiction, and the like. May be repeated with new content. Maximum credit six units.

Comparative Literature

(See page 193)

Creative Writing

570. *(140.)* **Techniques of Poetry (3) I, II**
A study of the critical and theoretical literature of poetry, from the creative writer's viewpoint, together with reading and discussion of appropriate examples.

571A-571B. *(142A-142B.)* **Techniques of Fiction (3-3) I, II**
A study of the critical and theoretical literature of fiction, from the creative writer's viewpoint, together with reading and discussion of appropriate examples. Semester I: Short Fiction. Semester II: The Novel.

572. *(144.)* **Techniques of Drama (3) I**
A study of the critical and theoretical literature of drama, from the creative writer's viewpoint, together with reading and discussion of appropriate examples.

579. *(149.)* **Topics in Techniques of Writing (3) I, II**
A study of the critical and theoretical literature of literary technique or topic such as satire, science fiction, myth and fantasy, children's literature, the long poem, the literary anatomy, etc. May be repeated with new content. Maximum credit six units.

580. *(170.)* **The Writing of Poetry (3) I, II**
Prerequisite: English 280.
A writing workshop in poetry. May be repeated with new content. Maximum credit six units.

581. *(171.)* **The Writing of Fiction (3) I, II**
Prerequisite: English 280.
A writing workshop in fiction. May be repeated with new content. Maximum credit six units.

582. *(172.)* **The Writing of Nonfiction (3) I**
Prerequisite: English 280.
A writing workshop in nonfictional prose. May be repeated with new content. Maximum credit six units.

589. *(179.)* **Senior Workshop in Creative Writing (3) I, II**
An advanced workshop intended only for students who have an extensive background in creative writing. Different sections of the course may treat advanced poetry writing, advanced fiction writing, or other special topics.

GRADUATE COURSES

600. *(290.)* **Introduction to Graduate Study (3)**
Prerequisite: Twelve upper division units in English.
Introduction to research methods and critical approaches common in the graduate study of literature, with attention to basic reference works, scholarly and critical journals, bibliographical techniques, editorial procedures, etc. Recommended for first semester graduate students. Prerequisite to graduate seminars.

610. *(234.)* **Literature of the Middle Ages (3)**
Prerequisite: Twelve upper division units in English.
Selected works in the literature of the Middle Ages with emphasis on Middle English prose and poetry exclusive of Chaucer.

612. *(235.)* **Renaissance Literature (3)**
Prerequisite: Twelve upper division units in English.
Selected works in the literature of the Renaissance.

614. *(236.)* **Restoration and Eighteenth Century Literature (3)**
Prerequisite: Twelve upper division units in English.
Selected works in the literature of the late seventeenth and the eighteenth centuries.

616. *(237.)* **Earlier Nineteenth Century Literature (3)**
Prerequisite: Twelve upper division units in English.
Selected works in the literature of the early nineteenth century.

617. *(238.)* **Later Nineteenth Century Literature (3)**
Prerequisite: Twelve upper division units in English.
Selected works in the literature of the later nineteenth century.

620. *(239.)* **Twentieth Century Literature (3)**
Prerequisite: Twelve upper division units in English.
Selected works in the literature of the twentieth century.

625. *(233.)* **American Literature (3)**
Prerequisite: Twelve upper division units in English, with courses in American literature strongly recommended.
Selected works of an author, period, or subject in American literature. Maximum credit six units applicable on a master's degree.

630. *(243.)* **Poetry (3)**
Prerequisite: Twelve upper division units in English.
Poetry as a literary form.

631. *(244.)* **Fiction (3)**
Prerequisite: Twelve upper division units in English.
Fiction as a literary form.

632. *(245.)* **Drama (3)**
Prerequisite: Twelve upper division units in English.
The drama as a literary form.

640. *(260.)* **Workshop in Creative Writing (3)**
Prerequisite: Consent of instructor and departmental adviser.
Criticism and coaching in the larger forms. Maximum credit six units applicable on a master's degree.

642. *(279.)* **Tutorial in Creative Writing (3)**
Prerequisites: Twelve upper division units in English, including at least six units in creative writing.
Individual guidance for advanced writers who wish to work on special projects in creative writing.

700. *(291.)* **Seminar: A Major Author (3)**
Prerequisite: An appropriate upper division or graduate level background course, and English 600.
The critical study of a major author, such as Shakespeare, Dickens, Mark Twain. May be repeated with new content. Maximum credit six units applicable on a master's degree.

710. *(292.)* **Seminar: A Cultural Period (3)**
Prerequisite: An appropriate upper division or graduate level background course, and English 600.
Advanced study, through its literature, of a cultural period such as the Renaissance, the Enlightenment, the Romantic revolution. May be repeated with new content. Maximum credit six units applicable on a master's degree.

720. *(293.)* **Seminar: Special Topics (3)**
Prerequisite: English 600.
Advanced study of such literary problems as Regionalism in America and Continental Influences on British Literature, or such topics as esthetics, the creative process, literary translation, teaching of composition and literature, and others. May be repeated with new content. Maximum credit six units applicable on a master's degree.

730. *(294.)* **Seminar: A Literary Type (3)**
Prerequisite: English 600.
Advanced study of a literary type, such as the Personal Essay, Epic, Tragedy. May be repeated with new content. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

European Studies

In the College of Arts and Letters

Faculty

European Studies is administered through the European Studies committee, composed of faculty members from the departments of Anthropology, Art, Classical and Oriental Languages and Literatures, Economics, French and Italian Languages and Literatures, Geography, Germanic and Slavic Languages and Literatures, History, Literature, Philosophy, Political Science, and Spanish and Portuguese Languages and Literatures, and the School of Business Administration. Professor Ernest Wolf is student adviser.

Offered by European Studies

Major in European studies with the A.B. degree in liberal arts and sciences.

European Studies Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Preparation for the major. Twenty-seven units to include Art 258 or 259; Economics 120 and 121, or Geography 101 and 102, or Political Science 110 and 130; History 105A-105B; and 12 units in Latin or one of the major European languages (French, German, Italian, Russian, Spanish) beyond the minimum of four units required in liberal arts and sciences.

Major. A minimum of 30 upper division units to be chosen with approval of the adviser and distributed as follows: six units in humanities to include European Studies 401A-401B or 402A-402B; six units in a major European foreign language; nine units in economics, geography, history or political science; six units in art, classics, comparative literature, music or philosophy; three units of electives. Majors in European studies must have their program for each semester approved by the adviser.

LOWER DIVISION COURSES

110. French Civilization (3) I
French culture from the earliest times to the Enlightenment, with emphasis on the people, their social and political institutions, their arts and letters. Not open to students with credit in French 421 or European Studies 310. (Formerly numbered Humanities 42.)

111. French Civilization (3) II
French culture from the Enlightenment to the present. Continuation of European Studies 110. Not open to students with credit in French 422 or European Studies 311. (Formerly numbered Humanities 43.)

120. German Civilization (3) I
The major currents and characteristics of German culture of the Middle Ages and the Renaissance as expressed in literature, art and philosophy. Not open to students with credit in European Studies 320. (Formerly numbered Humanities 44.)

121. German Civilization (3) II
The major currents and characteristics of German culture as expressed in literature, art and philosophy since the Renaissance. Not open to students with credit in European Studies 321. (Formerly numbered Humanities 45.)

130. Russian Civilization (3) I
The major currents and characteristics of Russian culture, as expressed through the centuries in literature, art, philosophy and music from the beginnings to early 19th century. Not open to students with credit in European Studies 330. (Formerly numbered Humanities 52.)

131. Russian Civilization (3) II
Modern Russia's cultural development from early 19th century (The Golden Age) to the present. Not open to students with credit in European Studies 331. (Formerly numbered Humanities 53.)

140. Italian Civilization (3) I
The major aspects of Italian civilization with emphasis on literature, art, philosophy, music and history from the earliest times to the Renaissance. Not open to students with credit in European Studies 340. (Formerly numbered Humanities 54.)

141. Italian Civilization (3) II
Continuation of European Studies 140 from the Renaissance to the present. Not open to students with credit in European Studies 341. (Formerly numbered Humanities 55.)

UPPER DIVISION COURSES

301-S. European Civilization (3) S
The civilization of Europe through a conducted travel tour. (Formerly numbered Humanities 48-S.)

310. French Civilization (3) I
French culture from the earliest times to the Enlightenment, with emphasis on the people, their social and political institutions, their arts and letters. Not open to students with credit in French 421 or European Studies 110. (Formerly numbered Humanities 142.)

311. French Civilization (3) II
French culture from the Enlightenment to the present. Continuation of European Studies 310. Not open to students with credit in French 422 or European Studies 111. (Formerly numbered Humanities 143.)

320. German Civilization (3) I
Investigation of the forces shaping German civilization in the Middle Ages and the Renaissance. Emphasis on history of ideas with reference to their manifestations in the arts and social institutions. Not open to students with credit in European Studies 120. (Formerly numbered Humanities 144.)

321. German Civilization (3) II
Investigation of the forces shaping German civilization since the Renaissance. Emphasis on history of ideas with reference to their manifestations in the arts and social institutions. Not open to students with credit in European Studies 121. (Formerly numbered Humanities 145.)

330. Russian Civilization (3) I
The major currents and characteristics of Russian culture, as expressed through the centuries in literature, art, philosophy and music from the beginnings to early 19th century. Not open to students with credit in European Studies 130. (Formerly numbered Humanities 152.)

331. Russian Civilization (3) II
Modern Russia's cultural development from early 19th century (The Golden Age) to the present. Not open to students with credit in European Studies 131. (Formerly numbered Humanities 153.)

340. Italian Civilization (3) I
The major aspects of Italian civilization with emphasis on literature, art, philosophy, music and history from the earliest times to the Renaissance. Not open to students with credit in European Studies 140. (Formerly numbered Humanities 154.)

341. Italian Civilization (3) II
Continuation of European Studies 340 from the Renaissance to the present. Not open to students with credit in European Studies 141. (Formerly numbered Humanities 155.)

350. Spanish Civilization (3)
The principal aspects of Spanish civilization with emphasis on literature, philosophy and the arts. Not open to students with credit in Spanish 440. (Formerly numbered Humanities 140.)

400-S. *(148-S.)* **European Civilization (3) S**
The civilization of Europe through a conducted travel tour.

401A-401B. The Cultural Heritage of Europe I, II (3-3) I, II
European history, literature, philosophy, art and music from the Middle Ages to the French Revolution, stressing major cultural movements: Romanesque, Gothic, Renaissance, Baroque, Rococo, and Classicism. (Formerly numbered Humanities 150A-150B.)

402A-402B. The Cultural Heritage of Europe III, IV (3-3) I, II

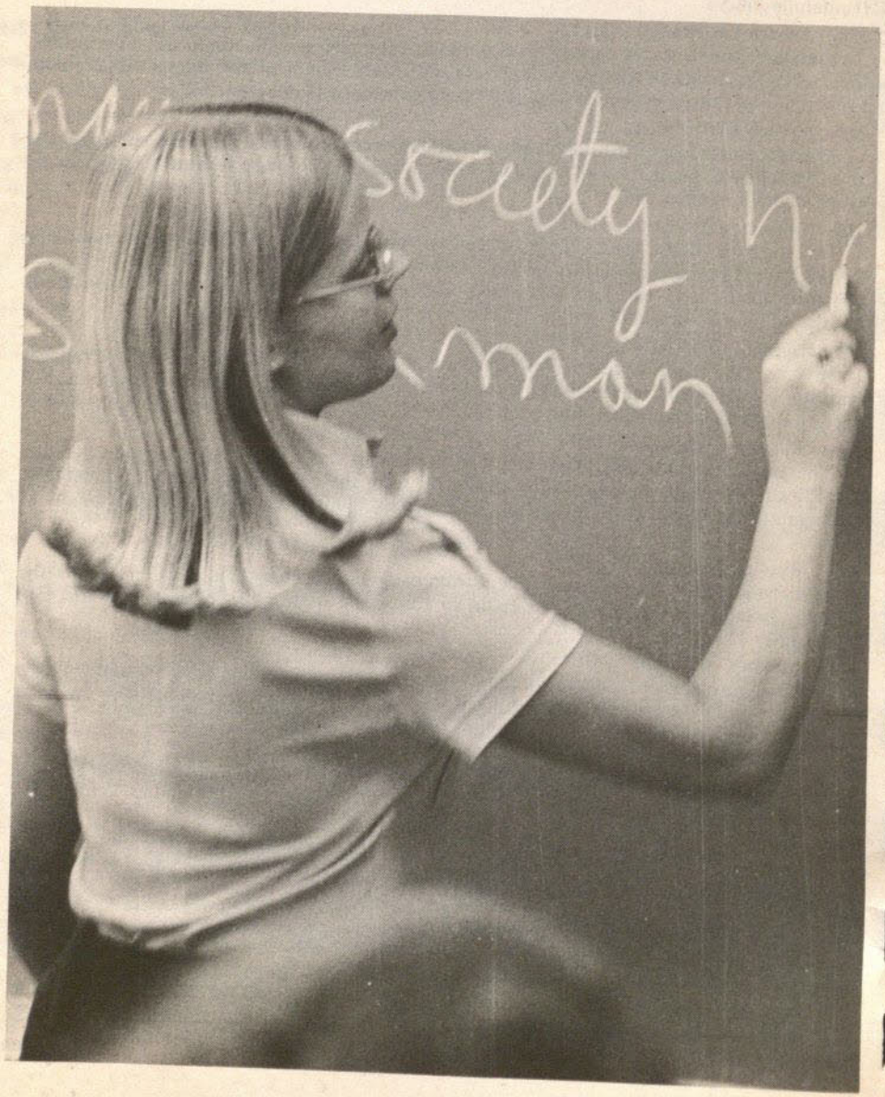
European history, literature, philosophy, art and music during the 19th and 20th centuries, stressing major cultural movements: Romanticism, Realism, Naturalism, Symbolism, Expressionism, Existentialism, and Structuralism. (Formerly numbered Humanities 151A-151B.

498. Senior Seminar (3)

Advanced study of an aspect of European studies. May be repeated with new content. Maximum credit six units.

580. Topics (3)

Special topics appropriate to the interdisciplinary study of Europe. Reading, observation and evaluation of scholarly literature of topic under consideration. May be repeated with new content. Maximum credit six units.



Family Studies and Consumer Sciences

In the College of Professional Studies

A member of the American Home Economics Association

Faculty

Emeritus: Comin, Thomas
Professors: Cannon, Dorris, Fulcomer (Director), Somerville, Warmer
Associate Professors: Anderson, Gunning, Milne, Price
Assistant Professors: Boggs, Dickerson, Hambleton, Kwallek, Martin, K.J., Martin, M., Schupp, Wertz
Lecturers: Considine, Hewes, Hill, Kripke, Mikitka, Pollock, Richards, Ross, Warner, Wesolowski

Offered by Family Studies and Consumer Sciences

Master of Science degree in home economics.
Major in home economics with the A.B. degree in applied arts and sciences.
Major in child development with the B.S. degree in applied arts and sciences. (Refer to the section of this catalog on Interdisciplinary Programs.)
Minor in home economics.
Teaching major in home economics for the single subject teaching credential.

Home Economics Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Two plans are provided for the major in home economics: Plan A for students interested in the area of Foods and Nutrition; and Plan B for students interested in the area of Home Economics.

Plan A: Emphasis in Foods and Nutrition

This program is planned for students interested in qualifying professionally in the field of dietetics, institutional food management or commercial home economics. A student who successfully completes this program and receives departmental recommendation is eligible to apply for a year of internship under auspices of the American Dietetic Association. Upon completion of an administrative food clinic, or dietetic internship, or a 12-24 months' apprenticeship under a qualified dietitian in a recognized hospital, a student is eligible for membership in the American Dietetic Association and recognition as a qualified dietitian. Additional foods and nutrition careers include extension service, teaching, business, health agencies, and research.

Preparation for the major. Family Studies and Consumer Sciences (Home Economics) 115, 240, 245; Family Studies and Consumer Sciences (Foods and Nutrition) 103, 104; Family Studies and Consumer Sciences (Family Studies and Child Development) 270; Art 101; three units of biology; Business Administration 210A; Chemistry 100A-100B, 160; Economics 120; Physics 107; Sociology 101; and Microbiology 210. (49 units.)

Major. A minimum of 37 upper division units to include Family Studies and Consumer Sciences (Foods and Nutrition) 401, 402A, 403, 404, 405, 406, 480; Family Studies and Consumer Sciences (Home Economics) 451, 452, 482; and six units selected with consent of the adviser from Business Administration.

Plan B: Home Economics

Preparation for the major. Family Studies and Consumer Sciences 204, 119, 151, 240, 245; Family Studies and Consumer Sciences (Family Studies and Child Development) 135, 270; Anthropology 101 or 400B or Sociology 101; Art 101; Economics 103 or 121 or 304; Chemistry 100A, 100B. Family Studies and Consumer Sciences 103 is needed for Home Management sequence. (36-39 units.)

Major. A minimum of 36 upper division units selected from one of the core professional sequences listed below.

Core Professional Sequences.

Clothing Design: Family Studies and Consumer Sciences 315, 316, 317, 323, 360, 518, 519, 520, 521, 522; Art 577; Industrial Arts 540.

Consumer Services in Clothing and Textiles: Family Studies and Consumer Sciences 315, 316, 317, 323, 440, 481, 518, 519, 520, 521, 522; Business Administration 370.

Fashion Merchandising: Family Studies and Consumer Sciences 315, 317, 360, 361, 462, 519, 520, 522; Business Administration 315, 350, 370, 372, 373.

Home Management and Family Economics: Family Studies and Consumer Sciences 343, 355, 371, 400, 440, 451, 452, 482, 545, 553; Family Studies and Consumer Sciences (Family Studies and Child Development) 536; Sociology 424.

Housing and Environmental Factors: Family Studies and Consumer Sciences 343, 345, 440, 446, 451, 545, 546; Art 550; Business Administration 231, 370; Geography 354; Public Administration 320. The prerequisites for Art 550 and Geography 354 have been waived.

Home Economics Minor

The minor in home economics consists of a minimum of 18 units in family studies and consumer sciences, six units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

Home Economics Major

For the Single Subject Teaching Credential

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

The major may be used by students in teacher education as an undergraduate major for the A.B. degree in applied arts and sciences..

Preparation for the major. Family Studies and Consumer Sciences 103, 204, 119, 151, 240, 245; Family Studies and Consumer Sciences (Family Studies and Child Development) 135, 270; Anthropology 101 or Sociology 101; Art 101; Chemistry 100A, 100B; Economics 103 or 121. (39 units.)

Major. A minimum of 34 upper division units in Family Studies and Consumer Sciences to include 315 or 518, plus three additional units in clothing and textiles; 335 or 536, 343, 371, 400 or 401, 440, 451, 483, 545, 584.

LOWER DIVISION COURSES

299. *(99.)* **Experimental Topics (2-4) I**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

Foods and Nutrition

101. *(101.)* **Food Management and Preparation (3) I, II**

One lecture and six hours of laboratory.

Not open to home economics majors and minors.

Planning, preparing and serving nutritionally adequate meals for different income levels, life styles and cultures.

103. *(3.)* **Food Science I (3) I, II**

One lecture and six hours of laboratory.

Composition and properties of food related to quality characteristics, methods of preparation, evaluation and use of selected foods.

204. *(4.)* **Fundamentals of Nutrition (3) I, II**

Nutrition as applied to the stages of the normal life cycle.

Home Economics

115. *(15.)* **Clothing and Textiles (3) I, II**

One lecture and six hours of laboratory.

Commercial patterns and their adaptation; fitting and construction; selection and care of textiles.

119. *(19.)* **Textiles (3) I, II**

One lecture and six hours of laboratory.

Prerequisite: Chemistry 100B.

Fibers, yarn, fabric construction, and finishes as related to selection, use, and care.

151. Home Management Decision Making (3) I, II

Examination of value systems and application of principles of decision making to individual, professional and family management in changing situations.

240. *(40.)* **Family Income Management (3) I, II**

Financial problems involved in the effective management of the family resources.

245. *(45.)* **Fundamentals of Housing and Interiors (3) I, II**

Prerequisite: Art 101.

Architectural, functional and aesthetic factors of housing and interiors as related to family needs.

Family Studies and Child Development

135. *(35.)* **Marriage and Family (3) I, II**

Love, maturity, dating, compatibility, conflict as they relate to preparation for successful marriage and family living. Not open to students with credit in Social Welfare 130.

270. *(70.)* **Principles of Child Development (3) I, II**

Prerequisites: Psychology 101 and Sociology 101.

Study of the child from conception through adolescence, with emphasis on principles of growth and development. Directed observations of children. Not open to students with credit in Psychology 330, or Elementary Education 372.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**

Refer to Honors Program.

496. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**

Individual study. Maximum credit six units.

Prerequisite: Consent of instructor.

590. *(190.)* **Advanced Studies in Family Studies and Consumer Sciences (2-6) Irregular**

Prerequisite: Twelve upper division units in Family Studies and Consumer Sciences.

Advanced study of selected topics. Maximum credit nine units. No more than six units may be applied toward either the bachelor's or master's degree.

Foods and Nutrition

400. *(109.)* **Meal Management and Service (3) I, II**

One lecture and six hours of laboratory.

Prerequisites: Family Studies and Consumer Sciences 103 and 104.

Planning, organizing, preparing, and serving meals with consideration of nutritional needs and the time, energy, and money resources available.

401. *(100.)* **Food Science II (3) I, II**

One lecture and six hours of laboratory.

Prerequisites: Family Studies and Consumer Sciences 103, Chemistry 100B or 200B, and Physics 107.

Study of the chemical and physical properties of foods; principles underlying preparation of food products of standard quality; function and interaction of food constituents.

402A. *(102.)* **Advanced Nutrition (3) I, II**

Prerequisites: Family Studies and Consumer Sciences 204; one course in biochemistry; concurrent registration in Family Studies and Consumer Sciences 402B.

Integrated approach to nutrition principles and human nutrient requirements.

402B. Advanced Nutrition Laboratory (3) I, II
Six hours of laboratory.
Prerequisites: Credit or concurrent registration in Family Studies and Consumer Sciences 402A.
Experimental techniques used in nutrition studies.

403. *(103.)* Quantity Food Production (3) I, II
Eight hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 400.
Planning, preparation and service of quantity foods in various food service operations with students working under joint supervision of facility managers and course instructor.

404. *(104.)* Food Systems Management (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 403.
Managerial Functions in food service systems.

405. *(105.)* Experimental Food Science (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 401.
Physical and chemical testing of food materials and processes; review of related literature.

406. *(106.)* Diet Therapy (3) I
Two lectures and three hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 402A.
Dietary modification for pathological conditions.

480. *(180.)* Food Demonstration Techniques (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Nine units in Family Studies and Consumer Sciences.
Organizing materials and developing techniques for demonstrations; observation, evaluation and participation in professional demonstrations for photography, the classroom and mass media.

507. Processing Food and Nutrition Data (3) II
One lecture and six hours of laboratory.
Prerequisites: Family Studies and Consumer Sciences 402A and 403.
Application of computer logic to food service management, diet planning and analysis.

508. *(108.)* Advanced Food Systems Management (3) II
One lecture and six hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 404.
Analysis of current topics in food systems management. Application of management principles in individual special projects.

510. Nutrition and Community Health (3) Irregular
Two lectures and three hours of laboratory.
Prerequisites: Family Studies and Consumer Sciences 402A and 402B.
Exploration of nutrition problems in the community with consideration of current and potential means of resolving them.

Home Economics

315. *(115.)* Advanced Clothing (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 115 or competency examination.
Fitting and construction processes applied to wool, silk, and synthetics, emphasizing fundamental principles of handling.

316. *(116.)* Tailoring (3) I
One lecture and six hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 315.
Principles of tailoring; planning and construction of coats and suits.

317. *(117.)* Fashion Analysis and Clothing Selection (3) I, II
Analysis of fashion as it relates to clothing selection. Emphasis on fashion trends, wardrobe planning, buying practices, and standards of quality.

323. *(123.)* Fabric Structure and Design Processes (3)
One lecture and six hours of laboratory.
Prerequisite: Art 101.
A study of stitchery, knitting, crocheting, weaving, macrame, and textile decoration.

343. *(143.)* Household Equipment and Processes (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Chemistry 100B.
Study and laboratory experience to acquaint students with current research findings in relation to equipment and household supplies. Emphasis placed upon characteristics and composition of household materials, use and care.

345. Housing and Interiors: Historical Influences (3) I
Historical influences of structures, interiors and furnishings as they express cultural needs and values. Critical appraisal of aesthetic and functional qualities of historical and contemporary housing environments.

350. *(150.)* Principles of Home Management (3) I, II
Efficient management of the home, family cooperation, establishment of goals, and productive use of money, time, and energy. Not open to home economics majors, or to students with credit in Family Studies and Consumer Sciences 451.

355. Time and Human Resource Management (3) I, II
Analysis of time and human resources with application to the environment.

360. *(160.)* Fashion Merchandise Analysis (3) I, II
Contemporary problems of production and distribution of textiles and clothing.

361. Fashion Merchandise Practicum (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Family Studies and Consumer Sciences 317, 360 and consent of program adviser.
Supervised experience in apparel merchandising procedures through a cooperative program with a retail establishment.

440. *(140.)* Family Financial Problems and Practices (3) I, II
Prerequisite: Family Studies and Consumer Sciences 240.
Financial problems and practices of families; decision making with respect to market goods and services; consumer protection programs.

446. Housing and Interiors: Contemporary Design (3) II
One lecture and six hours of laboratory.
Influence of contemporary designers on structure, interiors and furnishings used in planning the total housing environment.

451. *(151.)* Home Management Theory and Analysis (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Family Studies and Consumer Sciences 151, 240 and 400.
Concepts of home management related to ethnic and socioeconomic needs of families. Practical application in home management residence and field experience.

452. *(152.)* Home Management Laboratory (3) I, II
Five weeks' residence in a family-size unit.
Prerequisites: Family Studies and Consumer Sciences 451 and written request made to department chairman one year prior to enrollment.
Application of theories and principles of all disciplines of home economics.

462. Fashion Merchandising Seminar (3)
Prerequisite: Family Studies and Consumer Sciences 361.
Intensive and specific consideration of practices and problems related to the apparel industry.

481. *(181.)* Materials and Techniques for Teaching Home Economics (3) II
Prerequisite: Fifteen upper division units in Family Studies and Consumer Sciences.
Use of instructional materials in home economics. Application and development of individualized instructional products, demonstration materials and other instructional aids. Selection and evaluation of instructional materials for home economics.

482. *(182.)* **Educational Practices and Instructional Resources (3) I, II**
Prerequisite: Fifteen units in Family Studies and Consumer Sciences.
Principles of learning as they relate to teaching home economics to adults. Organization of material; selection, use and evaluation of teaching techniques.

483. Program Development in Home Economics (3) I, II
Prerequisites: Twelve upper division units in Family Studies and Consumer Sciences; admission to secondary education credential program.
Development and design, instructional procedures and evaluation strategies for consumer-home economics programs.

518. *(118.)* **Clothing Design: Flat Pattern (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 315.
Problems involving principles and techniques of flat pattern construction. Development of basic sloper for purpose of interpreting new designs. Investigation of sources of inspiration and their relationship to significant trends in design.

519. *(119.)* **Textile Analysis and Testing (3) II**
One lecture and six hours of laboratory.
Prerequisites: Family Studies and Consumer Sciences 119 and Chemistry 100B.
Analysis based on physical and chemical tests for quality differences due to variation in fibers, content, structure, and finishes and their suitability for specified uses.

520. *(120.)* **Clothing and Human Behavior (3) II**
Socioeconomic influences on consumer clothing behavior patterns.

521. *(121.)* **Clothing Design: Draping (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 315.
Experience in creative designing through fabric manipulation. Designer problems related to mass-production techniques.

522. *(122.)* **Clothing Design: Historical Influences (3) I**
One lecture and six hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 315.
Chronological analysis of men's and women's fashions providing inspiration for original creations in clothing design.

545. *(145.)* **Family Housing (3) II**
One lecture and six hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 245.
Advanced housing problems at various stages of the family life cycle and the different socioeconomic levels.

546. Environmental Factors of Housing (3) I
Prerequisite: Family Studies and Consumer Sciences 545.
Problems of developing effective housing for families in various cultural situations. Investigation of sociopsychological, economic and legislative factors of housing.

553. *(153.)* **Supervised Field Work in Home Management (3) I, II**
One lecture and six hours of laboratory.
Prerequisites: Family Studies and Consumer Sciences 103, 371, 451, 536.
Management and social problems as they relate to the home and family. Supervised field work with various community agencies and selected families.

584. Occupational Home Economics Programs (3) I
Prerequisite: Twelve upper division units in Family Studies and Consumer Sciences.
Vocational education legislation; development and administration of occupational and career programs in all areas of home economics.

Family Studies and Child Development

335. *(135.)* **Family Interaction (3) I, II**
Prerequisite: Family Studies and Consumer Sciences 135.
Marriage adjustment and family interaction throughout the life cycle.

371. *(171.)* **Human Development: Early Childhood (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 270 or Psychology 330.
Physical, social, emotional, and intellectual development of the young child with applications for guidance. Observing, recording individual and group behavior of children.

436. The Child, Family and Society (3) I, II
Historical and cross-cultural perspectives on parental roles and societal interventions in childbearing and rearing. Current issues concerning family size, responsibility and institutional aids.

476. *(176.)* **Creativity in the Young Child (3) II**
Prerequisite: Family Studies and Consumer Sciences 575.
An examination of creativity; philosophical approach to experiences which would be appropriate for use with young children.

478. *(178.)* **Working with Parents (3) I, II**
Prerequisite: Family Studies and Consumer Sciences 270 or Psychology 330 or Elementary Education 372.
An investigation of philosophy, issues, and current trends in working with parents.

536. *(136.)* **Family Study (3) I, II**
Prerequisites: Family Studies and Consumer Sciences 135 and Sociology 101.
Dynamics of family living; attitudes, practices, social and psychological interaction and family life patterns in different cultures, social classes and ethnic groups.

539. Family Relationships in Literature (3) I, II
Insights through creative literature into the variations in relationships between the sexes and between generations in various cultures and subcultures. Fiction viewed as social documents which reveal changing expectations and ways of coping with stress.

570. *(170.)* **Human Development: Infancy (3) I, II**
Prerequisite: Family Studies and Consumer Sciences 270.
Physiological, psychological, social and cultural development and behavior of the human organism through age two.

575. *(175.)* **The Nursery School Program (3) I, II**
Prerequisites: Family Studies and Consumer Sciences 371; concurrent registration in Family Studies and Consumer Sciences 575L for one unit only.
Methods, materials, program development, and evaluation of current trends in working with young children.

575L. *(175L.)* **Laboratory Experiences in Nursery School (1-4) I, II**
Three hours of laboratory for each unit of credit.
Prerequisites: Family Studies and Consumer Sciences 371; first unit requires concurrent registration in Family Studies and Consumer Sciences 575. Application to take course must be made during the preceding semester.
Directed experiences in working with children in child development laboratory and other preschool situations. May be repeated with consent of instructor. Maximum credit four units.

577. *(177.)* **Administration and Supervision in Nursery Schools (3) Irregular**
Prerequisite: Family Studies and Consumer Sciences 476 or teaching experience in a nursery school.
Problems of organization in conducting schools for young children; interrelationships of staff; personnel practices; communication with teaching staff, parents, and community; records and reports.

579. *(179.)* **Advanced Child Study (3) I, II**
Prerequisite: Nine units in child development courses.
Physical, social, and psychological factors which determine the direction of child behavior. Readings and interpretations of scientific literature which contribute to an understanding of theories of human development

GRADUATE COURSES

Foods and Nutrition

600. *(200.)* **Seminar: Foods and Nutrition (3)**
Prerequisites: Family Studies and Consumer Sciences 401 and 402.
An intensive study of research in technological advances in the fields of foods and nutrition, with emphasis on professional organizations and ethical procedures.

603. *(203.)* **Advanced Readings in Food Technology (3)**
Prerequisite: Family Studies and Consumer Sciences 401.
Reading and analysis of selected research in food technology.

605. *(205.)* **Assay for Nutrients in Foodstuffs and Tissues (3)**
Two lectures and three hours of laboratory.
Prerequisites: Family Studies and Consumer Sciences 401 and 402.
Determination of energy values, organic nutrients, and minerals in foodstuffs and tissues by chemical, biological, and microbiological methods.

606. *(206.)* **Physiological Bases of Diet Therapy (3)**
Prerequisite: Family Studies and Consumer Sciences 406. Chemistry 361B or 560B is recommended.
The biochemical and/or physiological lesions in pathological states and the modifications of diet which should accompany medical treatment to prevent or alleviate patient symptoms.

607. *(207.)* **Child Nutrition (3)**
Two lectures and three hours of laboratory.
Prerequisite: Family Studies and Consumer Sciences 402.
Nutrition, health, and biochemical growth in children. Conditions leading to malnutrition, the prevention and correction of same.

700. *(204.)* **Advanced Readings in Nutrition (3)**
Prerequisite: Family Studies and Consumer Sciences 402.
Reading and analysis of selected research in nutrition.

Home Economics

615. *(215.)* **Seminar: Clothing (3)**
Prerequisite: Nine units in the area of clothing.
Selected problems in the field of clothing.

681. *(281.)* **Seminar: Home Economics Education (3)**
Prerequisite: Eighteen units in family studies and consumer sciences.
The study and evaluation of home economics research and philosophical principles which have implications for the secondary homemaking teacher.

682. *(282.)* **Current Development in Home Economics Education (3)**
Prerequisite: Eighteen units in Family Studies and Consumer Sciences.
Current issues and recent developments in home economics education with implications for secondary and post-high school programs.

Family Studies and Child Development

631. *(231.)* **Family Life and Sex Education (3)**
Prerequisite: Six units in child development and family relations.
Content, resources and alternative methods of presentation of family life and sex education for schools, colleges, churches and social agencies.

634. *(234.)* **Seminar: Marriage Adjustment (3)**
Prerequisite: Family Studies and Consumer Sciences 335.
Individual study, seminar reports, and group discussion of selected topics in marriage adjustment.

670. *(270.)* **Seminar: Child Development and Guidance (3)**
Prerequisite: Family Studies and Consumer Sciences 270 and 579.
Emphasis on personality theories and on research and clinical findings relevant to a systematic study of human development and the guidance of children.

671. *(271.)* **Advanced Readings in Human Development (3)**
Prerequisites: Family Studies and Consumer Sciences 270 and 579.
Analysis of selected research in human development.

790. *(290.)* **Research Methods (3)**
Prerequisite: Twelve upper division or graduate units in Family Studies and Consumer Sciences.
Analysis of research in the area of Family Studies and Consumer Sciences; criteria and procedures for conducting research.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with the director and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

French

In the College of Arts and Letters

Faculty

Emeritus: Brown
Professors: Max, Messier, Nelson, Piffard
Associate Professors: Branan, Glasgow, Jackson (Chairperson)
Assistant Professors: Ghilbert, Palmer, Woodle

Offered by the Department of French and Italian Languages and Literatures

Master of Arts degree in French.
Major in French with the A.B. degree in liberal arts and sciences.
Minor in French.
Teaching major in French for the single subject teaching credential in foreign languages.

French Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Students majoring in French must complete a minor in another field to be approved by the departmental adviser in French.

Preparation for the major. French 101, 102, 201, 202, 211, and 212. (20 units.) Recommended: History 105A-105B.

Major. A minimum of 24 upper division units in French to include French 311A-311B, 321A-321B, 401 or 411 or 431, and nine units of upper division courses in the language.

French Minor

The minor in French consists of a minimum of 15 units in French, six units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

French Major

For the Single Subject Teaching Credential in Foreign Languages

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in teacher education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Preparation for the major. French 101, 102, 201, 202, 211, 212. (20 units.)

Major. A minimum of 24 upper division units in French to include French 311A-311B, 321A-321B, 401, 421, 422, 431.

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school French may be counted as the equivalent of French 101; three years the equivalent of French 102; and four years the equivalent of French 201. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

Native speakers of French will not receive credit for taking lower division courses except with advance approval from the department.

All upper division courses in French are taught in French unless otherwise noted.

101. *(1.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on French culture and civilization, essentials of grammar. Not open to students who have completed three years of high school French.

102. *(2.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Prerequisite: French 101 or two years of high school French.
Continuation of French 101. Not open to students who have completed four years of high school French.

201. *(3.)* **Intermediate (4) I, II**
Prerequisite: French 102 or three years of high school French.
A practical application of the fundamental principles of grammar. Reading in French of cultural material, short stories, novels or plays; oral and written practice.

202. *(4.)* **Intermediate (4) I, II**
Prerequisite: French 201 or four years of high school French.
Continuation of French 201; outside reading with oral and written reports.

211. *(10.)* **Conversation (2) I, II**
Prerequisite: French 102 or three years of high school French.
Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

212. *(11.)* **Conversation (2) I, II**
Prerequisite: French 211 or French 201, or four years of high school French.
Continuation of French 211.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

311A-311B. *(101A-101B.)* **Advanced Grammar and Composition (3-3) I, II**
Prerequisites: French 202 and 212.
Advanced grammar and stylistics; intensive writing practice; reports based on outside reading.

321A-321B. *(102A-102B.)* **Survey of French Literature (3-3) I, II**
Prerequisites: French 202 and 212.
Important movements, authors, and works in French literature from the Middle Ages to the present.

331A-331B. *(144A-144B.)* **Masterpieces of French Literature (3-3)**
French literary masterpieces from the *Song of Roland* to the present. Taught in English.

401. *(150.)* **Advanced Phonetics and Diction (3) Irregular**
Prerequisites: French 202 and 212.
For students and teachers of French wishing to perfect their pronunciation and diction. Corrent formation of French sounds in isolation and combination. Class exercises, individual drill, and use of special discs and tape recording.

411. *(120.)* **Explication de Textes (3)**
Prerequisites: French 202 and 212.
An introduction to the analytical approach to the detailed study of literature. Demonstrations by instructor and students.

421. *(140.)* **French Civilization (3)**
Prerequisites: French 202 and 212.
French culture from the earliest times to the Enlightenment, with emphasis on the people, their social and political institutions, their arts and letters. Not open to students with credit in European Studies 110 or 310.

422. *(141.)* **French Civilization (3)**
Prerequisites: French 202 and 212.
French culture from the Enlightenment to the present. Continuation of French 421. Not open to students with credit in European Studies 111 or 311.

431. *(148.)* **Applied French Linguistics (3)**
Prerequisites: French 311A-311B.
Phonemics, morphemics, syntax and semantics of present day French.

496. *(184.)* **Topics in French Studies (1-4)**
Prerequisites: French 311A-311B (when offered in French).
Topics in French language, literature, culture and linguistics. May be repeated with new content. Maximum credit eight units. Taught in French or English. See class schedule.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in French available in any given semester.
Prerequisite: Consent of staff.

501A-501B. *(112A-112B.)* **French Poetry (3-3)**
Prerequisites: French 311A-311B.
The French poetic tradition and its development from the Middle Ages to the present.

511. *(117.)* **Renaissance and Baroque Literature (3)**
Prerequisites: French 311A-311B.
Readings from the major writers of the Renaissance and Baroque periods.

521A-521B. *(111A-111B.)* **Seventeenth Century French Literature (3-3)**
Prerequisites: French 311A-311B.
Semester I: Major seventeenth century dramatists with emphasis on Corneille, Moliere, and Racine. Semester II: Major works of seventeenth century poets and prose writers.

531A-531B. *(107A-107B.)* **Eighteenth Century French Literature (3-3)**
Prerequisites: French 311A-311B.
The works of Montesquieu, Voltaire, Rousseau, the Encyclopedistes, as well as the theatre and novel of the period. Outside reading and reports.

541A-541B. *(110A-110B.)* **Nineteenth Century French Novel (3-3)**
Prerequisites: French 311A-311B.
Major novelists of the nineteenth century.

543. *(105.)* **Nineteenth Century French Theatre (3)**
Prerequisites: French 311A-311B.
Intensive study of nineteenth century plays.

551. *(114.)* **Twentieth Century French Novel (3)**
Prerequisites: French 311A-311B.
Major novelists of twentieth century France.

552. *(115.)* **Twentieth Century French Theatre (3)**
Prerequisites: French 311A-311B.
Major dramatists of twentieth century France.

GRADUATE COURSES

601. *(290.)* **Introduction to Graduate Study (3)**
Prerequisite: Eighteen upper division units in French.
Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation.

611. *(201.)* **History of the French Language (3)**
Prerequisite: Eighteen upper division units in French.
The history of the French language from the beginnings through the sixteenth century.

621. *(230.)* **Methods of Literary Criticism (3)**
Prerequisite: Eighteen upper division units in French.
Theory and practice of various traditional and modern critical approaches to specific literary texts.

701. *(202.)* **Medieval French Literature (3)**
Prerequisites: Eighteen upper division units in French and French 611.
Readings in the principal movements, trends and genres of medieval French literature from the beginnings through Francois Villon.

711. *(203.)* **Literature of the French Renaissance (3)**
Prerequisites: Eighteen upper division units in French and French 611.
Literature and thought of the 16th century as represented in the works of Rabelais, Montaigne, Ronsard, Du Bellay, etc.

721. *(250.)* **Seminar in Seventeenth Century French Literature (3)**
Prerequisite: Eighteen upper division units in French.
Directed research in the works of a representative author, genre or movement. Maximum credit six units applicable on a master's degree.

731. *(260.)* **Seminar in Eighteenth Century French Literature (3)**
Prerequisite: Eighteen upper division units in French.
Directed research in the works of a representative author, genre or movement. Maximum credit six units applicable on a master's degree.

741. *(270.)* **Seminar in Nineteenth Century French Literature (3)**
Prerequisite: Eighteen upper division units in French.
Directed research in the works of a representative author, genre or movement. Maximum credit six units applicable on a master's degree.

751. *(280.)* **Seminar in Twentieth Century French Literature (3)**
Prerequisite: Eighteen units of upper division French.
Directed research in the works of a representative author, genre or movement. Maximum credit six units applicable on a master's degree.

796. *(284.)* **Topics in French Literature (3)**
Prerequisite: Eighteen upper division units in French.
Study of movement, genre, theme, myth or individual author. May be repeated with new content. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisites: Eighteen upper division units in French and consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit three units applicable on a master's degree.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

General College

Students interested in enrolling in General College 200 or 400 should contact the faculty adviser of the on-campus association sponsoring the activity. These courses may not be used to satisfy course requirements for the major or minor. No combination of General College 200 and 400 in excess of six units may be counted for credit on a bachelor's degree program.

200. *(99.)* **Selected Activities (1-3) Cr/NC**
Prerequisites: Twelve units of college credit and a minimum grade point average of 2.0.
Supervised experience in college or community activities. No combination of General College 200 and General College 400 in excess of six units may be counted for credit in a bachelor's degree program.

400. *(199.)* **Selected Activities (1-3) Cr/NC**
Prerequisite: A minimum grade point average of 2.0.
Supervised experience in college and/or community activities. No combination of General College 200 and General College 400 in excess of six units may be counted for credit in a bachelor's degree program.

Geography

In the College of Arts and Letters

Faculty

Emeritus: Molitor, Post, Richardson, Storm

Professors: Eidemiller, Finch, Greenwood, Keen (Chairman), Kiewiet de Jonge, O'Brien, Taylor, Wright, Yahr

Associate Professors: Blick, Ford, Heiges, Johnson, Pryde, Quastler, Stutz

Assistant Professors: Colombo, Fredrich, Griffin, McArthur

Lecturer: Klee

Offered by the Department

Master of Arts degree in geography.

Major in geography with the A.B. degree in liberal arts and sciences.

Minor in geography.

Geography Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Students majoring in geography must complete a minor in another field to be approved by the major adviser.

Preparation for the major. Geography 101 and 102. (6 units.) Four to six units selected from Geography 103, 104, 105, 154 and 170 are strongly recommended.

Major. A minimum of 24 upper division units in geography to include three units from courses numbered 501-509; three units from courses numbered either 310-311, 350-371, or 551-576; three additional units from either of the above groups; three units from courses numbered 320-339; three units from 382, 585, 587, 589; three units from 380 or 381; three units from 498 taken from three different instructors; and three units of electives.

Geography Minor

The minor in geography consists of a minimum of 15 units in geography, nine units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

101. *(1.)* **Introduction to Physical Geography (3) I, II**

The nature of maps, weather and climates of the world; natural vegetation; land forms and their associated soils, with reference to their climatic relationships; the seas and their coasts. Related field observations.

102. *(2.)* **Introduction to Cultural Geography (3) I, II**

Introduction to cultural geography, covering the elements of culture, such as technology, race, language, religion, political organization, methods of livelihood, settlement patterns and population, and the regional distribution of these elements over the earth. A maximum of six units will be allowed for Geography 102 and 312A or 312B.

103. *(3.)* **Introduction to Meteorology (3) I, II**

The composition, structure, and circulation of the atmosphere, including elementary theory of storms and other weather disturbances. May be followed by, or taken with, Geography 104.

104. *(4.)* **Introduction to Meteorology Laboratory (1) I, II**

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geography 103.

Theory of meteorological instruments and observations. Practical exercise in surface and upper air observations, weather codes, and elementary weather map analysis.

105. *(5.)* **Physical Geography Laboratory (1) I, II**

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geography 101.

Practical exercise and observation in map analysis, weather elements, climatic regions, and the earth's landform features. Designed to supplement Geography 101.

154. *(54.)* **Urban Geography (3) I, II**

Prerequisite: Geography 101 or 102.

The principles and concepts of urban geography, the origin and development of cities, urbanization, and urban problems. Not open to students with credit in Geography 354.

170. *(7.)* **Man and the Environmental Problem (3) I, II**

Man's impact upon and interaction with the natural environment, including suggested alternatives to existing abuses.

180. *(18.)* **Basic Map and Aerial Photograph Reading (3)**

Two lectures and three hours of laboratory.

The nature and use of maps and aerial photographs in geography.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**

Refer to Honors Program.

310. *(110.)* **Historical Geography (3) I, II**

Prerequisite: Geography 101 or 102.

Transformation of the natural and cultural landscape with emphasis on the utilization and significance of resources. Exploration, migration, and settlement in relation to geographic phenomena.

311. *(111.)* **Principles of Geographical Analysis (3)**

Prerequisites: Geography 101 and 102.

Major concepts and techniques of the field of geography.

312A-312B. *(112A-112B.)* **Culture Worlds (3-3)**

The evolution, distinguishing cultural characteristics, and physical features of the major cultural regions of the world, with emphasis on the role man has played in the alteration of the natural landscape. Maximum credit of six units will be allowed for Geography 102 and 312A or 312B.

320. *(120.)* **California (3) I, II**

Prerequisite: Geography 101 or 102.

Systematic and regional analysis of the topography, climate, natural vegetation, and their relationships with the past and present activities of man and his use of the land; field trip. Offered in summer with a 10-day tour.

321. *(121.)* **United States (3) I, II**

Prerequisite: Geography 101 or 102.

The natural regions of the United States, their formation and economic and historical development.

322. *(122.)* **Canada and Alaska (3) II**

Prerequisite: Geography 101 or 102.

The physical and historical bases of Canadian and Alaskan regionalism; the economic and strategic importance of these two areas.

323. *(123.)* **Middle America (3) I, II**

Prerequisite: Geography 101 or 102.

The land and peoples of Mexico, Central America, and the islands of the Caribbean; a survey of the resources, economies, and trade of the region.

324. *(124.)* **South America (3) I, II**

Prerequisite: Geography 101 or 102.

The physical regions and human geography of South America, including the history of colonization and the exploitation of resources.

325. *(119.)* **Geography of San Diego County (3)**

Saturday field trips to be arranged.

Prerequisites: Geography 101 and 102.

Analysis of the physical and cultural geographic aspects of San Diego County. Completion of Geography 501, 505, 508, and 509 will be helpful to students enrolling in this course.

330. *(130.)* **Central and Southern Africa (3) I**
Prerequisite: Geography 101 or 102.
A regional geography of Africa south of the Sahara; the physical geographic base for the peoples and their economic activities.

331. *(131.)* **Eastern Asia (3) I**
Prerequisite: Geography 101 or 102.
The geographic bases for the political heritage, economies, and peoples of Eastern Asia.

333. *(133.)* **Southeastern Asia (3)**
Prerequisite: Geography 101 or 102.
The geographic bases for the political heritage, economies, and peoples of Southeastern Asia.

334. *(134.)* **Southern Asia (3)**
Prerequisite: Geography 101 or 102.
The geographic bases for the political heritage, economies, and peoples of Southern Asia.

335. *(125.)* **North Africa and the Near East (3) I, II**
Prerequisite: Geography 101 or 102.
The geographic bases for the political heritage, economies, and peoples of North Africa, including the Sahara and the Near East.

336. *(126.)* **Europe (3) I, II**
Prerequisite: Geography 101 or 102.
Systematic analysis of the geographic bases of modern European life. Regional investigation of countries of Europe except the Soviet Union.

337. *(127.)* **Soviet Union (3) I, II**
Prerequisite: Geography 101 or 102.
Natural resources, agricultural production, industrial growth, and transportation.

339. *(129.)* **Oceania (3)**
Prerequisite: Geography 101 or 102.
The physical geography, peoples, economies, and trade of Oceania, Australia, and New Zealand.

350. *(150.)* **Political Geography (3) I, II**
Geography as it relates to the strength of nations and international relations.

351. *(151.)* **Economic Geography: Primary Production (3) I**
Prerequisite: Geography 101 or 102.
The geography of agricultural production and the extractive industries in relation to world commerce.

352. *(152.)* **Industrial Geography (3) II**
Prerequisite: Geography 101 or 102.
Principles of industrial location, with emphasis on the distribution of the world's major manufacturing regions.

354. *(154.)* **Geography of Cities (3) I, II**
Prerequisite: Geography 102.
Survey of the location, function and spread of cities; the spatial and functional arrangement of activities in cities, leading to an analysis of current urban problems: sprawl, city decline, metropolitan transportation. Not open to students with credit in Geography 154.

358. *(158.)* **Transportation Geography (3)**
Prerequisite: Geography 101 or 102.
The spatial distribution of transportation networks and commodity movement and their relationship to the distribution of economic activity.

370. *(170.)* **Conservation of Environmental Quality (3) I, II**
Prerequisite: Geography 101 or 102.
Quality of man's habitat in a changing human and natural environment; water, air and soil pollution, urban crowding, disappearance of open space, and decreasing opportunities for outdoor recreation.

371. *(171.)* **Conservation of Natural Resources (3) I, II**
Prerequisite: Geography 101 or 102.
Nature and extent of mineral, soil, water, forest, and wildlife resources and their conservation, with particular emphasis on the United States against a general background of world resources. Conservation philosophies and practices and their geographic bases.

380. *(183.)* **Map Investigation (3) I**
Two lectures and three hours of laboratory.
Prerequisite: Geography 101 or 102.
Use of the map as an analytical tool in geography. History of developments in cartography.

381. *(181A.)* **Maps and Graphic Methods (3) I, II**
Two lectures and three hours of laboratory
Prerequisite: Geography 101 or 102.
The art and science of creating graphs and maps as media for describing and analyzing geographic phenomena. Laboratory instruction and practice in cartographic techniques with emphasis on presenting quantitative data.

382. *(182.)* **Use and Interpretation of Aerial Photographs (3) II**
Two lectures and three hours of laboratory.
Prerequisites: Geography 101 and consent of instructor.
Stereoscopic interpretation and cartographic representation of landforms, vegetation, and land use. Emphasis on practical exercises.

464. Social Geography (3)
Prerequisite: Geography 102.
Analysis of sociocultural distributions with emphasis on social regions, spatial behavior and cultural landscapes. Topics include landscape image and design, patterns of folk and ethnic culture and spatial diffusion processes.

489. *(184.)* **Field Geography of the Arid Southwestern United States (3)**
Prerequisites: Geography 101 and 102.
An orientation to the Southwestern United States; emphasis on field observation and interpretation of the cultural and physical landscape. A minimum of fifteen days will be spent in the field.

495. *(196.)* **Geographic Internship (3) I, II**
Students will be assigned to various government agencies and industry and will work under the joint supervision of agency heads and the course instructor. Maximum credit six units. Three units may be applied to major in geography.

496. *(190.)* **Selected Studies in Geography (3)**
Prerequisite: Six units in geography.
Critical analysis of problems within a specific field of the discipline. May be repeated with new content. Maximum credit six units.

497. *(197.)* **Investigation and Report (3) I, II**
Prerequisites: Senior standing as a geography major or as a social science major with a concentration in geography, and departmental consent.
Analysis of special topics in geography; independent study and investigation; guidance in the collection, organization, and presentation of geographic data.

498. *(198.)* **Directed Readings in Geographic Literature (1) I, II**
Prerequisites: Credit or concurrent registration in the subject matter area in which the readings are to be undertaken, and consent of the instructor.
Individually directed readings in geographic literature. May be repeated for a maximum of three units, taken each time from a different instructor.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

501. *(101.)* **Climatic Physiography (3)**
Prerequisites: Geography 101; and Geology 100 and 101, or Geology 100 and Geography 105.
The origin and morphology of landforms with emphasis on the external forces.

502. *(102.)* **Structural Physiography (3)**
Prerequisites: Geography 101; and Geology 100 and 101, or Geology 100 and Geography 105.
Origin and morphology of landforms with emphasis on internal forces.

503. *(103.)* **Fluvial and Eolian Physiography (3)**
Prerequisites: Geography 101; and Geology 100 and 101, or Geology 100 and Geography 105.
Flowing water and the wind as agents in shaping the land. Transportation of material by water and air, drainage basin characteristics, river channel shape and dimension, sand dunes, and loess.

504. *(104.)* **Coastal and Submarine Physiography (3)**
Prerequisites: Geography 101; and Geology 100 and 101, or Geology 100 and Geography 105.
Marine physiographic processes and their effects on developing the landforms of coasts, continental shelves, and ocean floors.

505. *(105.)* **Geography of Soils (3) II**
Prerequisite: Geography 101.
The nature, properties and distribution of soils and their relationships to the influence of climates, landforms, and human activity.

506. *(106.)* **Geography of Soils Laboratory (1)**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Geography 505.
Theories of soil genesis, edaphology and structure related to empirical phenomena through laboratory experimentation and observation. Best suited to concurrent enrollment in Geography 505.

507. *(107.)* **Geography of Natural Vegetation (3) I, II**
Prerequisite: Geography 101.
The natural vegetation associations of the world, their distribution, classification and development, including relationship to human activities.

508. *(100A.)* **Physical Climatology (3) I**
Prerequisite: Geography 103.
Effects of latitude, altitude, mountains, ocean currents, wind systems, and various surfaces on the distribution of solar radiation, temperature, precipitation, and other climatic elements. Statistical reduction and interpretation of climatic data.

509. *(100B.)* **Regional Climatology (3) II**
Prerequisite: Geography 103.
The causes of climatic types as they occur throughout the world. Principles of several climatic classifications.

551. *(153.)* **Location Analysis and Geographic Theory (3)**
Prerequisite: Geography 311.
Spatial arrangement and interrelationships of resources, production, exchange and consumption of goods and services, and a study of location theory in economic geography.

554. *(157.)* **Quantitative Methods of Urban Analysis (3)**
Prerequisites: Geography 555 or 556, and 585.
Spatial models of urban activities and land use, population distribution and allocation, and computer applications in urban analysis, including computer methods of mapping and graphing.

555. *(155.)* **Urban Location and Settlement Geography (3)**
Prerequisite: Geography 154 or 354.
Analysis of urban and other agglomerated settlements in terms of their spatial arrangement, principal functions, economic base, and supporting areas.

556. *(156.)* **Internal Spatial Structure of Cities (3)**
Prerequisite: Geography 154 or 354.
Geographic principles and characteristics concerning the internal structure and functioning of urban centers, including discussions of internal problems of our cities today. Field reconnaissance in the local urban "laboratory."

558. *(160.)* **Advanced Transportation Geography (3)**
Prerequisite: Geography 358 or 559.
Topics in the spatial analysis of transportation, e.g., spatial interaction patterns, diffusion process, models in spatial analysis.

559. *(159.)* **Urban Transportation Geography (3)**
Prerequisite: Geography 154, 354, or 358.
Urban transportation networks and their effects, past, present and future, on the economy and physical structure of the urban region.

566. Environmental Perception and Spatial Behavior (3)
Prerequisite: Geography 102.
Effects of social and cultural factors on man's perception and cognitive structuring of his spatial and regional physical and social environment. Effect of perceived images on migration and travel behavior.

570. Urbanization and Quality of the Physical Environment (3)
Prerequisite: Geography 370 or 371.
Examination of selected problems of maintaining environmental quality in the process of rapid urbanization. Emphasis on field studies.

573. *(173.)* **Geography as Human Ecology (3)**
Prerequisite: Geography 170 or 370.
Human ecology related to resource geography.

574. *(174.)* **Water Resources (3) II**
Prerequisites: Geography 101 or 102; and 170, 370 or 371.
Occurrence and utilization of water resources and the problems of water resource development.

575. *(175.)* **Geography of Recreational Land Use (3)**
Prerequisite: Geography 170, 370 or 371.
Importance of location and environment in the use, management, and quality of recreation areas.

576. *(176.)* **Geography of Marine Resources (3)**
Prerequisite: Geography 101 or 102.
Economic geography of use of marine biotic and mineral resources.

581. *(181B.)* **Advanced Cartography (3)**
Two lectures and three hours of laboratory.
Prerequisite: Geography 381.
Advanced laboratory instruction and practice in cartographic techniques.

582. *(181C.)* **Automated Cartography (3)**
Two lectures and three hours of laboratory.
Prerequisite: Geography 380, 381, 382, 585, 587, or 589.
Computerized methods in presenting for comprehension spatially variable information of a quantitative nature; examination of existing automated mapping systems.

585. *(185.)* **Quantitative Methods in Geographic Research (3) I, II**
Prerequisites: Two geography courses including one in upper division; Mathematics 118 or a higher numbered course, and Mathematics 119.
Use of quantitative methods in geographic research.

587. *(187.)* **Remote Sensing of the Environment (3)**
Two lectures and three hours of laboratory.
Prerequisites: Geography 102 and consent of instructor.
Multiband spectral reconnaissance of the environment. Emphasis on multispectral photography, infrared, microwave scanning systems and multifrequency radar systems, and their uses in the study of cultural and biophysical phenomena.

588. *(188.)* **Advanced Remote Sensing of the Environment (3)**
Prerequisites: Geography 587 and consent of instructor.
Current research in geographic remote sensing and related fields. Applications of remote sensing in the study of man's cultural and biophysical environment. Practice in planning, design, execution and interpretation of remote sensing studies.

589. *(180.)* **Field Geography (3)**
Prerequisites: Senior or graduate standing and the completion of at least 12 units in geography, including Geography 101 and 102, and consent of instructor.
Directed fieldwork in physical and cultural geography.

GRADUATE COURSES

600. *(205.)* **Geographic Research and Techniques of Presentation (3)**
Prerequisite: Approval of departmental graduate advisory committee.
Seminar in the use of research materials in the different aspects of geography and the effective presentation of research findings in written and oral form.

601. *(251.)* **Seminar in Physiography (3)**
Prerequisites: One course in physiography and consent of instructor.
Directed study and research on selected topics in physiography.

608. *(200A.)* **Seminar in Advanced Physical Climatology (3)**
Prerequisites: Geography 508 and approval of departmental graduate advisory committee.
Characteristics of climatic elements for a selected area of climatic type, and a statistical analysis of the elements studied. Maximum credit six units applicable on a master's degree.

609. *(200B.)* **Seminar in Advanced Regional Climatology (3)**
Prerequisites: Geography 509 and approval of departmental graduate advisory committee.
Selected regions. An interpretation of regional variations of world climatic patterns. Maximum credit six units applicable on a master's degree.

610. *(210.)* **History of Geography (3)**
Prerequisite: Approval of graduate adviser.
The evolution of concepts concerning the nature, scope, and methodology of geography.

620. *(220.)* **Seminar in Regional Geography (3)**
Prerequisite: Approval of departmental graduate advisory committee.
Intensive study of a major world region, such as South America, Southeast Asia, or Northern Europe. Maximum credit six units applicable on a master's degree.

650. *(250.)* **Seminar in Systematic Geography (3)**
Prerequisite: Approval of departmental graduate advisory committee.
Intensive study of an aspect of systematic geography, such as climatology, economic geography, or graphic presentation. Maximum credit six units applicable on a master's degree.

654. *(255.)* **Seminar in Urban and Settlement Geography (3)**
Prerequisites: Geography 555 or 556 and approval of departmental graduate advisory committee.
Selected topics in urban geography. Field reconnaissance in the local urban "laboratory" is essential part of the research undertaken.

655. *(256.)* **Seminar in Location of Urban Activities (3)**
Prerequisites: Geography 556 and approval of departmental graduate advisory committee.
Systematic analysis of the locations and linkages of activities in urban areas.

658. *(258.)* **Seminar in Geography of Transportation (3)**
Prerequisite: Geography 358.
Directed study and research on selected topics in transportation geography.

659. *(259.)* **Seminar in Urban Transportation (3)**
Prerequisites: Geography 559 and approval of departmental graduate advisory committee.
Intensive study and research on topics in urban transportation geography. Emphasis on transport innovations and their impact on urban spatial patterns.

660. *(260.)* **Seminar in Spatial Structure of Transport Systems (3)**
Prerequisites: Geography 358 and approval of departmental graduate advisory committee.
Transportation systems and networks, optimum route patterns, and commodity flows.

670. *(272.)* **Seminar in Environmental Quality (3)**
Prerequisites: Geography 170 and three upper division units in geography, or 370, and approval of departmental graduate advisory committee.
Geographic factors affecting environmental quality, such as congestion, crowding, and pollution.

671. *(270.)* **Seminar in Theory of Resource Use (3)**
Prerequisites: Geography 170 and three upper division units in geography, or 370, or 371, and approval of departmental graduate advisory committee.
Selected theories in resource use. Emphasis on conflicts between resource systems and conservation philosophy.

675. *(275.)* **Seminar in Recreational Geography (3)**
Prerequisites: Geography 575 and approval of departmental graduate advisory committee. Geography 170 or 370 and 371 are recommended.
Design and management of recreational areas. Emphasis on man-land relationship in natural parks of San Diego County.

680. *(281.)* **Seminar in Cartography (3)**
Prerequisites: One course in cartography and approval of departmental graduate advisory committee.
Use of the map in geographic analysis. Problems and recent trends in cartography. Maximum credit six units applicable on a master's degree.

687. *(288.)* **Seminar in Remote Sensing of the Environment (3)**
Prerequisite: Geography 587.
The use of remote sensing techniques in the study of man's cultural and biophysical environment.

689. *(280.)* **Techniques of Field Research (3)**
Three lectures and three hours of laboratory.
Prerequisites: Geography 589 and approval of departmental graduate advisory committee.
Detailed and reconnaissance field work including classification of natural and cultural features and preparation of geographical reports and maps based on field data. Maximum credit six units applicable on a master's degree.

795. *(296.)* **Geographic Internship (3)**
Prerequisites: Approval of departmental graduate advisory committee, and consent of instructor.
Students will be assigned to various government agencies and industry and will work under the joint supervision of agency heads and the course instructor. Maximum credit six units; three units applicable on a master's degree.

797. *(297.)* **Research (1-3) Cr/NC**
Research in one of the fields of geography. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registrered in the course when the completed thesis is granted final approval.

Geology

In the College of Sciences

Faculty

Emeritus: Brooks
Professors: Berry, Gastil, Krummenacher, McEuen, Peterson (Chairman), Roberts, Thomas, Threet
Associate Professors: Abbott, Frederiksen, Kern, Ptacek
Assistant Professors: Bertine, Dorman, Ganus, Walawender
Lecturer: Schiebout

Offered by the Department of Geological Sciences

Master of Science degree in geology.
Major in geology with the B.S. degree in applied arts and sciences.
Minor in geology.

Geology Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

The major consists of basic requirements in the lower and upper division for all students plus the requirements in one of the following options: (a) General Geology, (b) Paleontology, (c) Geophysics, (d) Geochemistry, and (e) Engineering Geology.

Basic Requirements for all Students

Preparation for the major. Geology 100 and 101, 105, 221, 224; Biology 100 and 100L; and Chemistry 200A-200B. (29 units.) Recommended: a foreign language and a course in mechanical drawing if not completed in high school.

Major. A minimum of 36 upper division units in approved courses to include Geology 305, 308, 498A-498B, 508. (14 units.) Other courses may be substituted for 498A-498B and 508 in the geophysics option and for 498A-498B in the engineering geology option with the approval of the department.

Options

In addition to the basic requirements, the student must complete the requirements in one of the following options:

(a) General Geology

Additional preparation for the major. Geology 230 (or Geology 530 may be taken in the major); Mathematics 119 and 150; Physics 124A-124B and 125A-125B, or Physics 195A-195B-195C. Recommended: Chemistry 310A-310B or 410A-410B; Mathematics 107, 151, 152; Physics 195A-195B-195C.

Major (continued). Geology 506, 507, 524, 525, 530 (if Geology 230 not taken under preparation for the major), and at least one of the following: Geology 314, 502, 505, 520, 521, 526, 540, 550, 551, or 560. Electives approved by the departmental adviser to complete 36 upper division units.

(b) Paleontology

Additional preparation for the major. Biology 215; Mathematics 150, or 121 and 122 (alternative of 121 and 122 should not be selected by students planning academic work beyond the B.S. degree); Physics 124A-124B and 125A-125B, or Physics 195A-195B-195C; Zoology 150. (20-25 units.)

Major (continued). Geology 506, 507, 516 or 573, 526, and three courses from the following: Biology 520, 531; Botany 572; Zoology 506, 510, 560.

(c) Geophysics

Additional preparation for the major. Mathematics 107, 150, 151, 152; Physics 195A-195B-195C, 215. (31 units.) Recommended: Engineering 160.

Major (continued). Geology 510, 512, 520, 521, 530; Mathematics 530; Physics 350B, 357; either Mathematics 531 and Physics 520, or Physics 350A and 542. Recommended: Engineering 318.

(d) Geochemistry

Additional preparation for the major. Chemistry 230 or 231, and 251; Mathematics 150, 151, 152; Physics 195A-195B-195C. (33 units.) Recommended: Mathematics 107.

Major (continued). Geology 530; Chemistry 410A-410B; either Geology 506 and 526, or Geology 524 and 525; six units of electives approved by the departmental adviser. Recommended: Geology 531.

(e) Engineering Geology

Additional preparation for the major. Geology 230; Engineering 150 or 151, 160, 200; Mathematics 150, 151, 152; Physics 195A-195B-195C, or 195C and 195E. (35 units.)

Major (continued). Geology 510 or 512, 526, 550; Engineering 306, 318, 414, 416; either Engineering 415 or Geology 551.

Because of the preparation in mathematics, physics, and geology called for in this emphasis, the School of Engineering will not require of majors in this option the prerequisites specified for Engineering 306, 414 and 416.

Marine Geology

An option in marine geology is not offered. Interested persons should study marine geophysics, marine geochemistry, paleontology, engineering geology, or general geology.

Geology Minor

The minor in geology consists of a minimum of 15 units in geology, six of which must be in upper division courses.

The student may consult with the undergraduate adviser for an appropriate program.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

100. *(2.)* **General Geology (3) I, II**

Earth materials and processes, the development of landforms, and a brief consideration of the history of the earth. Open to all students except those with previous credit in geology.

101. *(3.)* **General Geology Laboratory (1) I, II**

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geology 100.

Recognition of common earth features and materials with experience in both field and map relationships. Designed to accompany and augment Geology 100. Not open to students with previous laboratory credit in geology.

105. *(5.)* **Historical Geology (4) I, II**

Three lectures and three hours of laboratory. Arrangement for field study during the semester.

Prerequisites: Geology 100 and 101.

Theories of earth origin, and the evolutionary history of the earth as traced through rock and fossil records. Consideration of the Paleontologic Sequence.

153. *(53.)* **General Geology for Engineers (1) I, II**

One three-hour laboratory or field project per week.

Earth materials, geologic processes, and methods of geologic interpretation of particular concern to the engineer. Open only to students majoring in engineering. Not open to students with credit in Geology 101.

221. *(21.)* **Mineralogy (4) I, II**

Two lectures and six hours of laboratory.

Prerequisites: Credit or concurrent registration in Geology 100 and 101; high school chemistry and trigonometry, or credit or concurrent registration in college chemistry and trigonometry.

Practice in the determination of the common minerals; their geologic environment, utilization and economic significance.

224. *(24.)* **Petrology (3) I, II**

Two lectures and three hours of laboratory.

Prerequisites: Geology 100 and 101; and credit or concurrent registration in Geology 221.

The origin, occurrence, identification, and classification of rocks in hand specimen.

230. *(30.)* **Introduction to Geophysics (3) II**
Prerequisites: Geology 100 and 101; elementary algebra and plane geometry.
Physics of the earth and its application to mineral exploration. Emphasis on case histories. Not open to students with credit in Geology 510 or 512.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. Geology of National Parks and Monuments (3) I
Prerequisites: Geology 100 and 101.
Geology of a group of national parks and monuments, selected for their geological significance, scenic beauty, and visitor popularity. (Not acceptable for a major in geology but acceptable for a minor in geology.)

303. Environmental Geology (3) II
Prerequisites: Geology 100 and 101.
Study of geologic processes and man, including landslides, flooding, earthquakes, and ground water resources.

305. *(100.)* **Structural Geology (3) I, II**
Two lectures and three hours of laboratory per week with occasional field trips.
Prerequisites: Geology 105 and trigonometry.
Structural features of the earth, both deformational and primary. Mechanical principles, causes of folding and faulting, graphic solutions and analyses.

308. *(108A.)* **Field Geology (4) I, II**
One lecture and three hours of laboratory, and twelve Saturday field sessions in the local area.
Prerequisites: Geology 305 and credit or concurrent registration in Geology 224.
Techniques and methods of geologic observation, interpretation, and field mapping.

314. *(104.)* **Geomorphology (3) I**
Prerequisite: Geology 105.
Development and classification of landforms with consideration of processes involved.

318-S. *(118-S.)* **Summer Field Problems (4-6)**
Prerequisites: Geology 308 and consent of instructor.
Field techniques in the investigation of selected geological problems. This course cannot be substituted for Geology 508.

319-S. *(119-S.)* **Summer Field Tour (2)**
Prerequisite: Consent of instructor.
A two-week study of some of the classic geologic localities in the western United States. A camping trip with travel by chartered bus. Localities visited may vary from year to year. Maximum credit four units.

496. *(196.)* **Advanced Topics in Geology (1-3) I, II**
Prerequisite: Consent of instructor.
Selected topics in geology and related earth sciences. May be repeated with new content. Maximum credit six units.

498A. *(198A.)* **Senior Thesis (1) I, II Cr/NC**
Prerequisite: Credit or concurrent registration in Geology 308.
Selection and preliminary investigation of an individual research project which will lead to a written thesis in Geology 498B.

498B. *(198B.)* **Senior Thesis (2) I, II**
Prerequisites: Geology 498A and credit or concurrent registration in Geology 508.
Individual research project and written thesis.

499. *(199.)* **Special Study (1-3) I, II**
Individual study in field, library, laboratory, or museum work. Maximum credit four units.
Prerequisites: Acceptable grade average in at least 12 upper division units within the major and consent of staff.

502. *(102.)* **Geology of North America (3) I**
Prerequisite: Geology 105.
A regional analysis of North American geology, its structural, stratigraphic, and tectonic patterns and hypotheses concerning their origin and evolution.

505. *(105.)* **Photogeology (3) II**
Two lectures and three hours of laboratory.
Prerequisites: Geology 305 and 314.
Geologic interpretation of aerial photographs, elementary stereoscopy and stereometry applied to structural and stratigraphic problems, and compilation of geologic maps from annotated aerial photographs.

506. *(106.)* **Paleontology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Geology 105 and Biology 100 and 100L.
Principles and methods, exemplified by a study of the morphology, classification, habit, and geologic significance of fossil invertebrates.

Vertebrate Paleontology, see Zoology 560.

507. *(107.)* **Stratigraphy (3) II**
Two lectures and three hours of laboratory.
Prerequisites: Geology 105 and 224.
Stratigraphic principles and practices. Consideration of the North American stratigraphic record.

508. *(108B.)* **Field Geology (4) I, II**
Prerequisite: Geology 308.
Geologic investigation of an assigned area with preparation of an individual report and a geologic map.

510. *(110.)* **Petroleum Geophysics (3) I**
Two lectures and three hours of laboratory. Occasional field trips.
Prerequisites: Geology 305, Mathematics 152, Physics 195A-195B-195C.
Airborne, surface, and bore-hole geophysical techniques as presently used in oil exploration.

512. *(112.)* **Mining Geophysics (3) II**
Two lectures, and three hours of laboratory or occasional field trips.
Prerequisites: Geology 305, Mathematics 152, Physics 195A-195B-195C.
Airborne, surface, and bore-hole geophysical techniques used for delineation of ore bodies.

516. *(116.)* **Micropaleontology (3) II**
One lecture and six hours of laboratory.
Prerequisite: Geology 506.
The morphology, classification and geologic significance of the various microfossils.

520. *(120.)* **Ore Deposits (3) I**
Prerequisites: Credit or concurrent registration in Geology 224 and 305.
Geologic relations, origin, distribution, and economics of metallic and nonmetallic mineral deposits.

521. *(121.)* **Petroleum Geology (3) II**
Prerequisites: Credit or concurrent registration in Geology 224 and 305.
Geologic occurrence of petroleum and the application of geologic principles in exploration and production.

524. *(124.)* **Optical Mineralogy (3) I**
Two lectures and three hours of laboratory.
Prerequisite: Geology 221.
Theory and use of the polarizing microscope for determining optical properties of minerals as an aid to their identification.

525. *(125.)* **Petrography (4) II**
Three lectures and three hours of laboratory.
Prerequisite: Geology 524.
A study of rocks with the polarizing microscope; identification of mineral constituents; interpretation of textures; classification of rocks; problems of genesis.

526. *(126.)* **Sedimentology (3) I**
Two lectures and three hours of laboratory.
Prerequisites: Geology 105 and 224.
Origin, description, and classification of sedimentary rocks and structures.

530. *(130.)* **Geochemistry (3) I, II**
Two lectures and three hours of laboratory.
Prerequisites: Geology 224; Chemistry 200B; Mathematics 121 and 122, or 150.
The relationship of basic chemical principles to geologic phenomena and environments, including applications to geologic exploration problems.

531. *(131.)* **Advanced Geochemistry (3) II**
Two lectures and three hours of laboratory.
Prerequisite: Geology 530.
Application of physical-chemical methods and principles to the solution of geologic problems. Emphasis on genesis of ore deposits and pollution geochemistry.

540. *(140.)* **Marine Geology (3) I**
Two lectures and three hours of discussion, demonstration, and field work.
Prerequisites: Geology 105, and either Geology 224, 314, 502, or 506.
The morphology, composition, structure, history, and geologic processes of the earth beneath the sea.

550. *(150.)* **Engineering Geology (3) I**
Two lectures and several weekend field trips.
Prerequisite: Geology 308.
Case histories selected to demonstrate the application of geology to the location, design, and maintenance of engineering projects.

551. *(151.)* **Groundwater Geology (3) II**
Two lectures and three hours of laboratory.
Prerequisite: Geology 224.
Geologic factors controlling the occurrence, movement and development of groundwater.

560. *(160.)* **X-Ray Diffraction (2) II**
One lecture and three hours of laboratory.
Prerequisites: Chemistry 200A-200B; Mathematics 150; Physics 124A-124B and 125A-125B, or 195A-195B-195C; and credit or concurrent registration in either Chemistry 310A or 410A, Engineering 210, Geology 221, or Physics 354.
Theory and application of x-ray diffraction to the study of materials.

573. *(173.)* **Advanced Palynology (3) II**
One lecture and six hours of laboratory.
Prerequisite: Botany 572.
Investigating problems in anthropology, botany and geology using spores, pollen grains and microplankton.

GRADUATE COURSES

600. *(200.)* **Seminar (1-3)**
Prerequisite: Consent of instructor.
An intensive study in advanced geology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

608. *(208.)* **Graduate Field Geology (3)**
One lecture and nine Saturday field sessions.
Prerequisite: Geology 508.
Experience in one or more specialized aspects of field mapping.

609. *(209.)* **Igneous Petrology (3)**
Two lectures and three hours of laboratory.
Prerequisite: Geology 525.
Investigation of problems in igneous petrology, using petrography, geochemistry, and experimental methods.

611. *(211.)* **Metamorphic Petrology (3)**
Two lectures and three hours of laboratory.
Prerequisite: Geology 525.
Investigation of problems in metamorphic petrology using petrography, geochemistry, and experimental methods.

612. *(212.)* **Petrology of Carbonates (3)**
Two lectures and three hours of laboratory.
Prerequisites: Geology 524 and 526.
Thin-section and hand-specimen description and classification of carbonate rocks and other chemical sediments. Emphasis on recent depositional processes, diagenesis, and geochemistry.

620. *(220.)* **Biostratigraphy (3)**
Two lectures and three hours of laboratory.
Prerequisite: Geology 507.
Development of concepts and practices in stratigraphic and geochronologic synthesis critically reviewed in context of current knowledge of the fossil record.

625. *(225.)* **Paleoecology (3)**
Two lectures and three hours of laboratory.
Prerequisites: Geology 506 and Biology 520.
Problems and methods in the study of relationships between fossil organisms and their environment: interpretation of paleoenvironment, paleoclimate, and biologic relationships among fossil organisms.

629. *(229.)* **Seminar: Advanced Studies in Stratigraphy (3)**
Two lectures and three hours of laboratory.
Prerequisite: Geology 507.
Regional stratigraphic patterns in North America and their historical implications.

635. *(235.)* **Petrology of Terrigenous Rocks (3)**
Two lectures and three hours of laboratory.
Prerequisites: Geology 524 and 526.
Thin-section and hand-specimen description and classification of sandstones and mudrocks. Emphasis on mineralogy, modern depositional processes, environmental interpretation, and paleogeographic reconstruction.

640. *(240.)* **Geotectonics (3)**
Prerequisite: Geology 305.
A consideration of topics on continental genesis and evolution, orogeny, plate tectonics theory, and a survey of classic geologic provinces.

645. *(245.)* **Advanced Structural Geology (3)**
Prerequisite: Geology 305.
Topics in advanced structural geology in the light of petrographic, geophysical, and experimental data, combined with classic field observations.

650. *(250.)* **Seminar: Physical Properties of Earth Materials (3)**
Prerequisite: Geology 510 or 512.
Theoretical principles and instrumental techniques used to remotely determine the physical properties of earth materials.

660. *(260.)* **Isotope Geology (3)**
Two lectures and three hours of laboratory.
A survey of isotopic and geochronologic topics with individual projects in isotopic analysis.

680. *(280.)* **Sedimentary Geochemistry (3)**
Two lectures and three hours of laboratory.
Prerequisite: Geology 530.
Problems in low temperature geochemistry, including clay mineralogy and diagenesis.

685. *(285.)* **Genesis of Ore Deposits (3)**
Two lectures and three hours of laboratory.
Prerequisites: Geology 520, 525; and Geology 530 or four units of physical chemistry.
Application of mineralogy, petrography, and chemistry to an understanding of the origin of ore deposits.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Consent of the department.
Supervised research in an area of geology. Maximum credit six units applicable on a master's degree.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC

Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.

Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

German

In the College of Arts and Letters

Faculty

Emeritus: Walker

Professors: Boney, Kozlik (Chairman), Lawson, Paulin, Schaber, Tanaka, Westervelt, Wolf, Wulbern

Associate Professor: Dunkle

Assistant Professor: Cross

Lecturers: Frederikson, Wolter

Offered by the Department of Germanic and Slavic Languages and Literatures

Master of Arts degree in German.

Major in German with the A.B. degree in liberal arts and sciences.

Minor in German.

Teaching major in German for the single subject teaching credential in foreign languages.

German Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Students majoring in German must complete a minor in another field to be approved by the departmental adviser in German.

Preparation for the major. German 101, 102 (or 105 in lieu of 101 and 102), 203, 204, 210, and 211. (20 units.)

Major. A minimum of 24 upper division units in German to include German 301A-301B, 311A-311B, and 12 units in additional literature courses excluding German 490, 493 and 495; or a minimum of three units in additional literature courses (with exclusions as above) and a maximum of nine units in courses in Germanic linguistics.

German Minor

The minor in German consists of a minimum of 15 units in German, six units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

German Major

For the Single Subject Teaching Credential in Foreign Languages

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in teacher education as an undergraduate major for the A.B. degree in liberal arts and sciences.

The requirements for the German major for the single subject teaching credential in foreign languages are being revised. For further information consult the department.

Proficiency Examination: Before taking a student teaching assignment in German, the candidate for the credential may be required to pass an oral and written proficiency examination in the language, administered by the Department of Germanic and Slavic Languages and Literatures. The candidate should consult the chairman of the Department.

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school German may be counted as the equivalent of German 101; three years the equivalent of German 102; and four years the equivalent of German 203. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

Native speakers of German will not receive credit for taking lower division courses in German except with advance approval from the department.

101. *(1.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on German culture and civilization, minimum essentials of grammar. Not open to students who have completed three years of high school German.

102. *(2.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Prerequisite: German 101 or two years of high school German.
Continuation of German 101. Not open to students who have completed four years of high school German.

105. Elementary (8) I
Eight lectures and two hours of laboratory.
The elements of German; oral emphasis. A one-year course concentrated in one semester. Primarily for credential candidates in German.

203. *(3.)* **Intermediate (4) I, II**
Prerequisite: German 102 or 105 or three years of high school German.
Practical application of the basic principles of the language. Oral practice, reading in German of cultural material.

204. *(4.)* **Intermediate (4) I, II**
Prerequisite: German 203 or four years of high school German.
Continuation of German 203.

208. *(8A.)* **Scientific Reading (2)**
Prerequisite: German 102 or 105 or three years of high school German.
Readings taken from the fields of biology, chemistry, medicine, physics, zoology, etc.

210. *(10.)* **Conversation (2) I, II**
Prerequisite: German 102 or three years of high school German.
Practice in the spoken language with emphasis on the articulation of German sounds; practical vocabulary; conversation on everyday cultural topics.

211. *(11.)* **Conversation (2) I, II**
Prerequisite: German 203 or 210, or four years of high school German.
Continuation of German 210.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301A-301B. *(101A-101B.)* **Grammar and Composition (3-3)**
Prerequisites: German 204 and 211.
Grammar and stylistics; intensive writing practice; reports based on outside reading.

311A-311B. *(102A-102B.)* **Survey of German Literature (3-3)**
Prerequisite: German 204.
Important movements, authors, and works in German literature from the Middle Ages to the present.

403A-403B. *(125A-125B.)* **Advanced Oral and Written German (2-2)**
Prerequisite: German 301A-301B.
Advanced forms of oral and written German.

490. *(144.)* **Golden Age of German Literature (3)**
The Classic and Romantic movements in Germany, with emphasis on the late eighteenth century: Goethe, Schiller and their contemporaries. Taught in English.

493. *(145.)* **Modern German Literature (3)**
Outstanding modern German writers, including Nietzsche, Rilke, Hesse, Kafka, Mann, Brecht, and others. Taught in English.

495. *(185.)* **Topics in German Literature (3)**
Topics in German literature to be selected by instructor. May emphasize an author, period, movement or genre. Intended primarily for the nonspecialist. Does not fulfill language requirement. May be repeated with new content. Maximum credit six units.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in German available in any given semester.

505. *(148.)* **Applied German Linguistics (3)**
Prerequisite: German 301A-301B.
Linguistic study of modern German; integration of modern linguistic theory with the language classroom.

510. *(150.)* **German Phonetics (3)**
Prerequisites: German 204 and 211.
Sounds and intonation of German.

515. Germanic Linguistics (3)
Prerequisites: German 204 and 211.
Structural and comparative Germanic linguistics.

540. *(107.)* **German Literature from its Beginning to the Reformation (3)**
Prerequisites: German 204 and 211.
Literature from the eighth century to about 1500.

545A-545B. *(103A-103B.)* **German Literature of the Eighteenth Century (3-3)**
Prerequisites: German 204 and 211.
The literature of the German Enlightenment, the "Storm and Stress," the Classical Age. Outside readings and reports.

549. *(115.)* **Goethe's *Faust* (3)**
Prerequisites: German 204 and 211.
Goethe's *Faust,* Parts 1 and 2: its philosophical content and its position in German and European literature; lectures, reading, reports.

555A-555B. *(105A-105B.)* **German Literature of the Nineteenth Century (3-3)**
Prerequisites: German 204 and 211.
The literature of German Romanticism, Young Germany, Realism, and Naturalism. Outside readings and reports.

561A-561B. *(110A-110B.)* **Contemporary German Literature (3-3)**
Prerequisites: German 204 and 211.
The main developments in German literature from Neo-Romanticism to the present. Outside readings and reports.

563. *(111.)* **Contemporary German Drama (3)**
Prerequisites: German 204 and 211.
German drama from Hauptmann to the present.

GRADUATE COURSES

600. *(290.)* **Research and Criticism (3)**
Prerequisite: Twelve upper division units in German.
Purposes and methods of research in the language and in the literature; theories and practice of literary criticism. Recommended for the first semester of graduate study.

601. *(201.)* **History of the German Language (3)**
Prerequisite: Twelve upper division units in German.
The historical development of the German language, with source readings from the Gothic Bible to Luther's translation of the Bible.

610. *(202.)* **Middle High German (3)**
Prerequisite: Twelve upper division units in German or six upper division units in linguistics.
The grammatical structure of Middle High German; reading and analysis of selected literary works.

620. Gothic (3)
Prerequisites: German 515 or 601 or three graduate units in linguistics or six upper division units in linguistics.
Phonology, grammar and reading of Gothic texts; the relationship of Gothic to Indo-European and to other Germanic languages.

650. *(207.)* **Renaissance and Baroque Literature (3)**
Prerequisite: Twelve upper division units in German.
German literature of the sixteenth and seventeenth centuries.

655. *(208.)* **Goethe (3)**
Prerequisite: Twelve upper division units in German.
Goethe's lyric, epic, and dramatic poetry excluding *Faust*.

665. *(206.)* **The German Drama of the Nineteenth Century (3)**
Prerequisite: Twelve upper division units in German.
Representative works of German dramatic literature from Kleist to Hauptmann.

670. *(205.)* **German Lyric Poetry from Hoelderlin to Rilke (3)**
Prerequisite: Twelve upper division units in German.
The major German lyric poets from the beginnings of Romanticism to Rilke.

675. *(203.)* **The German Novelle (3)**
Prerequisite: Twelve upper division units in German
The development of the Novelle as a literary form from Goethe to the present.

680. *(204.)* **The German Novel in the Twentieth Century (3)**
Prerequisite: Twelve upper division units in German.
Selected German novels of the twentieth century.

700. *(265.)* **Seminar in Germanic Linguistics (3)**
Prerequisite: Eighteen upper division or graduate units in German.
Directed research in a specialized area of Germanic linguistics or philology. Maximum credit six units applicable on a master's degree.

710. *(251.)* **Seminar in Eighteenth Century Literature (3)**
Prerequisite: Eighteen upper division units in German.
Directed research in the works of an important author or in a problem, type, or movement of German literature of the eighteenth century. Maximum credit six units applicable on a master's degree.

720. *(255.)* **Seminar in Nineteenth Century Literature (3)**
Prerequisite: Eighteen upper division units in German.
Directed research in the works of an important author or in a problem, type, or movement of German literature of the nineteenth century. Maximum credit six units applicable on a master's degree.

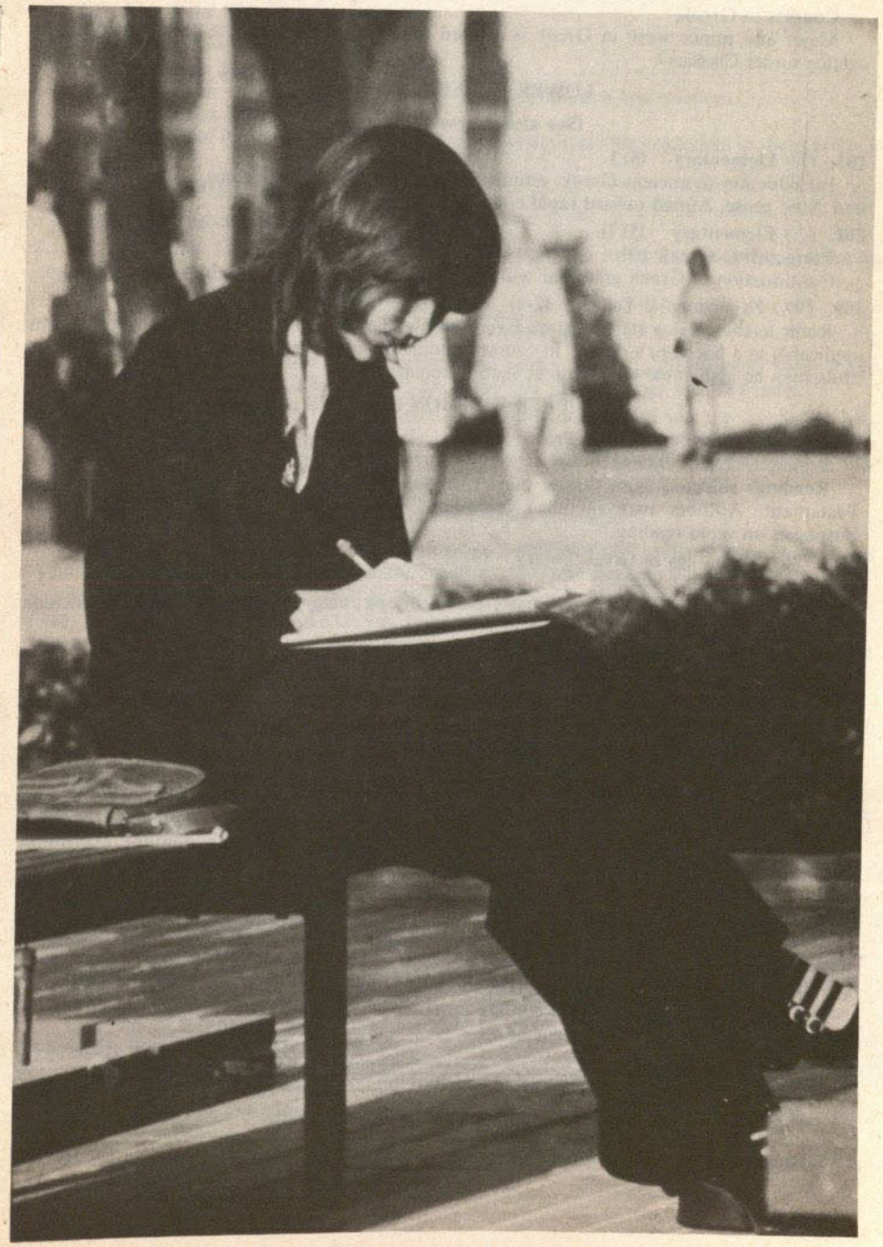
730. *(260.)* **Seminar in Twentieth Century Literature (3)**
Prerequisite: Eighteen upper division units in German.
Directed research in the works of an important author or in a problem, type, or movement of German literature of the twentieth century. Maximum credit six units applicable on a master's degree.

797. *(297.)* **Research (3) Cr/NC**
Prerequisite: Advancement to candidacy.
Individual research in a specialized subject in German literature or linguistics.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisites: Eighteen upper division units in German and consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.



Greek

In the College of Arts and Letters

Faculty

Professors: Schaber, Warren
Associate Professors: Eisner, Genovese

Offered by the Department of Classical and Oriental Languages and Literatures

Courses in Greek.

Major and minor work in Greek is offered under classics. (Refer to this section of the catalog under Classics.)

LOWER DIVISION COURSES

(See also courses in classics.)

101. *(1.)* **Elementary (5) I**

Introduction to ancient Greek, emphasizing grammatical foundations of New Testament and Attic prose. Aimed toward rapid comprehension.

202. *(2.)* **Elementary (5) II**

Prerequisite: Greek 101.

Continuation of Greek grammar with selections illustrating syntax and style.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

303. *(103.)* **Readings in Greek Prose (3) I**

Prerequisite: Greek 202.

Readings selected from Greek masterpieces in history, philosophy, oratory, and New Testament. Authors may include Xenophon, Plutarch, Plato, Lysias, the Evangelists. Emphasis on rapid reading.

304. *(104.)* **Readings in Greek Poetry (3) II**

Prerequisite: Greek 303.

Readings selected from Greek masterpieces in epic, elegy, tragedy. Authors may include Homer, Sophocles, Euripides.

440. *(106.)* **New Testament Greek (3)**

Prerequisite: Greek 202.

Study of Koine and Byzantine Greek characteristics with selected readings from New Testament and ecclesiastical sources.

450. *(155.)* **Advanced Reading in Greek (3-4)**

Prerequisite: Greek 304.

Extended, intensive reading in a major author of more difficult or peculiar style or content, such as Aeschylus, Thucydides, Herodotus, Aristotle, Sappho, Aristophanes, Lucian. Emphasis on style, content, interpretation. May be repeated with new content. Maximum credit nine units.

496. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**

Individual study. Maximum credit six units.

Prerequisite: Consent of instructor.

Health Science and Safety

In the College of Professional Studies

Faculty

Emeritus: Kitzinger
Professors: Burgess (Chairman), Grawunder, Harper, McTaggart
Associate Professors: Barnes, Bender, Boskin, Fellers, Kessler, Noto, Sorochan
Assistant Professor: Beasley
Lecturer: Sleet

Offered by the Department

Master of Arts degree in health science.
Major in health science with the B.S. degree in applied arts and sciences.
Minor in health science.
Teaching major in health science for the single subject teaching credential in social science.

Health Science Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Emphasis in Community Health

Preparation for the major. Health Science and Safety 101, 102, 170; Family Studies and Consumer Sciences 204; Psychology 101; Sociology 101; and Zoology 108. (19 units.)

Major. A minimum of 36 upper division units to include Health Science and Safety 330, 340, 351, 352, 353, 354, 400 and 545; Psychology 320; Sociology 520; the remaining units to be selected from health science and safety or closely related fields with approval of the departmental adviser.

Emphasis in Industrial Safety Education

Preparation for the major. Health Science and Safety 101, 102, 170; Family Studies and Consumer Sciences 204; Psychology 101; Sociology 101; and Zoology 108. (19 units.)

Major. A minimum of 36 upper division units to include Health Science and Safety 330, 340, 351, 352, 353, 354, 400 and 545; Psychology 320; Sociology 520; the remaining units to be selected from health science and safety or closely related fields with approval of the departmental adviser.

Emphasis in Traffic Safety

Preparation for the major. Health Science and Safety 101, 102, 170; Family Studies and Consumer Sciences 204; Psychology 101; Sociology 101; and Zoology 108. (19 units.)

Major. A minimum of 36 upper division units to include Health Science and Safety 330, 340, 347, 348, 349, 350, 400, 545; Biology 462; Psychology 324; the remaining units to be selected from health science and safety or closely related fields with approval of the departmental adviser.

Health Science Minor

The minor in health science consists of a minimum of 15 units in health science and safety, nine units of which must be in upper division courses approved by the departmental adviser in health science and safety; courses to include Health Science and Safety 400, and 102 or 560.

Courses in the minor may not be counted toward the major or general education.

Health Science Major

For the Single Subject Teaching Credential in Social Science

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in teacher education as an undergraduate major for the A.B. degree in applied arts and sciences.

Preparation for the major. Health Science and Safety 101, 102, 170; Family Studies and Consumer Sciences 204; Psychology 101; Sociology 101; Zoology 108; and six units selected from one of the following groups: (1) Anthropology 100, 101; (2) Economics 120 and 121; (3) Geography 101, 102; (4) History 105A-105B, 110A-110B, 115A-115B; (5) Political Science 110, 120, 130; (6) Sociology 101, 110. (25 units.)

Major. A minimum of 36 upper division units to include Health Science and Safety 330, 400, 470, 520, 545, 574 and 575; six units selected from Health Science and Safety 301, 401, 561 (or Sociology 526), 562 or 573; Biology 462; Psychology 330; and Sociology 440.

In addition, students must complete 15 upper division units selected from anthropology, economics, geography, history, political science or sociology. Six of the units must be taken in each of two additional departments and three units from an additional field. The total program for the social science teaching credential must include three or more units in at least four different disciplines.

LOWER DIVISION COURSES

101. *(21.)* **Principles of Healthful Living (2) I, II, S**
An application of modern knowledge to the development of understandings, attitudes, and practices essential to healthful living. Fulfills statutory requirement in public safety.

102. *(65.)* **Community Health (3) I, II**
Community health problems; the role of the citizen, of the public, and of community health agencies in promoting and protecting the health of the community.

130. *(46.)* **Standard-Advanced First Aid and Emergency Care (3) I, II**
Emergency care for the sick and injured. Provides the essential information, skills and first-aid capabilities required by policemen, firemen, life guards, rescue emergency squad members, industrial safety squad members, teachers, school nurses, ambulance attendants and others interested in emergency care. Red Cross certificate.

170. *(29.)* **Physiology of Reproduction (1) I, II**
A series of lectures and discussions dealing with normal and abnormal physiology and anatomy of reproduction; facts and frauds in sex hygiene, and related topics.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. *(122.)* **Concepts of Health Science (3) I, II**
Development and application of concepts in individual, family, and community health. Involvement in health project work. Not open to students with credit in Health Science and Safety 101.

311. *(171-S.)* **Institute on Current Health Issues (1)**
A critical appraisal and analysis of selected contemporary health issues. May be repeated with new content. Maximum credit three units applicable on a bachelor's degree.

320. *(150.)* **Child Health (2) I, II, S**
Health status of children with emphasis on identification, prevention and correction of health problems.

321. *(151.)* **Adolescent Health (2) I, II, S**
Health status of adolescents with emphasis on identification, prevention and correction of health problems.

330. *(146.)* **Instructor's Course in First Aid (3) I, II, S**
Standard Red Cross course for instructors in first aid plus medical-legal problems of emergency care of accident victims. Not open to students with credit in Health Science and Safety 130.

331. *(144.)* **Health in Emergencies (3) I**
An evaluation of the scope of disasters and the necessary planning for effective use of existing facilities, services, supplies and personnel within the communities. Developing emergency plans to minimize loss of life and relieve suffering from natural disasters such as floods, hurricanes, tornadoes and earthquakes as well as from man-made disasters such as fires, civil disturbances and bomb threats.

340. *(140.)* **Traffic Safety (3) I, II**
Problems of traffic safety and programs designed to deal with them.

345. *(131.)* **Motor Fleet Safety (3) I**
A basic introduction to problems and practices of motor fleet (truck) safety with emphasis on regulations.

346. Motorcycle Safety Education (3) II, S
Two lectures and three hours of laboratory.
Safe riding proficiency, teaching techniques and program development.

347. *(147.)* **Traffic Safety and Driver Education (3) I, II, S**
Three lectures and one hour of laboratory.
Analysis of traffic accidents; natural and man-made laws; safe use and care of vehicles; instructional approaches and the development of one's own driving and teaching skills.

348. *(148.)* **Advanced Driver Education and Driver Training (3) I, II, S**
Two lectures and three hours of laboratory.
Prerequisites: Health Science and Safety 347 and 545.
Principles and procedures in organizing and conducting programs in driver instruction with emphasis on behind-the-wheel training. Students will teach high school youngsters to drive.

349. *(149.)* **Multimedia Techniques in Driver Instruction (3) I, II**
Prerequisite: Health Science and Safety 347.
Teaching devices and techniques in driver education and driver training, including multimedia approaches, psychophysical testing, and multiple-car driving ranges; major emphasis on driver simulators, their operation and basic principles.

350. *(177.)* **Environmental Health Education (3) I, II**
Environmental hazards of living and working in this modern technological world, including air, noise, land, food, and water pollution.

351. *(180.)* **Industrial Hygiene (3) II**
Occupational environment and its effect on the safety, health and performance of employees.

352. *(181.)* **Safety Administration (3) I**
Designed to acquaint the student with the basic administrative elements of a modern safety program.

353. *(132.)* **Industrial Fire Protection (3) II**
Two lectures and three hours of laboratory.
Fire causes, building construction, flammable materials, private fire protection, and codes and laws.

354. System Safety Analysis (3) II
Prerequisite: Health Science and Safety 340.
System safety techniques as applied to the recognition of potential accident situations in occupational environments. Concentration includes the basic aspects of system safety.

400. *(100.)* **Introduction to Health Science and Safety (3) I, II**
History and principles of health science and safety and its role in modern society. An orientation course for students with a professional interest in health science and safety.

401. *(101.)* **The Change Process and Health Science and Safety (3) I**
Prerequisite: Health Science and Safety 101.
Attitude formation, behavior change, decision making, perception, motivation, group behavior, etc., and their relationship to the practice of health science and safety.

470. *(165.)* **Communicable and Noncommunicable Diseases (3) I, II**
Causes, prevention and control of communicable, degenerative and chronic health disorders.

471. Death Education (3) I
Cultural, psychological, physical and personal aspects of death with emphasis on educational approaches.

490. *(196.)* **Measurement and Evaluation in Health Science and Safety (3)**
General and specific approaches to measurement in health science and safety: data gathering techniques; organization; presentation and interpretation of data; basic principles of evaluation of student achievement.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of special study adviser.

510. *(154.)* **Workshop in Health Science and Safety (1-3)**
Selected problems in health science and safety are used as a basis for workshop experiences. Maximum credit six units; maximum credit three units applicable on a master's degree.

520. *(153.)* **Administration of the School Health Program (3) II**
Administrative responsibilities of the school health program. Principles, policies, and practices involved in health instruction, health services, environment, legal implications, and community relationships.

545. *(145.)* **Safety Education and Accident Prevention (3) I, II, S**
Principles of safety and safety education as applied to the home, school, industry, traffic, recreation, and fire prevention.

560. *(160.)* **Introduction to Public Health (3) I, II**
Prerequisite: Health Science and Safety 102.
Philosophy, development, organization, administration, and legal aspects of public health in the United States. Disease prevention and control, health education, and the other functions and activities of official health departments, voluntary agencies, private physicians and others engaged in professional health work.

561. *(176.)* **Health and Medical Care (3) I, II**
Prerequisite: Senior or graduate standing with a major or minor in health education or a closely related area.
Health values, concepts, and attitudes; health products and facilities; hospital care and hospitalization plans; governmental health controls; economic and cultural influences on health and medical care; professional contributions, relationships, and careers; national and international health programs. Not open to students with credit in Sociology 526.

562. *(169.)* **World Health (3) I, II**
Prerequisite: Health Science and Safety 102.
Health status of selected populations; international approaches to the attainment of world health. Special emphasis on the work of the World Health Organization.

573. *(175.)* **Health in Later Maturity (3) I, II**
An approach to the conservation of human resources, with emphasis on understandings, attitudes, and practices related to health in later maturity. Designed for those with a personal or professional interest in the field.

574. *(172.)* **Habit-Forming Substances (3) I, II, S**
Prerequisite: Health Science and Safety 101 or 301.
Tobacco, alcohol, and other drugs; their use, misuse and abuse.

575. *(155.)* **Sex Education (3) I, II, S**
Prerequisite: Health Science and Safety 101 or 301.
Philosophy, current procedures, and materials needed for development of healthy attitudes and scientific knowledge appropriate for the understanding of human sexuality.

597. *(197.)* **Supervised Field Experience (1-3) I, II**
Prerequisite: Consent of the department chairman.
Supervised practical experience in local health agencies and/or schools. Maximum credit six units. Maximum credit three units applicable on a master's degree.

GRADUATE COURSES

600. *(200.)* **Seminar (3)**
Prerequisite: Fifteen units in Health Science and Safety.
An intensive study of advanced problems in health education. Maximum credit six units applicable on a master's degree.

601. *(201.)* **Interdisciplinary Factors in Health Education (3)**
Prerequisite: Fifteen units in Health Science and Safety.
Synthesis of basic scientific and cultural principles which contribute to an understanding of human well-being and how it is deliberately influenced.

620. *(252.)* **Health Science Curriculum Development (3)**
Prerequisite: Health Science and Safety 320 or 321.
Structuring educational experiences in the health sciences; developing curriculum materials, performance standards and ways of incorporating health education in open learning environments.

640. *(240.)* **Administration of Traffic Safety (3)**
Prerequisites: Health Science and Safety 347 and 545.
Research and trends in traffic safety with emphasis on the problems of administration.

645. *(245.)* **School Safety Programs and Procedures (3)**
Prerequisite: Health Science and Safety 545.
Advanced consideration of school safety programs including legal bases and requirements, personnel responsibilities, liability, instruction, maintenance, and school transportation.

660. *(204.)* **Program Planning and Evaluation in Community Health Education (3)**
Prerequisite: Health Science and Safety 560.
Program planning and evaluation theories, systems and techniques in community health education.

671. *(270.)* **Problems in Disease Control (3)**
Prerequisite: Health Science and Safety 470.
New concepts in the community management of disease. Individual investigation and discussion.

672. *(271.)* **Drug Abuse Education (3)**
Prerequisite: Health Science and Safety 574.
Drug abuse education in the school and community.

791. *(291.)* **Health Science and Safety Research (3)**
Prerequisites: Health Science and Safety 490 and advancement to candidacy.
Methods and techniques of research appropriate to health science, the process by which potential problems in health science are analyzed, and the standards for the writing of research papers and theses.

792. *(292.)* **Analysis of Professional Literature (3)**
Prerequisite: Health Science and Safety 490.
Investigation and study of literature in the fields which have an important bearing on health science and safety programs in the school and community.

793. *(203.)* **Evaluation Instruments (3)**
Prerequisite: Health Science and Safety 490.
Construction, selection and analysis of evaluation instruments in health science and safety.

797. *(297.)* **Research (3) Cr/NC**
Prerequisites: Health Science and Safety 791, 792, and advancement to candidacy.
Supervised research in an area of health science and safety. Limited to students following Plan B for the Master of Arts degree in Health Science.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC

Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.

Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Hebrew

In the College of Arts and Letters

Faculty

Assistant Professor: Gefter
Lecturer: Naveh

Offered by the Department of Classical and Oriental Languages and Literatures

Courses in Hebrew.
Major or minor work in Hebrew is not offered.

LOWER DIVISION COURSES

101. *(1.)* **Elementary (4) I**

Four lectures and one hour of laboratory.

Beginning reading, writing, and conversational skills. Essentials of grammar. Not open to students who have completed three years of high school Hebrew.

102. *(2.)* **Elementary (4) II**

Four lectures and one hour of laboratory.

Prerequisite: Hebrew 101.

Continuation of Hebrew 101. Not open to students who have completed four years of high school Hebrew.

203. *(3.)* **Intermediate (4) I**

Four lectures and one hour of laboratory.

Prerequisite: Hebrew 102.

Continuation of Hebrew 102. Applications of grammar and reading skills. Additional practice in conversation.

204. *(4.)* **Intermediate (4) II**

Four lectures and one hour of laboratory.

Prerequisite: Hebrew 203.

Continuation of Hebrew 203. Completion of conversational and grammar sequences. Composition and reading for comprehension.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

496. *(185.)* **Topics in Hebraic Studies (1-4)**

Topics in Hebraic language, literature, culture, and linguistics. May be repeated with new content. Maximum credit eight units.

499. *(199.)* **Special Study (1-3) I, II**

Individual study. Maximum credit six units.

Prerequisite: Consent of instructor.

History

In the College of Arts and Letters

Faculty

Emeritus: Nasatir, Ragen, Rohfleisch

Professors: Appleby, J., Berge, Coox, Cox, Detweiler, Hanchett, Merrill, Munter, Norman, Pincetl, Rader, Ridout, Ruetten, Schatz, Smith, R., Starr, Steele, Strong (Chairman), Sutherland, Weber

Associate Professors: Check, Chu, Cunniff, Davies, DuFault, Dunn, Flemion, J., Hamilton, Hoidal, O'Brien, Smith, C., Stites, Vanderwood, Vartanian

Assistant Professors: Appleby, A., Bartholomew, Filner, Flemion, P., Heyman, McDean, Oades, Phillips

Lecturers: Cumbler, Hsi, Stackelberg

Offered by the Department

Master of Arts degree in history; and a Master of Arts degree for teaching service with a concentration in history.

Major in history with the A.B. degree in liberal arts and sciences.

Minor in history.

Teaching major in history for the single subject teaching credential.

History Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. History 105A-105B, or 110A-110B, or 115A-115B, or 120A-120B. (6 units.)

Major. A minimum of 24 upper division units in history to include History 430 (to be taken in the junior year unless a temporary waiver is granted by the department chairman) and a minimum of six units in each of three of the following fields: (a) Ancient and Medieval; (b) Modern Europe; (c) United States; (d) Latin America; (e) South, Southeast, and East Asia; (f) Africa and the Middle East; (g) Topical Subjects. It is the student's obligation, in consultation with the department chairman, to determine which courses fulfill his field requirements.

History Minor

The minor in history consists of a minimum of 15 units in history to include six sequence units in the lower division. Nine units must be in upper division courses, including a year course.

Courses in the minor may not be counted toward the major or general education.

History Major

For the Single Subject Teaching Credential

All candidates for a teaching credential must complete all requirements for the applicable specialization outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

The requirements for the History major for the single subject teaching credential are being revised. For further information consult the department.

LOWER DIVISION COURSES

105A-105B. *(4A-4B.)* **Western Civilization (3-3)**

European culture, thought and institutions from ancient times to the present. Semester I: From ancient times through the Renaissance and Reformation. Semester II: Development of modern societies and states to the present day.

Course is intended for lower division students; it is preferable that upper division students take History 305A-305B.

110A-110B. *(17A-17B.)* **American Civilization (3-3)**
Prerequisite: History 110A is prerequisite to History 110B.
The political and social development of the United States, with emphasis on the rise of American Civilization and ideals. This course is primarily for lower division students. Ordinarily not open to students with credit for Political Science 120. History 110A-110B may be taken by such students with the consent of the chairman of the History Department.

115A-115B. *(8A-8B.)* **Comparative History of the Americas (3-3)**
The western hemisphere from ancient times to the present, with focus on the interactions between the European, Amer-Indian and Afro-American cultures, institutions and traditions. Semester I: Ancient American civilizations, European colonial systems, creation of new nations. Semester II: Nations and cultures of the Americas since independence.
The year course meets the graduation requirements in American institutions, U.S. Constitution and California state and local government.

120A-120B. *(9A-9B.)* **Asian Civilizations (3-3)**
Asian culture, thought and institutions from ancient times to the present. Semester I: Traditional civilizations of Asia, with emphasis on China, Japan and India. Semester II: Development of Asian nations and nationalism in modern times.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES
Acceptable for Undergraduate Credit Only

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

305A-305B. *(104A-104B.)* **The Sources of Civilization in the West (3-3)**
Prerequisite: Open only to upper division students.
A survey of the most important ideas and attitudes which have shaped Western Civilization since ancient times. Emphasis on cultural themes rather than a political continuum. Not open to students with credit in History 105A-105B. The course satisfies the requirement in Western Civilization but cannot be used to satisfy requirement for the major.

310A-310B *(184A-184B.)* **United States History (3-3)**
Survey of major themes, topics and events in American history, 1492 to the present. Semester I: To 1877. Semester II: 1877 to the present.
Designed primarily for social science majors, history minors, and students seeking an upper division elective. History 184A-184B meets all American history and institutions, U.S. Constitution and California government requirements for graduation. Not open to students with credit in History 110A-110B and cannot be used to satisfy requirements for the history major.

315A-315B. *(160A-160B.)* **Latin America (3-3)**
Semester I: Colonial Period to approximately 1825. Semester II: Republican Latin America. Not open to students with credit in History 115A-115B. Meets field requirement (d) Latin America toward credit in the major.

320A-320B. *(109A-109B.)* **Sources of Asian Civilizations (3-3)**
Topical study of major historic traditions in Asia, with emphasis on ideas and institutions in China, India and Japan. Semester I: Growth of cultural traditions to the 19th century. Semester II: Rise of modern nations. Especially recommended to students entering elementary or secondary education. Not open to students with credit in History 120A-120B. This course satisfies the requirements for Asian Civilizations but cannot be used to satisfy requirements for the major.

335. *(108.)* **History Through Film (3)**
Critical analysis of selected historical problems, eras and events, using film as the principal historical document. Maximum credit six units.

425. *(102.)* **Great Historians and Historical Literature (3) I, II**
Lectures and readings in the history of history and the works of major historians. Open to all upper division students; especially recommended for history and social science majors. Meets field requirement (g) Topical Subjects toward credit in the major.

430. *(198.)* **The Writing of History (3) I, II**
Prerequisite: History major or 12 upper division units in history.
Historical method and research in some aspect of history.

496. *(180.)* **Selected Studies in History (3)**
Topics in the various fields of history, such as biography, war, science, technology, urbanization, minority groups, immigration and capitalism. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of department chairman and instructor.

UPPER DIVISION COURSES
Also Acceptable for Advanced Degrees in the Major Area

Field (a). Ancient and Medieval

500A-500B. *(111A-111B.)* **Ancient History (3-3)**
Semester I: Greece to the Roman Conquest. Semester II: Rome to the 5th Century A.D.

503A-503B. *(121A-121B.)* **Europe in the Middle Ages (3-3)**
European social, cultural, and political developments from the fall of Rome to the Renaissance.

504. *(122.)* **The Holy Roman Empire to the Great Interregnum (3)**
Prerequisite: History 105A or 503A-503B.
The multinational Holy Roman Empire and its intellectual and social ramifications. Church-state relationships and the development of constitutionalism.

505. *(123.)* **The Byzantine Empire (3)**
The social, political, cultural, and economic development of the Eastern Roman Empire from the crisis of the third century to the fall of Constantinople in 1453.

Field (b). Modern Europe

508. *(131.)* **The Renaissance (3)**
The intellectual, artistic, and social transformation of Europe from the 14th through the early 16th century.

509A-509B. *(132A-132B.)* **Early Modern Europe (3-3)**
Continental Europe in the 16th and 17th centuries: the religious revolt and religious wars, rise of monarchy, baroque culture, the revolutions in commerce and science. Semester I: The century after Luther. Semester II: The 17th century.

510A-510B. *(133A-133B.)* **Europe in the 18th Century (3-3)**
The "Old Regime" and the influence of the Enlightenment and the Enlightened Despots are emphasized. Semester I: The 18th century to 1763. Semester II: Intellectual and social changes in the quarter century before the French Revolution.

511A-511B. *(135A-135B.)* **Europe in the 19th Century (3-3)**
Social, political, and economic developments of 19th century Europe.

512A-512B. *(137A-137B.)* **Europe in the 20th Century (3-3)**
Political and social developments from 1870 to the present.

513A-513B. *(141A-141B.)* **History of Scandinavia (3-3)**
The major political, social and economic developments in Scandinavia from the Viking Age to the present. Semester I: From the Viking Age to the end of the Napoleonic Wars. Semester II: Modern Scandinavia, 1814 to the present.

514A. *(142A.)* **The French Revolution and Napoleonic Era (3) I**
Prerequisite: History 105A-105B.
France on the eve of the Revolution; the Great Revolution, 1789-1799, the Napoleonic Era.

514B. *(142B.)* **Modern France (3) II**
Prerequisite: History 105A-105B.
The development of France since 1815.

515A-515B. *(143A-143B.)* **The Iberian Peninsula (3-3)**
A cultural and political survey of Portugal and Spain as well as their empires. Semester I: From medieval times to the early modern period. Semester II: From early modern times to the present.

516A-516B. *(145A-145B.)* **Central and Eastern Europe (3-3)**
Prerequisite: History 105A-105B.
Semester I: Political, social and intellectual study of the various nationalities inhabiting the area from the Baltic to the Aegean Sea. Semester II: Developments since the late 18th century.

517A-517B. *(146A-146B.)* **Germany and Central Europe (3-3)**
Prerequisite: History 105A-105B.
The political, social and cultural record of the Germanic peoples of Northern and Central Europe from Tacitus to the present.

518A-518A. *(147A-147B.)* **Russia and the Soviet Union (3-3)**
Semester I: Political, social and economic development of Russia in Europe and Asia from the earliest times to the close of the 19th century. Semester II: Emphasis on the 20th century.

519. *(149.)* **Modern Italy (3)**
The development of Italy from 1815 to the present.

520A-520B. *(151A-151B.)* **England (3-3)**
Prerequisite: History 520A is prerequisite to 520B.
Political and social history of England from the earliest times to the present day, stressing the origins of American institutions and social patterns. Recommended for majors in English.

521A-521B. *(152A-152B.)* **Constitutional History of England (3-3)**
Evolution of the common law and the development of parliamentary institutions.

522A-522B. *(153A-153B.)* **Tudor and Stuart England (3-3)**
Semester I: The Age of the Tudors. Semester II: England during the Stuart Dynasty, 1603-1714.

523A-523B. *(154A-154B.)* **Modern Britain (3-3)**
Semester I: The development of constitutional and social patterns from the Glorious Revolution to the French Revolution, emphasizing the immediate background to the American Revolution. Semester II: From the 19th century to the present, including the rise of Parliamentary democracy, imperialism and the Victorian age, and political thought from the Utilitarians to the Fabians.

526A-526B. *(136A-136B.)* **Intellectual History of Modern Europe (3-3)**
Selected problems in European intellectual history beginning with the 17th century, with special attention to social and political thought.

527A-527B. *(138A-138B.)* **Diplomatic History of Modern Europe (3-3)**
Prerequisite: History 105A-105B.
Diplomatic relations of the various European states with European and non-European powers. Semester I: From the Concert of Europe (1815) to the Era of *Realpolitik* in the late 19th century. Semester II: The diplomatic backgrounds and results of two wars.

Field (c). United States

531A-531B. *(171A-171B.)* **Rise of the American Nation (3-3)**
The settlement and development of the British colonies in North America and the American Revolution. Stresses the creation of the American nation through modification of Old World institutions in the new environment.

532A-532B. *(172A-172B.)* **Development of the Federal Union (3-3)**
Prerequisite: History 532A is prerequisite to 532B.
Political, cultural, social and intellectual aspects of the Confederation and early national period; the Convention of 1787 and establishment of the Constitution; the administrations of Washington through John Quincy Adams. This year course meets the graduation requirements in American history, institutions and ideals; 532A meets the requirement in U.S. Constitution; and 532B includes materials which meet the requirements in California state and local government.

533A-533B. *(173A-173B.)* **Jacksonian Democracy, Civil War and Reconstruction (3-3)**
Semester I: Territorial expansion, democratic politics, revivalism, and the slavery controversy. Semester II: The Civil War and Reconstruction, emphasizing political affairs and the role of Lincoln.

534. *(174.)* **The Rise of Modern America, 1868-1900 (3)**
Economic, social, political, and intellectual developments from the end of the Civil War to the close of the 19th century.

535A-535B. *(175A-175B.)* **The United States, 1901-1945 (3-3)**
The age of reform and the United States as leader of the free world.

536. *(175C.)* **The United States in the Nuclear Age (3)**
The United States since World War II.

537A-537B. *(181A-181B.)* **The Westward Movement (3-3)**
The American frontier: Expansion, exploration, settlement and building of the new states, with emphasis on frontier problems of defense, communications, finance, etc.; the development of cultural institutions. The causes, effects and results of the frontier experiences of the American people. This year course meets the graduation requirement in American history, institutions and ideals.

538A-538B. *(182A-182B.)* **The American Southwest (3-3)**
Semester I: Exploration, colonization and development of the Southwest under Spanish and Mexican rule. Emphasis on frontier institutions and Indian policy. Semester II: Anglo American penetration and acquisition of the Southwest. Themes such as boundary problems, mining, transportation, water, ranching and ethnic relations.

539A-539B. *(183A-183B.)* **Black American Civilization (3-3)**
Semester I: The Black minority group and its contributions and challenges to American civilization. African backgrounds, slavery, the abolitionists, the free Black. Semester II: Ghetto life, leadership personalities, and protest movements.

540. *(185.)* **Environmental History of the United States (3)**
The relationship of Americans to their environment from colonial times to the present with emphasis on how attitudes and values have affected personal behavior and public policy toward the land.

541A-541B. *(189A-189B.)* **California (3-3)**
Political institutions; social, cultural, economic and intellectual development; international background. Semester I: To 1850; Spanish and Mexican heritage. Semester II: 1850 to the present. History 541B will fulfill the requirement in California state and local government.

544A-544B. *(176A-176B.)* **American Foreign Policy (3-3)**
Semester I: The development of American foreign policy since 1776. Semester II: Developments since 1916. This year course meets the graduation requirements in American history, institutions and ideals.

545A-545B. *(177A-177B.)* **Constitutional History of the United States (3-3)**
American constitutional history since the establishment of the federal government. This year course meets the graduation requirement in U.S. Constitution and in American history, institutions and ideals.

546A-546B. *(178A-178B.)* **Development of American Capitalism (3-3)**
The changes in agriculture, industry, labor, banking, transportation and commerce in a capitalist society with emphasis on the prominent personalities who made the changes possible.

547A-547B. *(179A-179B.)* **Intellectual History of the American People (3-3)**
Survey of American thought from 1620 to the present, focusing on the ideas of individuals, groups and movements in religion, politics, society, the arts and reform. Emphasis on liberal and conservative impulses and their role in the making of the modern American mind.

548A-548B. Social History of the United States (3-3)
Historical survey of American society emphasizing demographic trends, the changing role of the family, social structure, immigration patterns, religious movements, developments in education, the economy and entertainment.

Field (d). Latin America

551A-551B. *(161A-161B.)* **Mexico (3-3)**
Prerequisite: History 115A-115B or 315A-315B.
Colonial and modern Mexico. Semester II: Emphasis on the 20th century.

552A-552B. *(162A-162B.)* **History of Brazil (3-3)**
Semester I: Colony and empire, 1500-1889, with focus on Portuguese heritage, plantation society, African slavery and its abolition and development of classes and regions. Semester II: The 20th century, with focus on messianism and social banditry, creation of the industrial and military state, Afro-Brazilians, and the conquest and destruction of the Amazonian forest and Indians. Recommended for persons minoring in Portuguese.

553A-553B. *(163A-163B.)* **The Caribbean Area (3-3)**
Development of the Caribbean area with emphasis on the 20th century.

554. *(164.)* **The West Coast Nations of South America (3)**
The historical development of Chile, Bolivia, Peru and Ecuador with emphasis on race relations and social revolutions in the 20th century.

557A-557B. *(165A-165B.)* **History of Latin American Popular Culture and Social Thought (3-3)**
Examination of the ways Latin Americans have historically viewed their cultures and societies from the dual perspective of elites and the masses.
Semester I: Popular Culture—the Latin American self-image reflected in family relations, folklore, myth, legend, popular music and art and mass expression. Semester II: Intellectual Trends—major themes in intellectual history, with focus on the treatment of social themes in major works of literature, history and sociology.

558A-558B. *(167A-167B.)* **Diplomatic History of Latin America (3-3)**
Origins of Inter-Americanism; relations among the Latin American nations; the origins and development of the American States; Latin America in World Affairs.

Field (e). South, Southeast and East Asia

561A-561B. *(191A-191B.)* **The Far East (3-3)**
Particular, but not exclusive, emphasis on Asian-Western relations. Semester I: Through the 19th century. Semester II: The 20th century.

562A-562B. *(196A-196B.)* **India—Hindu, Muslim and Modern (3-3)**
Semester I: Indian civilization from earliest times to the 18th century, emphasizing the growth of Hinduism, challenges from Buddhism and the interaction of Hinduism and Islam under Muslim rule. Semester II: British colonialism, Hindu and Muslim nationalism, Gandhi's significance, the Partition crisis and India and Pakistan since 1947.

564A-564B. *(190A-190B.)* **Southeast Asia (3-3)**
Semester I: Cultural traditions of Southeast Asian peoples. Indigenous institutions and the influence of China, India and Islam. Semester II: Southeast Asia in the modern world. Patterns of foreign stimulus and local response among the peoples of the area.

566. *(192.)* **Chinese Civilization (3) I**
Chinese internal history and institutions during the period of relative isolation; religions, philosophy, literature and the arts.

567A-567B. *(193.)* **Modern and Contemporary Chinese History (3-3)**
Semester I: Impact of the West on China's history and civilization, particularly in the 19th and early 20th centuries. Semester II: Selected historical problems of contemporary China since the development of Chinese Communist Party. Theory and practice of the party, Red Army, rural soviets, socialist economic and cultural systems, and revolutionary foreign policies.

569. *(194.)* **Japanese Civilization (3) I**
Japanese internal history and institutions during the period of indigenous development and Chinese influence including religions, philosophy, literature and the arts.

570. *(195.)* **Modern Japan (3)**
Japan's development as a modern state, particularly in the 19th and 20th centuries.

571A-571B. *(197A-197B.)* **Intellectual History of Modern Asia (3-3)**
Asian intellectual history during the 19th and 20th centuries, with special attention to social and political thought.

Field (f). Africa and Middle East

573A-573B. *(156A-156B.)* **History of the Near East from the 7th Century to World War I (3-3)**
Prerequisite: History 105A-105B.
Semester I: Medieval Islam from the 7th century A.D. to the rise of the Ottoman Turks. Semester II: The Ottoman Empire to 1914.

574. *(157.)* **The Near East in the Twentieth Century, 1914 to Present (3)**
Prerequisite: History 105A-105B.
Analysis of sociopolitical and intellectual developments in the Near East during and after World War I.

575A-575B. *(158A-158B.)* **Africa (3-3)**
Semester I: Civilization of precolonial Africa both north and south of the Sahara from the advent of Islam to 1880. Semester II: Colonial and postcolonial Africa.

Field (g). Topical Subjects

581A-581B. *(101A-101B.)* **The Contemporary World in Historical Perspective (3-3)**
Trends and developments in the recent past which can contribute to an understanding of the problems of our age.

582A-582B. *(105A-105B.)* **War and Civilization (3-3)**
The political and social implications of warfare, of the development of military technologies and of changing concepts of military organization. Semester I: Through the 18th century. Semester II: French Revolution and Napoleonic Wars to the present.

583A-583B. *(106A-106B.)* **The Quest for Peace (3-3)**
Prerequisite: Six units in history.
Historical analysis of man's efforts to achieve peace from the Greeks to the present.

584A-584B. *(107A-107B.)* **Science and Society (3-3)**
The historical development of the interaction between science and other aspects of society, including politics, economics, philosophy, religion and technology. Semester I: The rise of modern science. Semester II: Revolution in scientific thought and 20th century problems in science and society.

596. Selected Studies in History (3)
Topics in the various fields of history, such as biography, war, science, technology, urbanization, minority groups, immigration and capitalism. Maximum credit six units.

GRADUATE COURSES

All graduate courses in the Department of History have a prerequisite of 12 units of upper division courses in history, or consent of the instructor.

601. *(201.)* **Seminar in Historical Method (3)**
General historical bibliography. The use of libraries and archives. Methods of critical historical investigation. The interpretations of history.

610. *(246.)* **Directed Reading in Ancient and Medieval History (3)**
Prerequisite: Six upper division units in Ancient or Medieval history.
Selected readings in source materials and historical literature in a designated area of Ancient or Medieval history. Maximum credit six units applicable on a master's degree.

615. *(256.)* **Seminar in Ancient and Medieval History (3)**
Prerequisite: Six upper division units in Ancient or Medieval history.
Directed research on topics selected from a designated area of Ancient or Medieval history. Maximum credit six units applicable on a master's degree.

620. *(242.)* **Directed Reading in European History (3)**
Prerequisite: Six upper division units in European history.
Selected readings in source materials and historical literature in a designated area of European history. Maximum credit six units applicable on a master's degree.

625. *(252.)* **Seminar in European History (3)**
Prerequisite: Six upper division units in European history.
Directed research on topics selected from a designated area of European history. Maximum credit six units applicable on a master's degree.

630. *(241.)* **Directed Reading in United States History (3)**
Prerequisite: Six upper division units in United States history.
Selected readings in source materials and historical literature in a designated area of United States history. Maximum credit six units applicable on a master's degree.

635. *(251.)* **Seminar in United States History (3)**
Prerequisite: Six upper division units in United States history.
Directed research on topics selected from a designated area of United States history. Maximum credit six units applicable on a master's degree.

640. *(244.)* **Directed Reading in Latin American History (3)**
Prerequisite: Six upper division units in Latin American history.
Selected readings in source materials and historical literature in a designated area of Latin American history. Maximum credit six units applicable on a master's degree.

645. *(254.)* **Seminar in Latin American History (3)**
Prerequisite: Six upper division units in Latin American history.
Directed research on topics selected from a designated area of Latin American history. Maximum credit six units applicable on a master's degree.

650. *(243.)* **Directed Reading in Asian History (3)**
Prerequisite: Six upper division units in Asian history.
Selected readings in source materials and historical literature in a designated area of Asian history. Maximum credit six units applicable on a master's degree.

655. *(253.)* **Seminar in Asian History (3)**
Prerequisite: Six upper division units in Asian history.
Directed research on topics selected from a designated area of Asian history. Maximum credit six units applicable on a master's degree.

660. *(245.)* **Directed Reading in African and Middle Eastern History (3)**
Prerequisite: Six upper division units in African or Middle Eastern history.
Selected readings in source materials and historical literature in a designated area of African or Middle Eastern history. Maximum credit six units applicable on a master's degree.

665. *(255.)* **Seminar in African and Middle Eastern History (3)**
Prerequisite: Six upper division units in African or Middle Eastern history.
Directed research on topics selected from a designated area of African or Middle Eastern history. Maximum credit six units applicable on a master's degree.

680. *(240.)* **Directed Reading in Selected Topics (3)**
Prerequisite: Consent of the instructor.
Selected readings in source materials and historical literature of various fields of history such as war, science, technology, urbanization, minority groups, immigration, capitalism, conservation, and imperialism. Maximum credit six units applicable on a master's degree.

690. *(250.)* **Seminar in the Philosophy of History (3)**
The major philosophies of history and directed research on topics selected from various philosophers of history such as Bury, Collingwood, Croce, Freud, Hegel, Marx, Pareto, Sorokin, Spengler and Toynbee.

795. *(296.)* **Area Studies in History (1-3) Cr/NC**
Prerequisite: Advancement to candidacy.
Preparation for the comprehensive examinations in the major and minor fields of history for those students taking the M.A. under Plan B. Maximum credit six units applicable on a master's degree.

797. *(297.)* **Research (3) Cr/NC**
Prerequisite: Advancement to candidacy and written approval of the History Department graduate coordinator.
Independent research in a specialized subject in history.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Humanities

Administered by the Dean of the College of Arts and Letters

Faculty

Faculty assigned to teach courses in humanities are drawn from departments in the College of Arts and Letters.

Offered by the College of Arts and Letters

Courses in humanities.
Major or minor work in humanities is not offered.

LOWER DIVISION COURSES

All classes are conducted in English.

130. *(30.)* **The Jewish Heritage I (3) I, II**
Major Hebraic concepts of the Biblical and post-Biblical periods; their impact on Western civilization and their contemporary relevance.

131. *(31.)* **The Jewish Heritage II (3) II**
Major Jewish concepts from medieval through modern times; their impact on Western civilization and their contemporary relevance.

140. *(40.)* **Mythology (3)**
Major myths of the world in ancient and modern versions.

157. *(57.)* **Arab-Islamic Culture and Civilization (3)**
Interdisciplinary survey of Islamic culture and civilization, emphasizing religious beliefs, their developments, and their role in creating or being integrated with sociopolitical systems of the Islamic Near East from the time of Muhammad to the present.

158. *(58.)* **African Culture and Civilization (3)**
An interdisciplinary survey.

201. Introduction to Humanities (3) I
Preliminary investigation: How values and ideals are expressed in the literary, artistic and intellectual achievements of individuals and civilizations throughout the world.

202. Humanities in Perspective (3) II
Integrated survey of contemporary movements in art, literature and mores, comparing American attitudes with traditional genres values, and aesthetics.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

357. Islamic Culture and Civilization (3) II
Interdisciplinary analysis of Islam as a religion and as a sociocultural ethic within a multinational framework extending from Morocco to Indonesia.

370. *(170.)* **The Humanities and Modern Man (1) Irregular Cr/NC**
Lectures open to the public.
Weekly lectures on literature, language, philosophy and cultural history. Reading and reports required of students enrolled for credit. Maximum credit three units.

496. Topics in Humanities (3)
Selected topics in literature and the arts. Comparative themes and critical approaches. May be repeated with new content. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of the instructor.

Industrial Arts

In the College of Professional Studies

Faculty

Emeritus: Ford, Luce, McLoney
Professors: Anderson, Bailey, Hammer, Irgang, McMullen, Thiel
Associate Professors: Dirksen, Guentzler, Marsters (Chairman), McEowen
Assistant Professors: Blackmun, Ferree, Lybarger, Rasmussen, Sorenson
Lecturers: Bussard, Teague

Offered by the Department of Industrial Studies

Master of Arts degree in industrial arts.
Major in industrial arts with the A.B. degree in applied arts and sciences.
Minor in industrial arts.
Teaching major in industrial arts for the single subject teaching credential.

Industrial Arts Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Industrial Arts 100 and 121 to be taken at the beginning of the major; four courses selected from Industrial Arts 110, 115, 131, 140, 151, 161, 171 and 181. (17 units.)

Major. A minimum of 24 upper division units to include nine units in *each of two* of the following fields: industrial drawing, general metalworking, plastics, general woodworking, electricity-electronics, transportation, graphic arts, industrial crafts, and photography; and six additional units in industrial arts excluding Industrial Arts 498 and 499.

Industrial Arts Minor

The minor consists of 20 units in industrial arts to include Industrial Arts 100, 121, and one lower division and one upper division course in each of two of the following fields: general metalworking, general woodworking, electricity-electronics, transportation, industrial crafts, industrial drawing, photography, plastics, and graphic arts. Choose electives in consultation with the adviser.

Courses in the minor may not be counted toward the major or general education.

Industrial Arts Major

For the Single Subject Teaching Credential

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

The requirements for the Industrial Arts major for the single subject teaching credential are the same as the requirements for the A.B. degree in applied arts and sciences. In addition, Industrial Arts 492 must be taken.

LOWER DIVISION COURSES

100. *(11.)* **Orientation to Industrial Arts (2) I, II**
Required of all industrial arts majors during their first semester.
The history and philosophy of industrial arts with emphasis on the current status and development of the secondary school curriculum. Discussion of professional requirements, obligations and development.

106. *(6.)* **Survey of Electronics (3)**
One lecture and six hours of laboratory.
A nonmathematical survey of electronics, practical utilization of tools and equipment of today's industry.

110. *(10.)* **General Crafts (3)**
One lecture and six hours of laboratory.
The practical utilization of tools, materials and methods employed in industrial craft areas. The fundamentals of good design.

115. *(15.)* **General Plastics (3) I, II**
One lecture and six hours of laboratory.
Production methods, mechanical and physical properties, composition of plastics. The basic processes: molding, casting, thermoforming, reinforcing and foaming.

121. *(21.)* **Industrial Drawing (3) I, II**
One lecture and six hours of laboratory.
Fundamental theories, procedures and techniques of modern industrial drafting; study and practice intended to develop skill and judgment in application to drafting as the universal language of industry.

131. *(31.)* **General Metalworking (3) I, II**
One lecture and six hours of laboratory.
Exploration of basic materials and methods employed by industry to produce metal products. The attainment of knowledge and skills involved in the primary fabrication techniques of sheet metal, bench metal, art metal, foundry, forging, machining, and welding.

140. *(40.)* **Introduction to Photography (3) I, II**
One lecture and six hours of laboratory.
A consideration of photographic optics and chemistry; nature of light and image formation; photographic emulsions, exposure and development. Composition and lighting. Not open to students with credit in Journalism 150.

151. *(51.)* **General Woodworking (3) I, II**
One lecture and six hours of laboratory.
Introduction to wood technology and ecology; safe practices; fasteners; adhesives; abrasives; science of working with wood, emphasizing hand tools.

161. *(61.)* **Basic Electronics (3) I, II**
One lecture and six hours of laboratory.
Planning, designing, constructing, and experimenting to develop skills and acquire knowledge in the electronics field. Basic principles, their application to modern electronic equipment, and correct use of common hand tools and simple test equipment.

171. *(71.)* **Power Mechanics (3)**
One lecture and six hours of laboratory.
Introduction to the various forms of power transmission with emphasis on small gas engines and automotive preventive maintenance.

181. *(81.)* **General Graphic Arts (3) I, II**
One lecture and six hours of laboratory.
The theory and practice in planning, designing and processing in the various graphic reproduction activities involving type, stencils, paper, and other allied materials.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. *(101.)* **Industrial Arts Crafts (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Previous industrial arts experience.
Emphasis on skills in the industrial arts crafts by laboratory experiences in such areas as plastics, jewelry, lapidary, leather and mosaics. Stress on creativity in design and in utilization of materials.

305. *(105.)* **Workshop in Instructional Materials (3)**
One lecture and six hours of laboratory.
Industrial arts laboratory experiences adapted to individual needs; practice in use of tools common to problematic needs. Preparation of materials and instructional aids for classroom use. Not open to industrial arts majors.

315. *(115.)* **Tooling for Plastics Production (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 115.
Design and use of basic tooling; dies for injection and compression molding, forms for reinforced plastics processes, and molds for thermoforming and casting.

321. *(121.)* **Intermediate Industrial Drawing (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 121.
Complex theories and techniques of graphic delineation. Activities selected to develop individual competence.

331. *(131.)* **Machine Tool Processes (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 131.
Study of machine tools as a manufacturing medium emphasizing precision measurement, standards, tolerance and inspection methods.

341. *(141.)* **Intermediate Photography (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Industrial Arts 140 or 540.
Exposure theory, sensitometry, contrast control, specialized development, distortion and perspective control, and advanced studies of photographic lenses and equipment.

351. *(151.)* **Machine Woodworking (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 151.
Experience in the use of selected woodworking machines which offer opportunities for the development of construction activities in wood. Emphasis on creative design, sound safety practices, and techniques of personnel management.

361. *(161.)* **Intermediate Electronics (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 161.
Development of skills through planning, designing, constructing and experimenting. Emphasis on the application of advanced principles of electronics to the uses of power, transmission, communication, radio and television.

371. *(171.)* **Engines and Drive Trains (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 171.
Advanced study of the operational theory of engines, transmissions and differentials. Emphasis on precision individual systems overhaul.

381. *(181.)* **Intermediate Graphic Arts (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 181.
Activities in the various graphic arts with emphasis on new technology in the industry.

402. *(102.)* **Advanced Industrial Arts Crafts (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 301.
Advanced techniques of industrial arts crafts. Development of audiovisual aids, projects, and resource materials with emphasis on physical setting, organization, and other pertinent laboratory problems.

411. *(111.)* **Comprehensive Industrial Arts (3)**
One lecture and six hours of laboratory.
Individual opportunity to explore each area of the selected industrial arts activities, utilizing a variety of tools, equipment and materials. Not open to industrial arts majors.

416. *(116.)* **Thermoplastics (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 315.
Composition and selection of materials; evaluation of physical and mechanical properties of various thermoplastics; special techniques for processing and production of thermoplastics.

422. *(122.)* **Architectural Drafting (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 121.
Architectural drafting, primarily in small home planning. Development of drafting skills and understanding of good contemporary home design.

432. *(132.)* **Welding Processes and Procedures (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 131.
A study of the basic welding processes with emphasis on physical principles and properties, inspection methods and equipment operations.

443. *(143.)* **Advanced Problems in Photography (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 341.
Technical problems and techniques in photography.

444. *(144.)* **Color Photography (3)**
Two lectures and three hours of laboratory.
Prerequisite: Industrial Arts 341.
Exposure and processing techniques as applied to current color films and papers in relation to the theory of color photography.

452. *(152.)* **Industrial Woodworking (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 351.
Designed to increase professional skills, craftsmanship, advanced technical skills, and equipment maintenance procedures.

462. *(162.)* **Advanced Electronics (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 361.
Development of advanced skills with application to industrial electronics. Techniques in the use of electronics test equipment and analysis of electronic devices.

464. *(164.)* **Basic Digital Computers (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 361.
Functions of circuitry as applied to switching, timing and pulse circuits. Basics of computer digital logic.

465. *(165.)* **Analog Computer Fundamentals (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 361.
Introduction to electronic analog circuits, with emphasis on instrumentation and measurement techniques.

472. *(172.)* **Power System Diagnosis and Evaluation (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 371.
Theory and application of various types of diagnostic testing equipment, with emphasis on trouble shooting and power system analysis.

482. *(182.)* **Advanced Graphic Arts (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 381.
Planning of activities and perfecting of skills in printing and publication; efficient operation of machines and equipment.

491. Manual Arts Therapy Clinical Training (6)
Prerequisite: Consent of department chairman and instructor.
Supervised experiences in manual arts therapy at various Veterans' Administration Hospitals and rehabilitation centers. Students will acquire, through observation and participation, clinical insight and experience in procedures and practices in the field. 240 hours of clinical training required.

492. *(192.)* **Teaching Methods in Industrial Education (3) I, II**
Prerequisite: Admission to Secondary Education Program.
Study of methodology needed to teach industrial subjects. It is recommended that this course be taken prior to student teaching.

493. *(193.)* **Industrial Arts Organization and Management (2)**
The organization of industrial arts in secondary schools, review of project requirements and methods of developing student participation in personnel management.

495. *(195.)* **Occupational Orientation (3)**
Identifying a wide range of occupations in construction, manufacturing, transportation and communication. Students study the world of occupations, training requirements, entry specifications, levels of employment, salaries, job security, and other related information.

498. *(198.)* **Senior Project (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Consent of instructor.
Each student will work on a project in a selected industrial arts activity area. Oral progress reports will be made and a final written report is required.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

503. *(103.)* **Advanced Industrial Crafts (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 402.
Advanced techniques of industrial crafts. Concentration on the design of craft projects with best utilization of materials. Development, in at least three areas specified by the instructor, of individual exhibits showing originality.

517. *(117.)* **Thermoset Plastics (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 315.
Composition and selection of materials; evaluation of physical and mechanical properties of various thermoset plastics, special techniques for processing and production of thermoset plastics.

523. *(123.)* **Industrial Arts Drawing (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Industrial Arts 121. Practice in and analysis of modern industrial drafting techniques and theories.

533. *(133.)* **Applied Metal Forming Operations (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 131.
Theory of conventional and high energy industrial forming processes augmented with laboratory forming experiences.

540. *(140.)* **Photography for Teachers (3)**
One lecture and six hours of laboratory.
Designed for more mature students to learn photographic skills useful in teaching. Not open to students with credit in Industrial Arts 140.

542. *(142.)* **Advanced Photography (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 140 or 540.
A consideration of advanced negative control, projection printing techniques, composition and editorial content, architectural and illustrative photography, and flood photoflash techniques.

553. *(153.)* **Woodworking for Teachers (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 351.
Industrial arts woodworking resources and materials; experience in industrial arts planning, laboratory and equipment organization, and personnel management.

563. *(163.)* **Industrial Electronics (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 361.
Advanced problems in industrial electronics circuit development, analysis, theory and application.

573. *(173.)* **Accessory Power Systems (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 371.
Study of accessory power systems and technological innovations in the power industries.

583. *(183.)* **Industrial Arts Graphic Arts (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 381.
Advanced techniques in developing skills involved in graphic arts facilities.

594. *(194.)* **Recent Trends in Industrial Arts Education (2)**
Current trends and practices in the field of industrial arts in secondary education. There will be opportunity for individual work on related problems of interest to members of the class.

596. *(190.)* **Experimental Industrial Arts (1 or 2)**
Prerequisite: Consent of instructor.
Individual laboratory work on complex projects on an experimental basis. Maximum credit six units.

GRADUATE COURSES

600. *(200.)* **Seminar (3)**
An intensive study in industrial arts; topic to be announced in the class schedule.

601. *(201.)* **Advanced Teaching Problems (3)**
Prerequisites: Teaching experience in area selected and consent of instructor.
Materials and advanced techniques of teaching specific activity areas, such as (a) industrial drawing; (b) general metalworking; (c) general woodworking; (d) electricity-radio; (e) transportation; (f) graphic arts; (g) photography; (h) comprehensive industrial arts. Stress on project design and visual materials. Maximum credit six units applicable on a master's degree.

610. *(210.)* **Problems in Industrial Crafts (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 503.
Research in selected areas of industrial crafts with emphasis on instructional materials and techniques. Specifically designed for teachers, recreation workers and therapists.

615. *(215.)* **Problems in Plastics (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 517.
Research with selected plastics processes and materials. Development of projects, aids, resource material, oral and written presentations.

620. *(202.)* **Industrial Arts Problems in Graphics and Design (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 523.
The theories and procedures of industrial drafting, including nomographs, descriptive geometry, and graphic solutions. Emphasis on special applications to industrial arts.

630. *(203.)* **Industrial Arts Problems in Metalworking (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 533.
Problems involved in industrial arts metalworking. Individual research project dealing with instructional materials or processes.

640. *(204.)* **Problems in Photography (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 443,444 or 542.
Advanced problems in photography in industry and photography in education. Individual research project dealing with instructional materials or industrial processes.

650. *(205.)* **Industrial Arts Problems in Woodworking (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 553.
Intensive study in selected areas of the woodworking industry as it relates to materials, production and construction. Presentation of research findings.

660. *(206.)* **Problems in Electronics (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 463.
Recent developments in the electronics areas. Special research projects and resource materials.

670. *(207.)* **Research in Vehicular Power Systems for Industrial Arts (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 573.
Research in selected areas of the vehicular power systems and effective presentation of findings in oral and written form.

680. *(208).* **Industrial Arts Problems in Graphic Arts (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 583.
Selected areas of the graphic arts industry related to materials, production methods, and allied pursuits. Techniques of presentation of findings in effective written and oral form.

720. *(220.)* **History and Philosophy of Industrial Education (3)**
A study of the philosophical foundations and development of industrial education and its continuing role in American culture. Contemporary practices and trends will be given consideration.

721. *(221.)* **Curriculum Construction in Industrial Arts Education (3)**
Selection of teaching content for school situations in compliance with the best known procedures regarding analysis, objectives, methods and learning, and development of instructional devices related directly to course content.

722. *(222.)* **Instructional Resources for Industrial Arts Education (3)**
Survey, selection, and compilation of materials used in the development of resource units for instruction in industrial education, involving publications, organized talks, field trips, visual materials, technical literature and related materials. Organization and evaluation of such materials.

723. *(223.)* **Evaluation in Industrial Arts Education (3)**
Principles, methods, and criteria of evaluation including the special problems of measuring growth, achievement, and performance in various phases of industrial education.

724. *(224.)* **Organization, Administration and Supervision of Industrial Education Programs (3)**
The principles, objectives, methods and techniques employed in the supervision of industrial education programs. Emphasis on organizing and administering programs at all levels in industry and education.

790. *(290.)* **Research Procedures in Industrial Arts (3)**
Location, selection and analysis of scientific and professional literature, research data and specialized bibliographies.

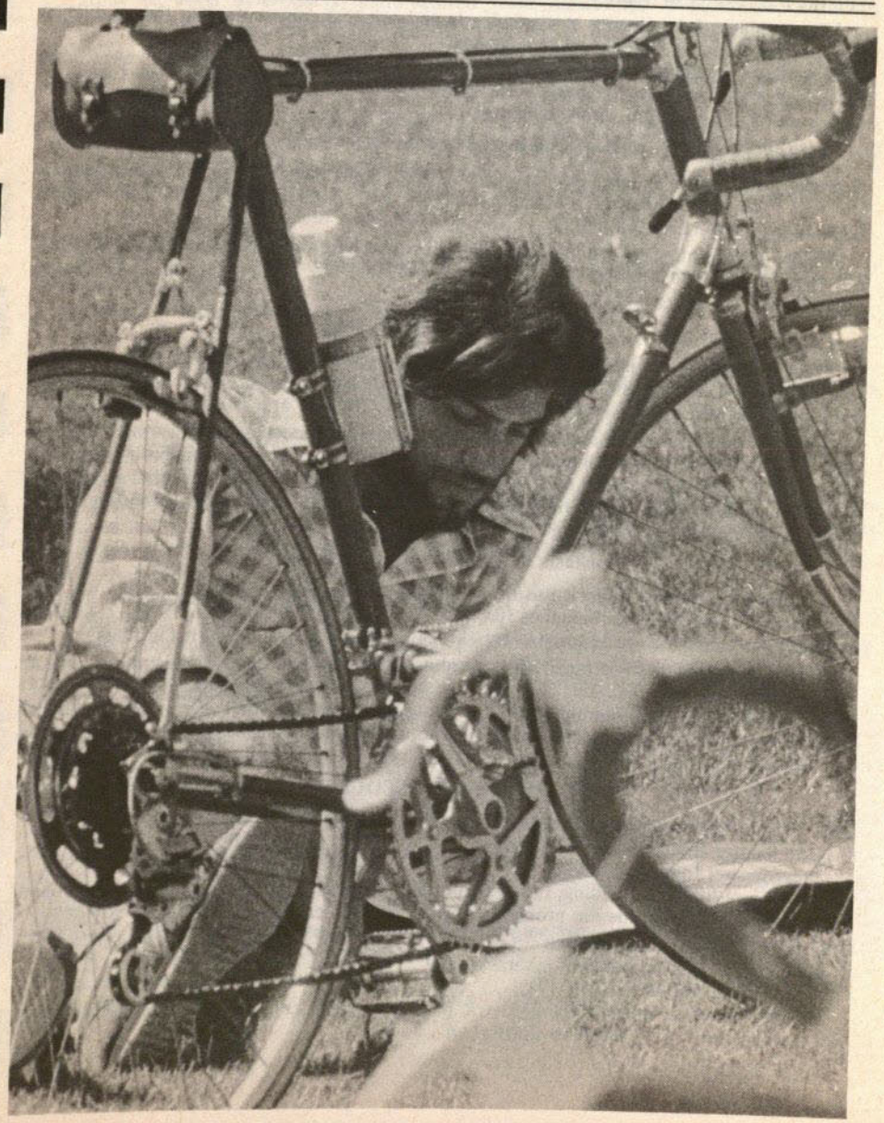
795. *(295.)* **Selected Topics in Industrial Arts (3)**
Prerequisites: Industrial Arts 790 and advancement to candidacy for the Master of Arts degree.
Study in selected topics of industrial arts culminating in a research paper.

796. *(267.)* **Field Work in Industrial Arts (3)**
Prerequisites: Teaching experience in industrial arts and consent of instructor.
Application of the principles of laboratory organization, management and planning in reference to the objectives of industrial arts in development of school programs.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis in industrial arts for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.



Industrial Technology

In the Department of Industrial Studies

In the College of Professional Studies

Faculty

Faculty assigned to teach courses in industrial technology are drawn from Industrial Studies.

Offered by the Department of Industrial Studies.

Major in industrial technology with the B.S. degree in applied arts and sciences.

Industrial Technology Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

This major in industrial technology may be planned with an emphasis in electronics technology, industrial sales, or manufacturing technology.

A minor is not required with this major.

Emphasis in Electronics Technology

Preparation for the major. Chemistry 100A-100B; Economics 120 and 121; Industrial Arts 115, 121, 131, 140, 161, 171; Mathematics 103, 107, 119, 121, 122, 123, 137; Physics 124A-124B, 125A-125B. (60 units.)

Major. A minimum of 42 upper division units to include Industrial Technology 321, 361, 374, 495, 591 and 594; Industrial Arts 361, 462, 464, 465, 498, 563; and six units of electives selected with the approval of the adviser.

Emphasis in Industrial Sales

Preparation for the major. Business Administration 140; Economics 120 and 121; Industrial Arts 121; Mathematics 103, 107, 119, 120; Physics 124A-124B, 125A-125B; and 15 units selected from Industrial Arts 115, 131, 140, 151, 161, 171 and 181. (47 units.)

Major. A minimum of 42 upper division units to include Business Administration 370 and three units selected from Business Administration 376, 473, 474; Industrial Technology 495, 591, 592, 593, 594; a minimum of 18 upper division units in applicable industrial arts and/or industrial technology courses in three technical areas (six units in each area), and three units of electives selected in consultation with the adviser.

Emphasis in Manufacturing Technology

Preparation for the major. Business Administration 140; Economics 120 and 121; Industrial Arts 121, 161; Mathematics 103, 119, 121, 122, 123; Physics 124A-124B, 125A-125B, and 12 units selected from Industrial Arts 115, 131, 140, 151, 171 and 181. (50 units.)

Major. A minimum of 51 upper division units to include Business Administration 360 and six units selected from 350, 351, 352, 460, 461, 462 Industrial Technology 321, 361, 374, 495, 591, 592, 593, 594; a minimum of 18 units in applicable industrial arts and/or industrial technology courses in two technical areas (nine units in each area) selected in consultation with the adviser.

UPPER DIVISION COURSES

321. *(121.)* **Industrial Design Problems (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 121.
A study of blueprint reading, the design of jigs, fixtures and dies, and the application and solution of power transmission problems in the industrial environment.

323. *(123.)* **Technical Illustration (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 121.
Theory and techniques of axonometric projections with emphasis on isometric drawings and their application to technical illustration.

326. *(122.)* **Commercial Building Layout (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 422.
Layout of light and medium commercial building using concrete, steel and wood construction.

334. *(134.)* **Technology of Ferrous and Nonferrous Metals (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 131.
Applied metallurgy dealing with physical properties, heat treatments, testing and industrial applications.

354. *(154.)* **Wood Processes and By-Products (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 452.
Study of wood by-products manufactured from mascerated wood fibres, laminates, dielectric glue equipment and other processes.

361. *(161.)* **Industrial Controls (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 161.
Study of industrial controls, including the electrical and electronic systems used in automated manufacturing methods. Emphasis on circuit functions, systems applications, and recent advancements in control techniques.

374. *(174.)* **Fluid Power (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 171.
Study of fluid power, including hydraulic and pneumatic systems. Emphasis on circuit design and applications.

384. *(184.)* **Printing Processes and Operations (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 381.
Recent advancements in the technology of graphic arts—study of work related to various printing processes.

418. *(118.)* **Plastic Fabrication and Finishing (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 115.
Methods of plastic fabrication, including composite structure and assembly methods in light and heavy industry. Composition of finishes and methods of finishing plastic products and finishing with plastics. (Formerly numbered Industrial Arts 118.)

423. *(124.)* **Technical Illustration (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 121.
Theory and application of single- and multiple-point perspectives. Shading and rendering techniques as applied to presentation-type drawings will also be emphasized.

435. *(135.)* **Quality Assurance (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 131.
A study of quality control systems in manufacturing; dimensional, nondestructive and statistical systems are emphasized.

455. *(155.)* **Wood Inspection and Testing (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 452.
Macro and micro wood identification, chemical and physical testing of wood and wood revived products.

485. *(185.)* **Photo-offset Lithographic Principles and Operations (3)**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 381.
Study and experimentation in the field of offset lithography.

490. *(190.)* **Supervised Field Experience (3-6)**
Prerequisite: Sponsorship by a full-time Industrial Studies Department faculty member.
Supervised industrial experience in related occupational field. Specific assignments to be arranged in consultation with the adviser and selected industries. Maximum credit nine units.

495. *(195.)* **Plant Layout and Material Handling (3)**
Study of education and industrial plant layout for expeditious flow of materials.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page . Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

591. *(191.)* **Industrial Safety (3)**
The integration of accident prevention into management functions. The organization of training and safety programs emphasizing the detection and control of hazards, analysis of data, investigations and environment modifications for safety effectiveness.

592. *(192.)* **Industrial Materials (3)**
A survey of various types of manufacturing materials used in industry. Evaluation of materials composition, physical and mechanical properties with emphasis on processing requirements and product design.

593. *(193.)* **Manufacturing Processes (3)**
A survey of manufacturing processes used in industry. Evaluation of forming, shaping, assembly and finishing processes as they relate to characteristics of material and product design.

594. *(194.)* **Industrial Proposals and Specifications (3)**
Research, practice and investigation in the planning and writing of industrial proposals and plant manufacturing systems specifications.

Italian

In the College of Arts and Letters

Faculty

Professor: Vergani, G.
Associate Professor: Vergani, L.

Offered by the Department of French and Italian Languages and Literatures

Minor in Italian.

Italian Minor

The minor in Italian consists of a minimum of 15 units in Italian, six units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Italian may be counted as the equivalent of Italian 101; three years the equivalent of Italian 102; and four years the equivalent of Italian 201. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

Native speakers of Italian will not receive credit for taking lower division courses in Italian except with advance approval from the department.

101. *(1.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on Italian culture and civilization, essentials of grammar. Not open to students who have completed three years of high school Italian.

102. *(2.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Prerequisite: Italian 101.
Continuation of Italian 101. Not open to students who have completed four years of high school Italian.

201. *(3.)* **Intermediate (4) I, II**
Prerequisite: Italian 102.
A practical application of the fundamental principles of grammar. Reading in Italian of cultural material, short stories, novels or plays; oral and written practice.

202. *(4.)* **Intermediate (4) I, II**
Prerequisite: Italian 201.
Continuation of Italian 201. Reading of selections from Italian literature.

211. *(10.)* **Conversation (2) I, II**
Prerequisite: Italian 102 or three years of high school Italian.
Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

212. *(11.)* **Conversation (2) I, II**
Prerequisite: Italian 211 or Italian 201, or four years of high school Italian.
Continuation of Italian 211.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3)**
Refer to Honors Program.

311. *(101A.)* **Advanced Oral and Written Composition (3)**
Prerequisites: Italian 202 and 212.
Translation into Italian from moderately difficult English prose. Outside reading of modern Italian prose, with monthly written reports in Italian. Readings and oral discussions in Italian on various facets of Italian life and culture.

321A-321B. *(102A-102B.)* **Survey of Italian Literature (3-3)**
Prerequisite: Italian 202.
Important movements, authors and works in Italian literature from the Middle Ages to the present.

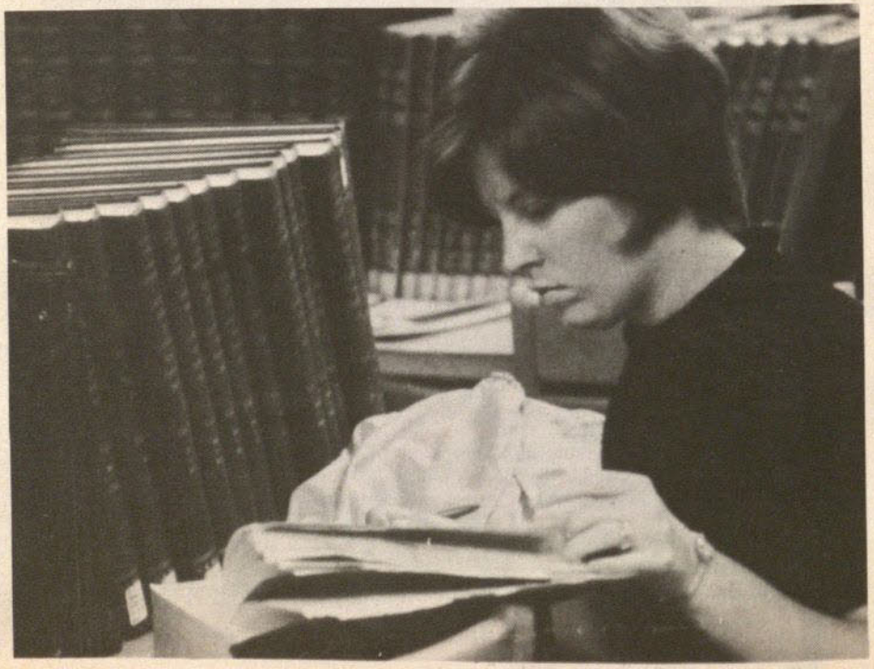
331A-331B. *(144A-144B.)* **Masterpieces of Italian Literature (3-3)**
Works of outstanding Italian writers in English translation. Semester I: From Dante to Machiavelli. The awakening of Italian letters, culminating in the Renaissance. Semester II: Italy in spiritual crisis—the Reformation, Romanticism, Fascism. The search for a national identity from Galileo to contemporary poets and novelists.

401A-401B. *(103A-103B.)* **Dante and the Divine Comedy (3-3)**
Prerequisites: Italian 202 and 212.
The poet, his cultural background, and his political-historical mission.

411A-411B. *(104A-104B.)* **Literature of the Italian Renaissance (3-3)**
Prerequisites: Italian 202 and 212.
Literature of the 15th and 16th centuries as presented in the works of Poliziano, Lorenzo de'Medici, Pulci and Boiardo; Machiavelli, Ariosto, Michelangelo, Cellini and Tasso.

496. *(185.)* **Selected Topics (3)**
Topics in Italian language, literature, culture and linguistics. Conducted in English or in Italian. See class schedule. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in Italian available in any given semester.
Prerequisite: Consent of staff.



Japanese

In the College of Arts and Letters

Faculty
Lecturer: Ogawa

Offered by the Department of Classical and Oriental Languages and Literatures
Courses in Japanese.
Major or minor work in Japanese is not offered.

LOWER DIVISION COURSES

Native speakers of Japanese will not receive credit for taking lower division courses except with advance approval from the department.

101. *(1.)* **Elementary (4) I**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on Japanese culture and civilization, minimum essentials of grammar.

202. *(2.)* **Elementary (4) II**
Four lectures and one hour of laboratory.
Prerequisite: Japanese 101.
Continuation of Japanese 101.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

303. *(103.)* **Readings in Japanese (4) I**
Prerequisite: Japanese 202.
Reading of modern Japanese short stories and essays. Composition and advanced conversation.

304. *(104.)* **Readings in Japanese (4) II**
Prerequisite: Japanese 303.
Continuation of Japanese 303, with readings in poetry, mainly Haiku.

496. *(185.)* **Topics in Japanese Studies (1-4)**
Topics in Japanese language, literature, culture and linguistics. May be repeated with new content. Maximum credit eight units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

Journalism

In the College of Professional Studies

Member of American Association of Schools and Departments of Journalism
The news-editorial sequence is accredited by American Council on Education for Journalism

Faculty

Emeritus: Wimer
Professors: Buckalew, Holowach (Chairman), Julian, Odendahl, Sorensen
Associate Professors: Haberstroh, Whitney
Assistant Professors: Lancaster, Spevak
Lecturers: Clayton, Learn, Love

Offered by the Department

Major in journalism with the A.B. degree in liberal arts and sciences.
Teaching major in journalism for the single subject teaching credential in English/journalism.
Minor in journalism.

Journalism Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A total of 36 units in journalism may be counted for graduation, of which a maximum of 12 lower division units in journalism may apply. A minor is not required with this major.

Emphasis in Advertising

Preparation for the major. Journalism 120 and 150. (6 units.)

Major. A minimum of 24 upper division units in journalism to include Journalism 460, 461 or 463, 465, 466, 500, 502.

Emphasis in Magazine

Preparation for the major. Journalism 120 and 150. (6 units.)

Major. A minimum of 24 upper division units in journalism to include Journalism 320, 326, 441, 443, 502 and nine units of electives selected from Journalism 450, 460, 490 (internship with a magazine), 500 and 529.

Emphasis in Mass Communications

Preparation for the major. Journalism 100, 120 and Sociology 101, 160 and Mathematics 103. (15 units.)

Major. A minimum of 24 upper division units in journalism to include Journalism 320, 500 or 508, 502, 503, 509, 522 or 529 and six units of electives.

Emphasis in News-Editorial

Preparation for the major. Journalism 120, 150. (6 units.)

Major. A minimum of 24 upper division units in journalism to include Journalism 320, 326, two semesters enrollment in 330 (minimum of three units), 502, 522 or 529; and nine units of electives selected from 425, 441, 450, 460, 470, 490 (internship with a news medium), 500, 503, 522, 526 and 529.

Emphasis in Photojournalism

Preparation for the major. Journalism 120 and 150. (6 units.)

Major. A minimum of 24 upper division units in journalism to include Journalism 320, 450, 451, 470, 475, 502, and six units of electives.

Emphasis in Public Relations

Preparation for the major. Journalism 100, 120, 150. (9 units.)

Major. A minimum of 24 upper division units in journalism to include Journalism 460, 470, 480, 485 or 583, 500 or 508 and nine units of electives selected from Journalism 320, 481 or 507, 485, 490 (internship in public relations), 502, 583.

Emphasis in Radio-TV News

Preparation for the major. Journalism 120 and 150. (6 units.)

Major. A minimum of 24 upper division units in journalism to include Journalism 470, 474, 475, 490 (internship in radio-TV news), 500, 502 and six units of electives.

Journalism Minor

The minor in journalism consists of 15 units in journalism, nine units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

Journalism Major

For the Single Subject Teaching Credential in English/Journalism

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

A major in journalism selected from any one of the emphases in journalism may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Credential Requirements. A minimum of 45 units selected from courses in the following content areas:

1. Literature—12 units selected from Comparative Literature 220A, 220B, 561, 562, 563, 570, 571; English 250A-250B, 260A-260B, 505, 513, 514, 533; Journalism 100, 502, 503;
2. Composition—12 units selected from English 100, 200, 280, 500, 582; Journalism 120, 320, 425, 441, 470, 522, 529;
3. Language—nine units selected from Journalism 326, 443, 460; Linguistics 100, 510, 520, 524; Speech Communication 530, 535;
4. Oral Communication—six units selected from Journalism 474, 475; Speech Communication 103, 104, 105, 111A, 111B, 135, 391;
5. Advising School Publications—four units selected from Journalism 150, 340, 431, 438, 499, 539;
6. Competency in News-gathering and Reporting—two units selected from Journalism 330, 490.

LOWER DIVISION COURSES

100. *(49.)* **Introduction to Mass Communications (3) I, II**
The work of mass media, their interrelationships, and the services they perform for society; common problems and responsibilities of the mass media; training and background needed in different media.

120. *(51A.)* **News Reporting (3) I, II**
Prerequisite: Sophomore standing and ability to type.
Study of reporting techniques, with intensive laboratory practice in gathering, evaluating, and writing the basic types of news stories.

150. *(50.)* **News and Feature Photography (3) I, II**
Two lectures and three hours of laboratory.
An elementary course designed primarily for students of journalism and public relations; experience with professional photographic equipment and film processing; contact and projection printing; emphasis on composition and news value of pictures.

230. *(92.)* **Newspaper Production (1-3) I, II**
Three hours of laboratory required for each unit. Total credit in Journalism 230,240, 330 and 340 limited to eight units. A maximum of three units of Journalism 230, or its equivalent, may be counted in the total required for graduation.
Prerequisite: Consent of instructor.
Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec.*

240. *(93.)* **Magazine Production (1-3) I, II**
Three hours of laboratory required for each unit. Total credit in Journalism 230, 240, 330 and 340 limited to eight units.
Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on campus magazines.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

320. *(51B.)* **Advanced News Reporting (3) I II**
Prerequisite: Grade of C or better in Journalism 120.
Intensive laboratory practice in writing the more complex types of news stories. Work includes some reporting for the campus newspaper, *The Daily Aztec.*

326. *(151.)* **News Editing (3) I, II**
Three lectures and two hours of laboratory.
Prerequisite: Journalism 320.
Editing copy, writing headlines, making up pages, handling telegraph copy.

330. *(192.)* **Newspaper Production (1-3) I, II**
Three hours of laboratory required for each unit. Total credit in Journalism 230, 240, 330 and 340 limited to eight units.
Prerequisite: Journalism 320.
Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec.*

340. *(193.)* **Magazine Production (1-3) I, II**
Three hours of laboratory required for each unit. Total credit in Journalism 230, 240, 330 and 340 limited to eight units.
Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on campus magazines.

425. *(105.)* **Editorial Writing (3) II**
Principles and policies of editorial composition for mass communications media.

431. *(194.)* **Editorial Conferences (1-3) I, II**
More than three hours a week per unit of credit.
Prerequisites: Journalism 330 or 340, and consent of publication adviser.
Techniques for solving problems in publication production through individual daily conferences with faculty adviser. Open only to editorial executives of *The Daily Aztec* and department magazine. Maximum credit six units.

438. *(152.)* **High School Journalism (3) II**
Methods of conducting high school journalism classes. Editorial, business and mechanical aspects of school publication work, with emphasis on copy editing, headline writing and layout. Not open to journalism majors.

441. *(101.)* **Magazine Article Writing (3) I, II**
Gathering material and writing articles for specialized areas, with emphasis on the business press. Production of eight articles and marketing of at least one article emphasized.

443. *(103.)* **Magazine Editing (3) I**
Mechanics of the editorial process in magazines, with emphasis on industrial and business publications; selection and preparation of editorial material; picture selection, cropping, captioning; graphic production processes; layout; preparation of dummies; special purpose booklets and magazines.

450. *(150.)* **Advanced News and Feature Photography (3) II**
Two lectures and three hours of laboratory.
Prerequisite: Journalism 150.
Techniques for achieving the technical and story-telling quality in photojournalism.

451. Photojournalism (Print Media) (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Journalism 120 and 150.
Documentary and color pictorial journalism for communicating news events with words and pictures, including a creative-interpretative approach.

460. *(153.)* **Newspaper Advertising (3) I, II**
Principles of advertising for newspapers and trade papers. Emphasis on copywriting, layout, typography and production. Use of consumer and market surveys, and advertising readership studies in planning local advertisers' sales programs and promotions.

461. *(154.)* **Newspaper Advertising Practice (1-3) I, II**
Prerequisite: Journalism 460.
Practical work in servicing accounts in advertising on campus media. Supervised work in preparation of copy and layout. Copy-testing methods emphasized. Maximum credit six units.

463. *(157.)* **Advertising Copy, Layout and Production (3) I, II**
Prerequisite: Credit or concurrent enrollment in Journalism 460.
Preparation of copy, layout planning, and production of advertising.

465. *(159.)* **Advertising Research and Analysis (3) II**
Prerequisite: Journalism 460.
Evaluation and use of data collecting and measurement for print media advertising. Cases and problems, with emphasis on quantitative and qualitative characteristics of print advertising.

466. *(156.)* **Advertising Campaigns (3) II**
Prerequisite: Journalism 460 or Telecommunications and Film 540.
Cases and problems dealing with advertising campaigns and decision making involving copy themes, artwork, and media imagery.

470. *(104.)* **Radio and Television News Writing and Editing (3) I, II**
(Same course as Telecommunications and Film 310.)
Gathering, writing and editing news in special forms required by radio and television.

474. *(124.)* **Radio News Production (3) I, II**
One lecture and eight hours of laboratory.
Prerequisite: Journalism 470 or Telecommunications and Film 310.
Radio news production with experience in writing, editing national wire copy and local copy, preparing tapes and on-the-spot recordings of news events for programs produced over the campus radio station and local commercial radio stations. Maximum credit six units.

475. *(125.)* **Television News Production (3) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Journalism 470 or Telecommunications and Film 310.
Television news production with experience in photographing news events, processing and editing film, and writing copy to film for programs produced over the campus and local commercial television stations. Maximum credit six units.

480. *(180.)* **Public Relations (3) I, II**
Principles, methods and objectives in the field of public relations; evaluation of the "publics" of institutions and industry; case studies of public relations problems.

481. *(181.)* **Public Relations Techniques and Media Usage in Elections (3) II**
Prerequisite: Journalism 480.
Use of public relations techniques in political campaigns of all sorts with emphasis on media usage.

485. *(184.)* **Public Relations Practices (3) I**
Prerequisite: Journalism 480.
Examination of current public relations practices in a wide variety of local commercial, industrial, financial, governmental, cultural and social organizations. Use of the local community's public relations resources.

490. *(191.)* **Internship in Journalism (1-3) I, II**
Prerequisites: Journalism 320 or 470 or 460 or 480; and consent of the instructor. Prerequisite must be consistent with the nature of the internship.
Prearranged and supervised work on local magazines, city and county newspapers, radio and television stations, and on public relations, publicity, and advertising staffs of civic and business groups. Maximum credit six units with no more than three units in any one semester.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

500. *(121.)* **Current Problems in Mass Communications (3) I, II**
Forces affecting American mass communications today: Government restrictions, economics, pressure groups, censorship, mechanical developments, interrelationships of the media and society; professional ethics.

502. *(102.)* **Law of Mass Communications (3) I, II**
Libel, defamation, privacy, censorship, advertising laws, postal regulations, and constitutional guarantees affecting press, radio, television; rights and responsibilities of communicators in reporting public affairs.

503. *(117.)* **History of Mass Communications (3) I, II**
American journalism from colonial times to the present, with special attention to radio and other mass media which have entered the news and entertainment field; the relation of their development to society.

505. *(118.)* **The Foreign Press (3) I**
The four theories of the press. Flow of international news. Analysis of the foreign media. Problems of propaganda, governmental control, language, and economic support.

507. *(122.)* **Public Opinion Measurement (3) I**
(Same course as Psychology 342.)
The history, methods and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience.

508. *(162.)* **Mass Communications and Society (3) I, II**
Prerequisite: Sociology 101.
Social factors underlying nature, functions of mass media. Theories, models, research in media as culture carriers, as opinion shapers, and in relation to government.

509. *(177.)* **Research Methods in Mass Communications (3) II**
Prerequisite: Sociology 160.
Investigate tools and methods of mass media; content analysis, readership studies, audience measurement, experimental designs, and representative studies.

522. *(144.)* **Reporting of Public Affairs (3) I, II**
Prerequisite: Journalism 320.
Coverage of the city hall, courthouse, police headquarters, federal agencies, courts, and other public and political centers.

526. *(155.)* **Advanced Editing Techniques (3) I**
Prerequisite: Journalism 326.
Principles of typography, page layouts, and use of pictorial material; selection, evaluation, editing, and display of news.

529. *(197.)* **Investigative Reporting (3) I, II**
Prerequisite: Journalism 320.
Development of articles of substance and depth in specialized fields. Research, analysis, and interpretation of complex issues in the news. Maximum credit six units.

583. *(183.)* **Problems in Public Relations (3) II**
Prerequisite: Journalism 480.
Current public relations problems of industry, public agencies and other institutions.

GRADUATE COURSES

600. *(200.)* **Scope and Method of Mass Communications (3)**
Intensive preparation in methodology applicable to the various fields related to mass media study.

700. *(221.)* **Seminar: Media Problems (3)**
Prerequisite: Six units in courses applicable to the Master of Science degree in mass communications.
Reading, investigation, and research concerning current topics in problems of mass media.

702. *(202.)* **Seminar: Mass Media and the Law (3)**
Prerequisite: Journalism 502 or Telecommunications and Film 505.
Case studies of legal restrictions and guarantees affecting radio, television, motion pictures, advertising, and printed media.

703. *(217.)* **Seminar: History of Journalism (3)**
Prerequisite: Journalism 503.
Directed research on topics of history of American journalism.

705. *(218.)* **Seminar in International Journalism (3)**
Prerequisite: Journalism 505.
In-depth exploration of the foreign press and cross-cultural communication; the place of the press in national development and international stability; national images and world opinion; censorship, propaganda and other barriers to international understanding.

707. *(222.)* **Mass Communications and Public Opinion (3)**
Prerequisite: Journalism 507 or 509.
Analysis of media and their opinion-shaping role; methods and effects of pressure groups; propaganda analysis; creation and perpetuation of images and stereotypes.

708. *(262.)* **Seminar: Mass Communications and Society (3)**
Prerequisite: Journalism 508.
Rights, responsibilities and characteristics of mass media and mass communications practitioners; characteristics and responsibilities of audiences and society.

740. *(240.)* **Major Projects in Mass Communications (1-6)**
Prerequisite: Journalism 500 or Telecommunications and Film 540.
Design and execution of an in-depth project in one of these areas; advertising campaign, series of detailed expository articles or news stories, or model public relations campaign. Maximum credit six units.

760. *(253.)* **Seminar in Print Advertising Problems (3)**
Prerequisite: Journalism 463 or 466.
Investigation of the practice, responsibility, and philosophy of advertising in print media with individual projects, cases, and current literature.

782. *(283.)* **Seminar in Public Relations (3)**
Prerequisite: Journalism 480.
Analysis and critique of contemporary public relations programs and theory. Development of a comprehensive public relations project involving original research.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with the department chairman and instructor.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the University; also student must be registered in the course when the completed thesis is granted final approval.

Latin

In the College of Arts and Letters

Faculty

Professors: Ingham, Sutherland, Warren
Associate Professors: Eisner, Genovese

Offered by the Department of Classical and Oriental Languages and Literatures

Major and minor work in Latin is offered under classics. (Refer to this section of the catalog on Classics.)

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Latin may be counted as the equivalent of Latin 101, three years the equivalent of Latin 202. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

(See also courses in Classics.)

101. *(1.)* **Elementary (5) I**
Introduction to Latin, emphasizing grammatical foundations of classical prose. Aimed toward rapid comprehension. Not open to students who have completed three years of high school Latin.

202. *(2.)* **Elementary (5) II**
Prerequisite: Latin 101.
Continuation of Latin grammar with selections illustrating syntax and style. Not open to students who have completed four years of high school Latin.

299. *(99.)* **Experimental Topics (1-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

303. *(103.)* **Readings in Latin Prose (3) I**
Prerequisite: Latin 202.
Readings selected from classical Latin masterpieces in history, philosophy, oratory, letters. Authors may include Sallust, Cicero, Pliny the Younger. Emphasis on rapid reading.

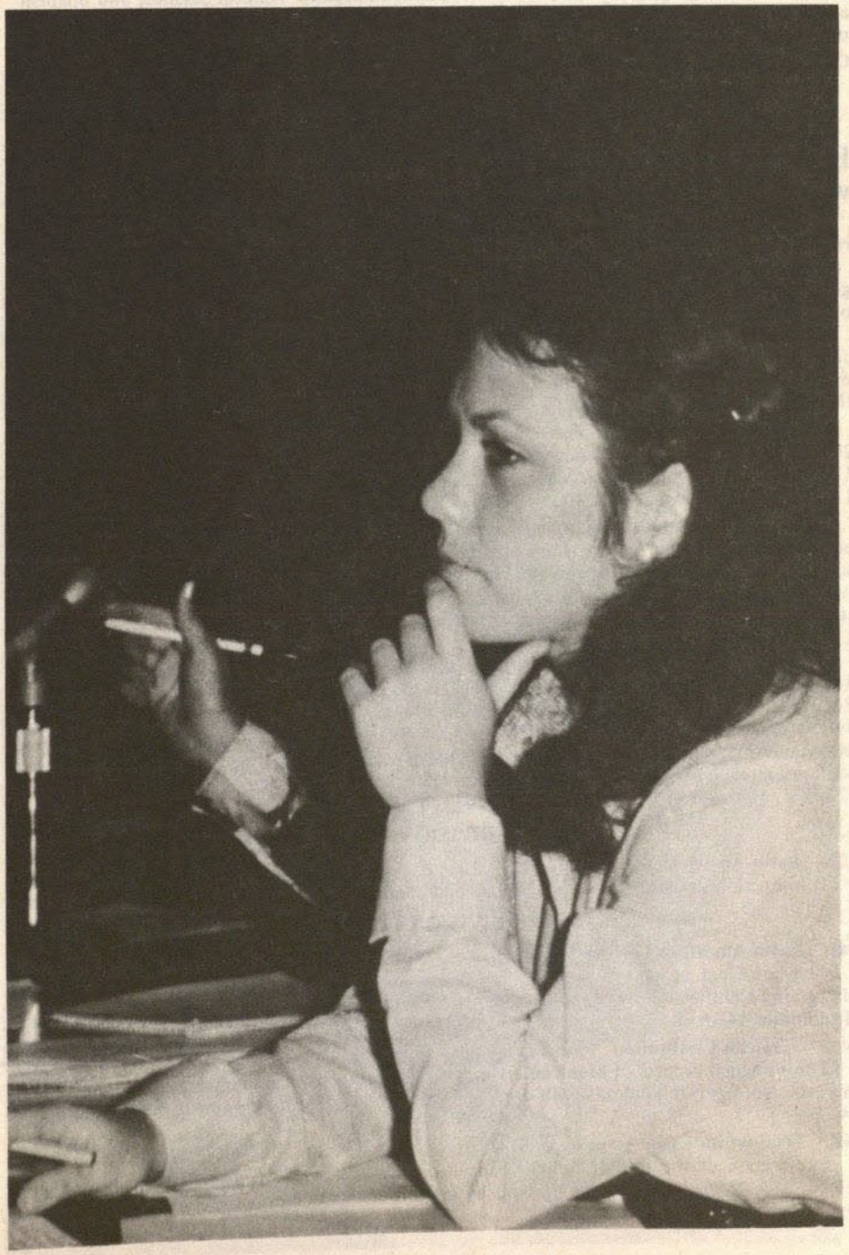
304. *(104.)* **Readings in Latin Poetry (3) II**
Prerequisite: Latin 303.
Readings selected from classical Latin masterpieces in epic, lyric, elegy, comedy. Authors include Vergil, Catullus, Ovid, Plautus.

440. *(107.)* **Late Latin (3)**
Prerequisite: Latin 202.
Selections from authors ranging from Tertullian and St. Augustine to Erasmus and Milton. The changes in Latin throughout the centuries.

450. *(155.)* **Advanced Reading in Latin (3-4)**
Prerequisite: Latin 304.
Extended, intensive reading in a major author of more difficult or peculiar style or content, such as Lucretius, Caesar, Tacitus, Livy, Terence, Horace, Propertius, Petronius, Juvenal. Emphasis on style, content, interpretation. Maximum credit nine units.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual Study. Maximum credit six units.
Prerequisite: Consent of instructor.



Latin American Studies

In the College of Arts and Letters

Faculty

Latin American Studies is administered by the Latin American Studies Committee. The program draws upon courses offered by faculty in the Departments of Anthropology, Art, Economics, Geography, History, Mexican-American Studies, Political Science, and Spanish and Portuguese Languages and Literatures. Professor Thomas M. Davies, Jr. is the undergraduate adviser.

Offered by Latin American Studies

Master of Arts degree in Latin American Studies
Major in Latin American Studies with the A.B. degree in liberal arts and sciences.

Latin American Studies Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

The major provides (1) a basis for a more effective understanding of the cultures and governments of the western hemisphere; and (2) a basic education and training for a business or professional career involving understanding of Latin America.

High school students preparing to enter this program should include in the high school course of study not less than three years of study in one foreign language, preferably Spanish or Portuguese. Proficiency in either of these languages is indispensable to a successful career in this area of study.

Preparation for the major. Portuguese 101, 102, 203, 204, 210, 211 or Spanish 101, 102, 203, 204, 210 and 211 with a minimum grade point average of 2.0 for all work attempted (20 units); 12 units selected from Anthropology 101, Economics 120 and 121, Geography 101, History 115A-115B, Latin American Studies 120, Political Science 110 and 130.

Major. A minimum of 36 upper division units selected from courses in anthropology, art, economics, geography, history, Latin American studies, Mexican-American Studies, political science, Portuguese, and Spanish, with not less than 12 units in one field and nine in each of two other fields. At least 33 units must be in courses having Latin American content. The student will file with the Evaluations Office a master plan approved by the adviser for the Latin American Studies curriculum.

Courses acceptable for the Latin American Studies Major include: Latin American Studies 341, 346, 498, 580; Anthropology 360, 361, 525, 542, 543, 570, 575, 576, 577; Art 561, 562; Economics 336, 365, 464, 483; Geography 323, 324, 498 (when relevant); History 315A-315B, 496 (when relevant), 551A-551B, 552A-552B, 553A-553B, 554, 557A-557B, 558A-558B; Mexican-American Studies 333, 335, 376; Political Science 561, 566, 567, 568 582; Portuguese 485 (when relevant), 535; Spanish 496 (when relevant), 504A-504B, 515A-515B, 520, 522, 524, 570, 571, 572; and 499 (when relevant) taken in one of the departments listed above.

LOWER DIVISION COURSE

120. Latin American Heritage (3)
Introduction to Latin American cultures and peoples from an interdisciplinary perspective.

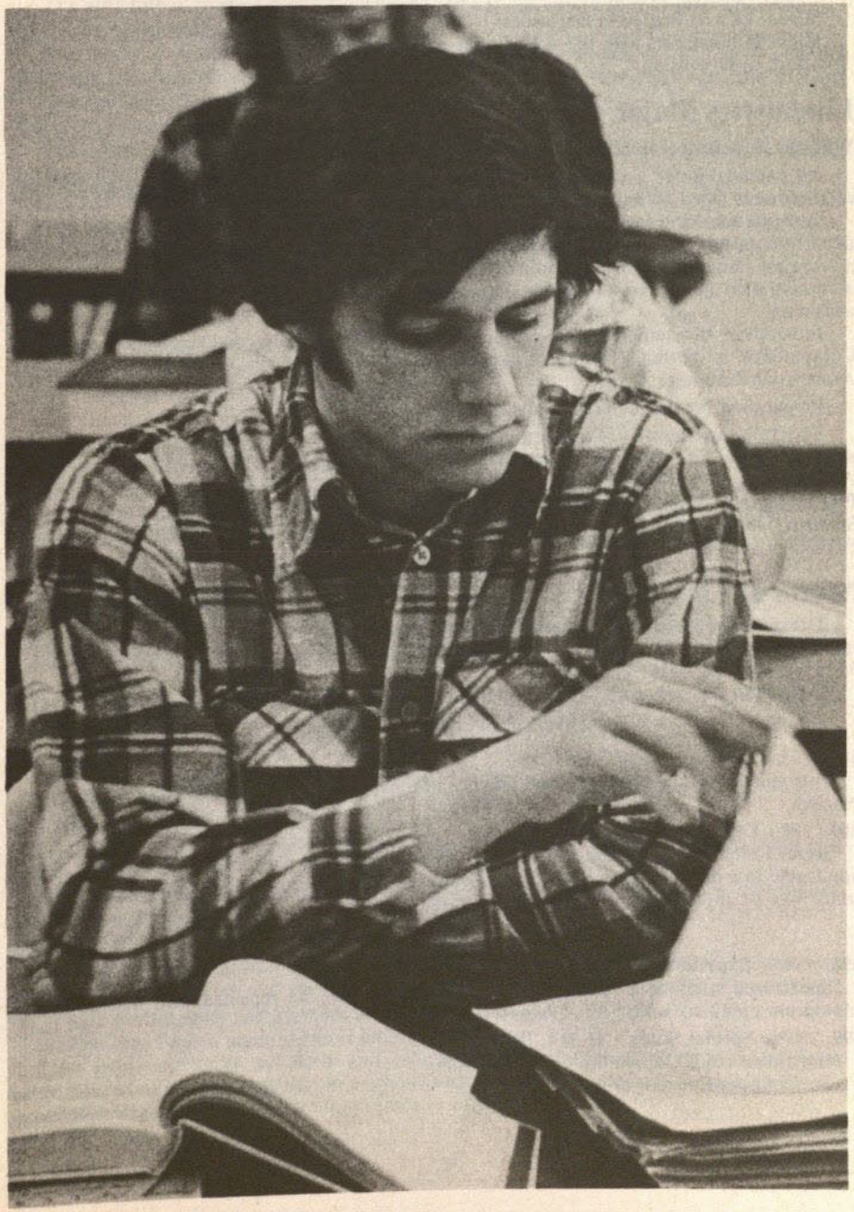
UPPER DIVISION COURSES

341. Latin American Civilization (3)
The principal aspects of the Latin American cultures with emphasis on literature, philosophy and the arts. Not open to students with credit in Spanish 441. (Formerly numbered Humanities 141.)

346. Mexican Civilization (3)
The principal aspects of Mexican civilization with emphasis on literature, philosophy and the arts. Not open to students with credit in Spanish 442. (Formerly numbered Humanities 146.)

498. Seminar on Latin America (3)
Exploration of the interdisciplinary approach to Latin America including evaluation of relevant resources and methods. Taught by a team of instructors representing two or more disciplines.

580. Special Topics (1-4)
Prerequisite: Six upper division units in Latin American content courses.
Interdisciplinary study of selected Latin American topics. Credit will vary depending on the scope and nature of the topic. Whenever appropriate, the course will be taught by a team of instructors representing two or more disciplines. May be repeated with different content. Maximum credit eight units.



Linguistics

In the College of Arts and Letters

Faculty

Professors: Frey, Tidwell
Associate Professors: Donahue, Drake (Chairman), Seright
Assistant Professors: Elgin, Underhill
Lecturers: Dil, Lacy, Van Lancker

Offered by the Department

Master of Arts degree in linguistics.
Major in linguistics with the A.B. degree in liberal arts and sciences.
Minor in linguistics.

Linguistics Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Students majoring in linguistics must complete a minor in another field approved by the departmental adviser in linguistics. Recommended fields include anthropology, ethnic studies, a foreign language, history, journalism, literature, philosophy, psychology, public administration and urban studies, sociology, speech communication and speech pathology and audiology.

In addition, the demonstration of a reading competence in a second language is required. Competence is normally demonstrated by a passing score on the Modern Language Association Language Test.

Preparation for the major. Linguistics 100. (3 units.)

Major. A minimum of 24 upper division units to include at least 15 units from linguistics; at least 9 units selected from Afro-American Studies 360, 362, 363; American Studies 501; Anthropology 304, 510, 511; French 401, 431; German 505, 510, 515; Journalism 508, 509; Philosophy 521, 522, 531; Sociology 512, 522, 524, 525, 540, 548, 557; Russian 570, 580, 581; Spanish 548, 549; Speech Communication 391, 493 (when appropriate), 530, 535; Speech Pathology and Audiology 305.

Minor in Linguistics

The minor in linguistics consists of a minimum of 15 units selected from the following, nine units of which must be from linguistics: Linguistics 100, 496, 500, 510, 520, 522, 524, 550, 551, 552; Anthropology 510; Philosophy 531.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

100. *(65.)* **Language Study (3) I, II**
Introduction to the principles and practice of modern linguistics as applied to the study of English.

299. *(99.)* **Experimental Topics (1-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

496. *(190.)* **Experimental Topics in Linguistics (2-4) I, II**
Specialized study of a selected topic in linguistics. May be repeated with new content. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

500. *(196.)* **General Linguistics (3) I**
Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish or German.
The principles of linguistic development illustrated chiefly from the Classical, Romanic, and Germanic language groups.

510. *(180.)* **History of English (3) I, II**
The history of English and its present-day use.

520. *(181.)* **Modern English (3) I, II**
The structure of modern English, including the various approaches to linguistic analysis.

523. *(184.)* **Phonemics and Morphemics (3) I**
The study of procedures for arriving at the phonetic inventory of languages and the structuring of sound units (both linear and intonational) into phonemic systems; the study of morphemic hierarchies and their arrangements in forming words.

524. *(182.)* **American Dialectology (3) I, II**
The development of American English; regional and cultural differences in pronunciation, grammar and vocabulary.

550. *(185.)* **Theory and Practice of English as a Second Language (3) II**
The nature of language learning; evaluation of techniques and materials for the teaching of English as a second language.

551. *(186.)* **Sociolinguistics (3) I**
Prerequisite: Three units in linguistics or sociology.
Investigation of the correlation of social structure and linguistic behavior.

552. *(187.)* **Psycholinguistics (3) II**
Prerequisite: Three units in linguistics or psychology.
Psychological aspects of linguistic behavior.

GRADUATE COURSES

610. *(220.)* **Indo-European (3)**
Prerequisite: Anthropology 304 or Linguistics 522.
Phonology, morphology, and syntax of the Indo-European language community, with special attention to "Centum" and "Satem" relationships.

611. *(223.)* **Old English (3)**
Study of Old English phonology, morphology, and syntax.

612. *(224.)* **Middle English (3)**
Modern linguistic analyses of the Middle English language; emphasis on the development of historical English dialects.

621. Phonology (3)
Prerequisite: Linguistics 500 or 510 or 520.
Phonetics, phonetic transcription, theories of phonology and phonological description.

622. Structure of English (3)
Prerequisite: Linguistics 500 or 510 or 520.
Advanced study of linguistic theory and its application to the analysis of English.

640. Field Methods in Linguistics (3)
Prerequisite: Three units of linguistics, including some knowledge of phonetic transcription and consent of instructor.
Principles and techniques of linguistic analysis working directly with native informants, including phonemic, grammatical, and syntactic analysis and text collection and interpretation.

641. *(221.)* **Structure of a Non-Indo-European Language (3)**
The structure of a non-Indo-European language, to be chosen by the instructor, including grammar, reading of texts, and sessions with a native speaker of the language, if possible.

790. *(290.)* **Bibliography and Methods of Linguistic Research (3)**
Prerequisite: Twelve upper division units in linguistics.
Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research, including editorial procedures. Recommended for the first semester of graduate work.

795. *(295.)* **Seminar in Linguistics (3)**
Prerequisite: Completion of three units of 600-700-numbered courses in the master's program for linguistics.
Research in linguistics, course content varying according to instructor. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor. Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the University; also student must be registered in the course when the completed thesis is granted final approval.

Mathematics

In the College of Sciences

Faculty

Emeritus: Clark, Emerson, Lemme, Eagle
Professors: Becker, Branstetter, Bray, Burton, Deaton, Drobnies, Fountain, Garrison, Gindler, Harris, Harvey, Ho, Holmes, Moser, Riggs, Saltz, Shaw (Chairman), Smith, Van de Wetering, Warren, Willerding
Associate Professors: Bryant, Burdick, Davis, Eckberg, Elwin, Hager, Howard, Kopp, Lesley, Lopez, Macky, Marcus, Marosz, Nower, Romano, Ross, Short, Villone, Whitman
Assistant Professors: Baase, Carpenter, Flanigan, Herndon, Hintzman, Korevaar, McLeod, Park, Salomon, Self, Vinge

Offered by the Department

Master of Arts degree in mathematics.
Master of Science degree in mathematics.
Master of Science degree in computer science.
Master of Science degree in statistics.
Master of Arts for teaching service with a concentration in mathematics.
Major in computer science with the A.B. degree in liberal arts and sciences.
Major in computer science with the A.B. degree in applied arts and sciences.
Major in mathematics with the A.B. degree in liberal arts and sciences.
Major in mathematics with the A.B. degree in applied arts and sciences.
Minor in mathematics.
Teaching major in mathematics for the single subject teaching credential.

Computer Science Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.
A minor is not required with this major.

Preparation for the major. Mathematics 107, 137, 150, 151, 152. (20 units.)

Major. A minimum of 24 upper division units selected with approval of the departmental adviser before starting upper division work to include Mathematics 541A, 557, 570, 571, 572 and nine units of approved electives.

Computer Science Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.
A minor is not required for this major.

Preparation for the major. Mathematics 107, 137, 150, 151, 152. (20 units.)

Major. A minimum of 24 upper division units selected with approval of the departmental adviser before starting upper division work to include Mathematics 541A, 557, 570, 571, 572 and nine units of approved electives.

Mathematics Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.
A minor is not required with this major.

Preparation for the major. Mathematics 150, 151 and 152. (13 units.) Recommended: Physics 195A-195B-195C.

Major. A minimum of 24 upper division units selected with approval of the departmental adviser before starting upper division work, including Mathematics 520, 521A and 534A and one two-semester sequence chosen from the following: Mathematics 521A-521B; 521A and 573; 530 and 531; 534A-534B; 534A and 535; 541A-541B; 550 and 551A; 550 and 553; 570 and 572.

Mathematics Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Mathematics 150, 151 and 152. (13 units.) Recommended: Physics 195A-195B-195C.

Major. A minimum of 24 upper division units selected with approval of the departmental adviser before starting upper division work, including Mathematics 520, 521A, 534A, and one two-semester sequence chosen from the following: Mathematics 521A-521B; 521A and 573; 530 and 531; 534A-534B; 534A and 535; 541A-541B; 550 and 551A; 550 and 553; 570 and 572.

Emphasis in Statistics

Preparation for the major. Mathematics 150, 151 and 152. (13 units.)

Major. A minimum of 24 upper division units in mathematics to include Mathematics 520, 534A, 550, 551A, 551B; nine additional units selected with the approval of the adviser from mathematics or closely related areas.

Mathematics Minor

The minor in mathematics consists of a minimum of 21 units in mathematics, to include in the lower division Mathematics 150 and 151 or Mathematics 121, 122 and 123 and in the upper division, nine units in mathematics with not more than three units selected from 301, 302, 310A, 330A.

Courses in the minor may not be counted toward the major or general education.

Mathematics Major

For the Single Subject Teaching Credential

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree.

The requirements for the mathematics major for the single subject teaching credential are being revised. For further information consult the department.

Mathematics Placement Examinations

All students who expect to enroll in Mathematics 103, 104, 119, 120, 121, 140 or 150 and have not completed prerequisite courses at San Diego State University must take the mathematics placement tests. Students in elementary education who expect to enroll in Mathematics 210A, 210B, or 310A and have not completed prerequisite courses at San Diego State University must take the Mathematics Education Placement Test. These tests may be used to satisfy all or part of the prerequisite requirements for these courses and they also serve as a basis for the selection of students for the mathematics honors program. The schedule for these examinations will be posted on the mathematics bulletin board. Provision is also made for these examinations to be taken by the entering freshman or the transfer student prior to registration. Refer to the calendar.

LOWER DIVISION COURSES

103. *(3.)* **Intermediate Algebra (3) I, II Cr/NC**

Prerequisite: One year of elementary algebra.

Review of elementary algebra, exponents, radicals, logarithms, quadratic equations, arithmetic and geometric progressions. Not open to students with credit in Mathematics 119 or higher-numbered courses.

104. *(4.)* **Trigonometry (2) I, II**

Prerequisites: Credit in plane geometry in either high school or college combined with either credit in Mathematics 103 at this university or qualification on Mathematics Placement Examination. Mathematics 104 may be taken concurrently with either Mathematics 140 or 150.

Basic concepts of analytic trigonometry.

107. *(7.)* **Introduction to Computer Programming (3) I, II**

Prerequisite: Mathematics 103.

Introduction to machine and data organization; the rudiments of job control; design and analysis of algorithms; flowcharts. Extensive programming of problems on the computer.

118. *(18.)* **Introduction to Mathematics (3) I, II**

Prerequisites: Two years of high school mathematics.

Topics from logic, modern algebra, and analysis designed to give the student an introduction to the structure of mathematical theories and their applications. Not open to students with credit in Mathematics 140 or higher-numbered courses.

119. *(19.)* **Elementary Statistics (3) I, II**

Two lectures and two hours of laboratory.

Prerequisite: Mathematics 103 at this university or qualification on the mathematics placement examinations.

Descriptive statistics: Histogram, frequency polygon, measures of central tendency and variability. Elementary probability. The binomial and normal distributions. Estimation and hypothesis testing for population proportions and means.

120. *(20.)* **Mathematics for Business Analysis (3) I, II**

Prerequisite: Mathematics 103 at this university or qualification on the mathematics placement examinations.

Basic mathematics for business students, including topics from finite mathematics and calculus.

121. *(21.)* **Mathematical Analysis I (3) I, II**

Prerequisite: Mathematics 103 at this university or qualification on the mathematics placement examinations.

Concepts and applications of algebra, analytic geometry and the polynomial calculus, with emphasis on graphical methods. Designed for students who do not intend to prepare for a professional career in one of the physical sciences or in engineering. Not open to students with credit in Mathematics 150.

122. *(22.)* **Mathematical Analysis II (3) I, II**

Prerequisite: Mathematics 121.

A continuation of Mathematics 121 including concepts of trigonometry and the calculus of elementary transcendental functions. Not open to students with credit in Mathematics 151.

123. *(23.)* **Mathematical Analysis III (3)**

Prerequisite: Mathematics 122.

Infinite series, partial differentiation, multiple integrals. For the nonmajor. Not open to students with credit in Mathematics 152.

137. *(37.)* **Intermediate Computer Programming (4) I, II**

Prerequisite: Mathematics 107.

General concept of machine and assembly languages, including data representation, looping and addressing techniques, subroutine linkages and use of system and programmer-defined macros.

138. Higher Level Languages (1-2)

Prerequisite: Mathematics 103.

Syntax and semantics of a given high level language. Units will depend on language. Programs will be run on computer. Possible languages include FORTRAN, COBOL, ALGOL, PL/I, LISP, SNOBOL, APL. Simulation languages. See class schedule for current offering. Maximum credit six units.

140. *(40.)* **College Algebra (3) I, II**

Prerequisite: Mathematics 103 at this university or qualification on the mathematics placement examinations.

Functional notation, mathematical induction, complex numbers, De Moivre's theorem, inequalities, binomial theorem, determinants, etc. Not open to students with credit in Mathematics 150.

149. *(49.)* **Introductory Matrix Algebra (3)**
Prerequisite: Mathematics 140.
Matrices, vectors, linear dependence and independence, basis, change of basis, similarity and congruence. Applications to systems of equations, characteristic values and orthogonality.

150. *(50.)* **Single Variable Calculus (5) I, II**
Prerequisites: Mathematics 140 at this university, with minimum grade of C, and credit or concurrent registration in Mathematics 104; or qualification on the mathematics placement examinations.
Topics in analytic geometry; differentiation and integration of single variable functions, with emphasis on techniques.

151. *(51.)* **Calculus and Linear Algebra (4) I, II**
Prerequisite: Mathematics 150 with minimum grade of C.
Infinite series, linear equations and matrices, real vector spaces, linear transformations, determinants, eigenvalues. Emphasis on techniques in low dimensional cases.

152. *(52.)* **Multivariable Calculus (4) I, II**
Prerequisite: Mathematics 151 with minimum grade of C.
Partial differentiation, differential equations, multiple integrals, applications.

155A-155B. *(55A-55B.)* **Elementary Proofs (2-2) I, II**
Prerequisite: Mathematics 150 with minimum grade of C. Mathematics 155A, with minimum grade of C, is prerequisite to 155B.
Semester I: Elementary algebraic systems, sets, functions, and induction. Semester II: Real numbers and limits.

160. *(60.)* **Introduction to Modern Mathematical Concepts (3) II**
Prerequisite: Mathematics 121 or 140.
Elementary approach to selected topics from mathematical logic, set theory, probability, matrices, linear programming and theory of games.

210A. *(10A.)* **Structure and Concepts of Elementary Mathematics (3) I**
This course or its equivalent is required for students working toward a teaching credential in elementary education.
Prerequisites: Two years of high school mathematics including algebra and geometry.
Sets and relations, functions, the development of the number system from the natural numbers, including the whole numbers, the integers, the rational numbers and the real numbers.

210B. *(10B.)* **Structure and Concepts of Elementary Mathematics (3) I**
This course or its equivalent is required for students working toward a teaching credential in elementary education.
Prerequisite: Mathematics 210A.
Elementary number theory and congruences, metric and nonmetric geometry, introduction to logic, probability and statistics and some concepts from algebra.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to the Honors Program.

301. *(100.)* **Mathematical Topics for School Teachers (2 or 3)**
Offered only in Extension to currently employed elementary and secondary school teachers.
A study of selected portions of elementary or secondary school mathematics. May be repeated with new subject matter for additional credit. May not be used in a mathematics major or minor.

302. *(101.)* **Basic Mathematical Concepts (3) I, II**
Prerequisite: Mathematics 150.
An examination of the concepts of secondary school mathematics from the teacher's point of view.

303. *(104.)* **History of Mathematics (3) I, II**
Prerequisite: Mathematics 121 or 140.
History of mathematics down to early modern times.

310A-310B. *(110A-110B.)* **Modern Elementary Mathematics (3-3)**
Prerequisite: Mathematics 210B or qualifications on Mathematics Education Placement Test. Mathematics 310A is prerequisite to 310B.
Integers, rationals, and real numbers as mathematical systems; operations, mappings, properties of relations; coordinate geometry; mensuration. Enrollment limited to those in training for or engaged in teaching in the elementary schools.

330A. *(130A.)* **Statistical Methods (3) I**
Two lectures and two hours of laboratory.
Prerequisite: Mathematics 119 or equivalent statistics course.
One- and two-sample hypothesis tests, paired difference tests, tests for variances, analysis of variance. Linear regression and correlation. Chi-square tests. Simple nonparametric tests. The power of hypothesis tests.

330B. *(130B.)* **Statistical Methods (3) II**
Prerequisite: Mathematics 330A.
Multiple regression, factorial models and nonparametric methods, all with emphasis on applications.

331. Statistical Computations and Analysis (3)
Prerequisite: Mathematics 330A.
Using statistical computer packages to analyze problems involving experimental design, regression and nonparametric methods.

340A-340B. *(118A-118B.)* **Methods of Applied Mathematics (3-3) I, II**
Prerequisite: Mathematics 152. Mathematics 340A is prerequisite to 340B.
Selected topics from ordinary differential equations, with applications; hyperbolic, elliptic, Bessel and gamma functions, Fourier series and integrals, electromechanical analogies, the Laplace transform, and partial differential equations.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

498. *(198.)* **Directed Readings in Mathematics Literature (1)**
Prerequisite: Credit or concurrent registration in the upper division mathematics course in which readings are to be undertaken.
Individually directed readings in mathematics literature. May be repeated for a maximum of three units, taken each time from a different instructor.

499. *(199.)* **Special Study (1-3) I, II**
Prerequisite: Consent of instructor.
Individual study. Maximum credit six units.

510. *(105.)* **Introduction to the Foundations of Geometry (3) II**
Prerequisite: Mathematics 122 or 151.
The foundations of Euclidean and hyperbolic geometries. Highly recommended for all prospective teachers of high school geometry.

511. *(106.)* **Projective Geometry (3) I**
Prerequisites: Mathematics 122 or 151 and consent of instructor.
Concurrence of lines, collinearity of points and other properties of figures not altered by projections; construction and study of ellipses, hyperbolas, and parabolas by means of projections.

512. *(107.)* **Non-Euclidean Geometry (3)**
Prerequisite: Mathematics 122 or 151.
History of attempts to prove the fifth postulate; emphasis on plane synthetic hyperbolic geometry; brief treatment of other types of non-Euclidean geometry.

513. *(108.)* **Differential Geometry (3)**
Prerequisite: Mathematics 152.
Curves in space, Frenet formulas, curves on surfaces, geodesics, lines of curvature, asymptotic lines, Gaussian Curvature.

520. *(149.)* **Linear Algebra (3) I, II**
Prerequisite: Mathematics 123 or 152.
A study of linear equations, Euclidean spaces, linear transformations, matrices, determinants, and eigenvalues.

521A-521B. *(150A-150B.)* **Modern Algebra (3) I, II**
Prerequisites: Mathematics 122 and 160, or 151. Mathematics 521A is prerequisite to 521B.
Selected topics from modern algebra to include an introduction to the theory of groups, theory of equations, and finite mathematics.

522. *(152.)* **Number Theory (3)**
Prerequisites: Mathematics 122 and 160, or 151.
Selected topics from the theory of numbers to include congruences, Diophantine equations, and a study of prime numbers.

523. *(155.)* **Mathematical Logic (3)**
Prerequisite: Mathematics 151 or 160 or Philosophy 120.
The logical rules of proof governing sentential connectives and the universal and existential quantifiers with applications. Not open to students with credit in Philosophy 521.

524. *(156.)* **Logical Foundations of Mathematics (3)**
Prerequisite: Mathematics 152 or 523.
Cantor's set theory and its antinomies. Development of various viewpoints on foundations of mathematics; logicism, intuitionalism, formalism.

530. *(119.)* **Differential Equations (3) I, II**
Prerequisite: Mathematics 152.
Ordinary differential equations with applications to geometry, physics and chemistry.

531. *(170.)* **Partial Differential Equations (3)**
Prerequisite: Mathematics 530.
Study of boundary-initial value problems via separation of variables, eigenfunction expansions, Green's functions, and transform methods. Introductory material includes uniform convergence, divergence theorems and Fourier series.

532. *(175.)* **Functions of a Complex Variable (3)**
Prerequisite: Mathematics 152.
Analytic functions, Cauchy-Riemann equations, theorem of Cauchy, Laurent series, calculus of residues.

533. *(124.)* **Vector Analysis (3)**
Prerequisite: Mathematics 152.
Vector algebra, differentiation of vectors, gradient, divergence, and curl. Applications to geometry and physics.

534A. *(121A.)* **Advanced Calculus I (3)**
Prerequisite: Mathematics 152.
The real number system, limits and other topics, with emphasis on functions of one variable.

534B. *(121B.)* **Advanced Calculus II (3)**
Prerequisite: Mathematics 534A.
A continuation of Mathematics 534A with emphasis on functions of two or more variables.

535. *(160.)* **Introduction to Topology (3)**
Prerequisite: Mathematics 534A.
Topological spaces. Functions, mappings, and homeomorphisms. Connectivity, compactness. Metric spaces.

541A. *(135.)* **Numerical Analysis and Computation (3) I**
Prerequisites: Mathematics 107 and 152.
Iteration methods to solve nonlinear equation (convergence, errorbound, rate of convergence). Iteration methods to solve systems of nonlinear equations. Application to approximating real and complex zeros of a polynomial; Bernoulli's method and difference equations. Floating point arithmetic.

541B. *(135B.)* **Numerical Analysis and Computation (3) II**
Prerequisites: Mathematics 540A or 530, 534A and 541A.
The interpolating polynomial, Lagrangian representation. Iterated linear interpolation. Inverse interpolation. Representations of the interpolating polynomial using differences. Numerical differentiation. Numerical integration. Numerical solution of ordinary differential equations. Solving linear systems.

548. Computer Oriented Statistical Analysis (3)
Prerequisite: Mathematics 551B or 552 with working knowledge of FORTRAN.
Using a computer for statistical analysis, including the use of standard statistical packages and programming statistical procedures not given in standard packages.

550. *(134.)* **Probability (3)**
Prerequisite: Credit or concurrent registration in Mathematics 152.
Definitions, computation of probability by enumeration of the cases, discrete and continuous random variables, density functions, moments, limit theorems, selected distributions.

551A. *(140A.)* **Mathematical Statistics (3) I**
Prerequisite: Mathematics 550.
Sampling distributions, point and interval estimations and hypothesis testing with applications to problems in various fields.

551B. *(140B.)* **Mathematical Statistics (3) II**
Prerequisite: Mathematics 551A.
Elementary Bayesian decision theory and nonparametric statistics. Estimations and hypothesis testings in linear models.

552. *(141.)* **Statistics, Theory and Applications (3)**
Prerequisite: Mathematics 551A.
Applications of and case studies employing statistical techniques from the areas of experimental design, nonparametric inferences, decision theory and selected topics.

553. *(143.)* **Stochastic Processes (3)**
Prerequisite: Mathematics 550.
Introduction to stochastic processes with selected applications.

557. Systems Programming (3) I, II
Prerequisite: Mathematics 570.
Review of batch process systems programs, their components, operating characteristics, user services and their limitations. Implementation techniques for parallel processing of input/output and interrup handling. Details on addressing techniques, core management, system updating, documentation and operation.

570. *(136.)* **Data Structures (3)**
Prerequisite: Mathematics 137.
Basic concepts of data. Linear lists, strings, arrays, and orthogonal lists. Representation of trees and graphs. Multilinked structures.

571. *(137.)* **Finite Mathematics, with Computer Applications (3)**
Prerequisite: Mathematics 123 or 152.
Equivalence and order relations, Boolean algebra, finite machines and their optimization, logical design.

572. *(139.)* **Programming Languages (3)**
Prerequisite: Mathematics 137.
Formal definition of programming languages including specification of syntax and semantics. Structure of algorithmic languages. Special purpose languages.

573. *(158.)* **Automata Theory (3) II**
Prerequisite: Mathematics 521A.
Definition and algebraic description of finite automata. Reduced forms for sequential machines. Regular sets and expressions. Introduction to context-free languages.

574. *(157.)* **Machines and Recursive Functions (3)**
Prerequisite: Mathematics 155A or 523 or 571.
Definition of algorithm by abstract (Turing) machines and by recursion. Application of this definition to the limitations and capabilities of computing machines. Applications to logic, algebra, analysis.

575. *(176.)* **Compiler Construction (3)**
Prerequisites: Mathematics 570 and 572.
Syntactical specification of languages. Scanners and parsers. Precedence grammars. Run-time storage organization. Code generation and optimization.

576. *(177.)* **Artificial Intelligence (3) II**
Prerequisite: Mathematics 523.
Heuristic approaches to problem-solving. Systematic methods of search of the problem state space. Theorem proving by machine. Resolution principle and its applications.

577. Probability and Statistics (3) I
Prerequisite: Mathematics 151.
Probability, measures of central tendency and dispersion, characteristics of frequency functions of discrete and continuous variates; applications. Highly recommended for all prospective secondary school teachers of mathematics.

578. Algorithms and Their Analysis (3)
Prerequisite: Mathematics 570.
Algorithms for solving frequently occurring problems. Sorting, merging, fast matrix multiplication, graph problems (e.g., finding shortest paths), the assignment problem and others.

579. Combinatorics (3)
Prerequisite: Mathematics 122 or 151.
Permutations, combinations, generating functions, recurrence relations, inclusion-exclusion counting. Polya's theory of counting, other topics and applications.

596. *(196.)* **Advanced Topics in Mathematics (1-3) I, II**
Prerequisite: Consent of instructor.
Selected topics in classical and modern mathematics. May be repeated with the approval of the instructor. Maximum credit six units.

GRADUATE COURSES

600. *(202.)* **Geometrical Systems (3)**
Prerequisites: Mathematics 521A and an upper division course in geometry.
Ordered and affine geometries, decompositions, dilations. Projectivities and projective space. Absolute geometry, isometrics, groups generated by inversions.

601. *(203.)* **Topics in Algebra (3)**
Prerequisites: Mathematics 521A and 534A.
Unique factorization domains, rings and ideals, groups, algebraic field extensions. A course designed for secondary school teachers.

602A-602B. *(204A-204B.)* **Topics in Analysis (3-3)**
Prerequisites: Mathematics 521A and 534A. Mathematics 602A is prerequisite to 602B.
Topics in analysis, including the real number system, convergence, continuity, differentiation, the Riemann-Stieltjes integral, complex analysis, designed to give the secondary teacher a broad understanding of the fundamental concepts.

620. *(230.)* **Rings and Ideals (3)**
Prerequisite: Mathematics 521B.
A development of the theory of rings.

621. *(231.)* **Theory of Groups (3)**
Prerequisite: Mathematics 521B.
A development of the theory of groups.

622. *(232.)* **Theory of Fields (3)**
Prerequisite: Mathematics 521B.
A study of both finite and infinite fields, and field extensions.

623. *(233.)* **Linear Algebra and Matrix Theory (3)**
Prerequisite: Mathematics 520.
A study of matrices, determinants, and vector spaces.

624. *(205.)* **Advanced Mathematical Logic (3)**
Prerequisite: Mathematics 521A or 523.
First-order theories, completeness theorems, arithmetization, Godel's incompleteness theorem.

630A-630B. *(226A-226B.)* **Functions of a Real Variable (3-3)**
Prerequisite: Mathematics 534B. Mathematics 630A is prerequisite to 630B.
Point sets, functions and limits, continuity, differentiations, Riemann and Lebesgue integration.

631A-631B. *(224A-224B.)* **Functions of a Complex Variable (3-3)**
Prerequisites: Mathematics 532 and 534B. Mathematics 631A is prerequisite to 631B.
Analytic continuation, elliptic functions, conformal mapping, Riemann surfaces.

632. *(222A.)* **Functional Analysis (3)**
Prerequisites: Mathematics 520 and 535.
Banach spaces, Hilbert spaces, spectral theory and Banach algebras.

633A-633B. *(220A-220B.* **Topology (3-3)**
Prerequisite: Mathematics 535. Mathematics 633A is prerequisite to 633B.
Metric spaces, regular spaces, Hausdorff spaces, general topological spaces, arcs and curves, and the Jordan curve theorem.

634. *(212.)* **Advanced Ordinary Differential Equations (3)**
Prerequisites: Mathematics 530 and 534A.
Existence and uniqueness theorems. Wronskians, adjoint systems, Sturm-Liouville boundary value problems, equations of Fuchsian type.

635. *(214.)* **Advanced Partial Differential Equations (3)**
Prerequisite: Mathematics 531.
Theory and application of the solution of boundary value problems in the partial differential equations of engineering and physics by various methods; orthogonal functions, the Laplace transformations, other transformation methods, Green's functions.

670A-670B. *(240A-240B.)* **Advanced Mathematics Statistics (3-3)**
Prerequisites: Mathematics 534A and 550. Mathematics 670A is prerequisite to 670B.
Hypothesis testing and estimation: optimality considerations, applications of the linear hypothesis, invariance and unbiasedness to analysis of variance and regression problems; sequential techniques, decision theory.

671. *(241.)* **Advanced Probability (3)**
Prerequisites: Mathematics 534A and 550.
Probability spaces, integration of random variables, convergence in probability, product spaces and product measures; conditional measures and independent measures.

672. *(242.)* **Nonparametric Statistics (3)**
Prerequisite: Mathematics 551B.
Tolerance regions, randomness problems, most powerful rank tests, the invariance methods, consistency and efficiency of tests.

673. *(243.)* **Sample Surveys (3)**
Prerequisite: Mathematics 551A.
The methods and applications of sample surveys, stratification and sampling, subsamples of clusters.

674. *(244.)* **Multivariate Analysis (3)**
Prerequisites: Mathematics 520 and 551B.
Multivariate normal distributions, multivariate analysis of variance, factor analysis, canonical correlation.

675. *(245.)* **Linear Statistical Hypothesis Testing (3)**
Prerequisites: Mathematics 520 and 551A.
The multivariate normal distribution; distribution of quadraic forms; linear and curvilinear models; general linear hypotheses of full rank, regression models.

676. *(246.)* **Statistical Decision Theory and Applications (3)**
Prerequisites: Mathematics 534A and 551B.
Sequential and nonsequential decision methods, complete classes of decision functions, admissible decision functions, adaptive control systems, stochastic stability and control.

677. *(247.)* **Design of Experiments (3)**
Prerequisites: Mathematics 520 and 551A.
Experimental design models, a basic approach as well as a matrix algebra approach.

690A-690B. *(260A-260B.)* **Theory of Computability (3-3)**
Prerequisites: Mathematics 523 or 571 and 574.
Turing machines and their variants. Godel numbering and unsolvability results. Models of computation.

691A-691B. *(265A-265B.)* **Formal Languages and Syntactic Analysis (3-3)**
Prerequisites: Mathematics 570, 572 and 573 or 574.
Definition of formal grammars; arithmetic expressions and precedence grammars, context-free and finite-state grammars. Algorithms for syntactic analysis. Relationship between formal languages and automata.

692A-692B. *(268A-268B.)* **Computer Architecture and Programming Systems (3-3)**
Prerequisites: Mathematics 570 and 572.
Topics to include computer architecture, operating systems, I/O hardware and software, translators. Selected applications such as simulation, computer graphics, CAI are additional optional topics.

693A. *(270A.)* **Advanced Numerical Analysis (3)**
Prerequisites: Mathematics 520 and 541B.
Numerical methods in linear algebra (solving linear systems, inverting matrices, eigenvalue problems), Elimination and iteration methods. Ill-conditioned systems. Detailed error analysis.

693B. *(270B.)* **Advanced Numerical Analysis (3)**
Prerequisite: Mathematics 693A.
Polynomial approximation (least squares approximation, orthogonal polynomials, Chebyshev polynomials, trigonometric approximation), numerical solution of partial differential equations.

700. *(206.)* **Applications of Computer Science (3)**
Prerequisite: Classified graduate standing in mathematics of computer science.
Topic to be chosen from such applications as theorem proving simulation, learning theory, graphics, definition languages. Maximum credit six units applicable on a master's degree.

720. *(200.)* **Seminar (1-3)**
Prerequisite: Consent of instructor.
An intensive study in advanced mathematics, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Six units of graduate level mathematics.
Research in one of the fields of mathematics. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.

Mexican-American Studies

In the College of Professional Studies

Faculty

Associate Professor: Serros (Chairman)
Assistant Professor: Villarino
Lecturers: Felix, J., Felix, R., Griswold del Castillo, Palacios, Preston, Salandini, Sanchez

Offered by Mexican-American Studies

Major in Mexican-American Studies with the A.B. degree in liberal arts and sciences.
Minor in Mexican-American Studies.

Mexican-American Studies Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A double major is strongly recommended for students majoring in Mexican-American Studies.

Students majoring in Mexican-American Studies must complete a minor in another field approved by the adviser in Mexican-American Studies.

Preparation for the major. Mexican-American Studies 110A-110B. (6 units.)

Major. A minimum of 24 upper division units to include Mexican-American Studies 301A-301B; and 18 units selected from: (social sciences) Mexican-American Studies 302, 303, 304, 305, 306, 307A-307B, 320, 350A-350B, 360; or 18 units selected from (humanities) Mexican-American Studies 331, 332, 333, 334, 335, 365, 380; or 18 units selected from (bilingual systems) Mexican-American Studies 460, 461A, 461B, 461C, 464A-464B, 465, 466A-466B, 470; or 18 units selected from (education) Mexican-American Studies 460, 461A, 480, 482, 483, 484, 485. Up to nine units, with appropriate content, can be applied to each area of concentration from Mexican-American Studies 496, 497 and 499.

Foreign language requirement. Students majoring in Mexican-American Studies must demonstrate knowledge of Spanish by satisfactory completion of written and oral examinations administered by Mexican-American Studies.

Mexican-American Studies Minor

The minor in Mexican-American Studies consists of a minimum of 15 units in Mexican-American Studies, nine units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

103A. *(3A.)* **Chicano Orientation (1) Cr/NC**
Lectures relating to general Chicano topics on and off campus directed especially at freshman and transfer EOP students; introduction to student services and general social problems in the Chicano community.

103B. *(3B.)* **Study Skills for Chicanos (0) Cr/NC**
Three hours of laboratory.
Directed study in reading and writing skills; especially for bilingual students needing extra work in these skills. Majority of work will be done in conjunction with the Study Skills Center.

103C. *(3C.)* **Review of Mathematics (0) Cr/NC**
Three hours of laboratory.
Directed study in mathematic skills; especially for bilingual students needing extra work in this skill.

110A-110B. *(1A-1B.)* **Introduction to Mexican-American Studies (3-3)**
Introduction to the culture and the civilization of the Mexican-American. Semester I: History; Mexican and U.S. roots; the new identity. Semester II: Contemporary problems; social and political movements.

111A-111B. *(2A-2B.)* **Oral and Written Communication for the Spanish-Speaking (3-3)**
Training for the Spanish-speaking in process of oral and written expression. Semester I: Oral expression; addressing the barrio; formal delivery. Semester II: Written expression; English grammar and composition; the term paper. Mexican-American Studies 111A is is equivalent to Speech Communication 103. Mexican-American Studies 111B is equivalent to English 105.
Mexican-American Studies 111A is not open to students with credit in Speech Communication 103 and Mexican-American Studies 111B is not open to students with credit in English 105.

115. *(10.)* **Mexican-American in Transition (3)**
Modern Chicano social problems recognizing the sociological factors involved. Emphasis on scientific method of approach. Evaluation of various causes and solutions of problems of the Chicano. Mexican-American Studies 115 is equivalent to Sociology 110.

119. *(11.)* **Field Instruction (3-6)**
Field work in the barrio. Directed research and development projects in the San Diego Chicano community. It is recommended that this course be taken concurrently with Mexican-American Studies 110A or 110B. Maximum credit six units.

120A-120B. *(20A-20B.)* **The Mexican-American Role in the American Political System (3-3)**
Semester I: Relationship between the Mexican-American community and the American political system. Semester II: The Mexican-American in relation to his city, county, and state institutions in California. This year course meets the graduation requirement in American Institutions.

130. *(30.)* **Mexican Literature in Translation (3)**
Contemporary Mexican prose and poetry in translation.

140. *(40.)* **History and Sociology of Racism (3)**
Survey and analysis of majority group racism and its effects upon minority ethnic groups and society.

141A-141B. *(41A-41B.)* **History of the United States (3-3)**
Emphasis on Spanish and Mexican influences. Semester I: U.S. expansion to 1848. Semester II: 1848 to the present. The Treaty of Guadalupe Hidalgo; history of Mexican immigration; farm labor and urban Chicano history; contemporary movements. This year course meets the graduation requirement in American Institutions.

200. *(50.)* **Introduction to Mexican-American Culture (3)**
The individual Chicano and his cultural pattern: the acquisition of his culture, innovation and invention, direction of his cultural development, diffusion and interpenetration of Mexican and U.S. cultures.

230. *(60.)* **Mexican-American Art (3)**
Contemporary barrio art in the Southwest. Lectures and exhibitions by Chicano artists of California.

250. *(65A.)* **History of Mexican-American Drama (3)**
The Teatro Campesino of Luis Valdez: the Los Angeles Teatro Urbano. Theory and practice in Contemporary Chicano Theater, including literary, critical, and technical aspects viewed against the historical background.

251. *(65B.)* **Mexican-American Dramatic Production (3)**
Two lectures and three hours of laboratory.
Theatrical practices and organization of productions; writing for the Chicano theater; presentation of plays in the barrio and the college.

260. *(65C.)* **Mexican and Chicano Music (3)**
Music of Mexico and the barrio: emphasis on the *corrido*, its history and development in Mexico and the U.S.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301A-301B. Political Economy of the Chicano People (3-3) I, II
Prerequisite: Mexican-American Studies 110A-110B; 301A is prerequisite to 301B. Recommended Economics 103, or 120 and 121.
Semester I. Political and economic roots of the oppression and exploitation of the Chicano from historical, institutional and theoretical points of view. Semester II. Traditional distortions in the sociology and anthropology of minorities (Chicano emphasis): demythification of the "sleeping giant," the "invisible minority," etc.

302. *(101.)* **Community Organization and Development (3) I, II**
Prerequisite: Mexican-American Studies 301B.
Theory of organizing the Mexican-American community for creative roles in educational, political, social change. Role of the professional organizer.

303. *(102.)* **Contemporary Problems of the Barrio (3)**
Prerequisite: Mexican-American Studies 110A or 110B.
Sociological and practical analysis of barrio problems. Observation in informal agencies for experience and sensitizing.

304. *(103.)* **Narcotics in the Mexican-American Community (3) I, II**
Prerequisite: Mexican-American Studies 110A or 110B.
Prevention and cure of drug problems; old and new methods; formal and informal agencies explored.

305. *(111.)* **Advanced Field Instruction (3)**
Advanced field work in the barrio. Directed research and development projects in the San Diego Chicano community. Maximum credit six units.

306. *(121.)* **Immigration Law and Practices (3)**
Legal and political status of the immigrant from Mexico; process of immigration; counseling the immigrant.

307A-307B. Law, Order and the Mexican-American in the United States (3-3) I, II
Prerequisite: Mexican-American Studies 110A or 110B; 307A is prerequisite to 307B.
Semester I. Historical development of law and justice; comparative analysis of Anglo-Saxon and Iberian law; effects of "law and order" on the contemporary Chicano community. Semester II. Analysis of justice as it relates to minorities with emphasis on the Chicano perspective of law and order today. Examination of judicial, law enforcement, and penal institutions.

320. *(105.)* **Mexican-American Life Styles (3)**
The Mexican-American family in the past, present, and future. Traditional and evolving roles of the man and the woman. The new alternatives in the twentieth century.

331. *(131.)* **Chicano Poetry: Creative Writing (3)**
Reading and writing of Spanish-English macaronic verse: a writing workshop in which students are given opportunity to criticize each other's work. Poetry is the point of departure and goal in sight. Maximum credit six units.

332. *(132.)* **Chicano Prose: Creative Writing (3)**
A writing workshop. Mutual criticism. Exploration of new form and content in Mexican-American prose. Maximum credit six units.

333. *(133.)* **Prehispanic Literature (3)**
Literature of Nahua and Maya areas in translation: studied as literature.

334. *(134.)* **Language of the Barrio (3)**
Pachuco, calo, and barrio Spanish: a linguistic study.

335. *(135.)* **Mexican-American Literature (3)**
Ideas, forms, history of significant Mexican-American prose, poetry and other literary genres.

350A-350B. Chicano Historical Experience in the North American Southwest (3-3) I, II

Prerequisite: Mexican-American Studies 301A; 350A is prerequisite to 350B.

Semester I: Review of indigenous origins; Hispanic institutions and northward expansion; the Mexican Republic. Semester II: Early U.S. encroachment and the Mexican-American War; Chicano influences and contributions; the multilingual and multicultural Southwest.

360. Effects of Political and Ecnomic Institutions on the Barrio (3) I

Prerequisite: Mexican-American Studies 301A.

Analysis of unique needs within the barrio and their relationship to political and economic institutions; a study of the consumer society; research and theoretical development of alternative economic modes.

365. *(165.)* **Advanced Chicano Dramatic Production (3)**

Two lectures and three hours of laboratory.

Theatrical practices and organization of productions; writing for the Chicano theater; presentation of plays in the barrio and in college.

376. *(100.)* **Mexican-American Culture and Thought (3)**

Intellectual history of the Mexican-American from Nahua and European origins to the synthesis between the two continents in nineteenth and twentieth centuries. The concept of *Raza de bronce* and *Aztlan.*

380. Chicano Folklore (3)

Prerequisite: Mexican-American Studies 110A or 110B.

Stories, legends, dichos, and common practices of the Chicano storytellers of old; analysis of ancient myths and their contemporary manifestations.

390A-390B *(122A-122B.)* **The Chicano in Urban Politics (3-3)**

Prerequisite: Consent of instructor. Mexican-American Studies 390A is prerequisite to 390B.

Semester I: Theory of urban politics; study and observation in county, city, and community organizations and agencies. Identification of specific problems. Semester II: Identification of specific urban problems; study and observation in county, city and community organizations and agencies. Exploration of practical solutions. Field trips.

460. *(170.)* **Bilingual and Bicultural Education (3) I, II**

Prerequisite: Mexican-American Studies 110A-110B.

Philosophy of bilingual and bicultural education; investigation of bilingual models and exploration of research in area. Introduction to bilingual methods.

461A. *(171.)* **Bilingual Linguistics (3) I**

Prerequisite: Mexican-American Studies 110A or 110B.

Basic elements of linguistics in English and Spanish; definitions and applications. A study of comparative elements in bilingual linguistics. Taught bilingually.

461B. *(172A.)* **Bilingual Linguistics (3) I**

Prerequisite: Credit or concurrent registration in Mexican-American Studies 461A.

A Spanish-English description incorporating the historical and dialectal elements of linguistics. Spanish syntax, phonology, morphology and semantics. Theories and principles of teaching in bilingual systems. This course is taught in Spanish.

461C. *(172B.)* **Bilingual Linguistics, English (3) II**

Prerequisite: Credit or concurrent registration in Mexican-American Studies 461A.

An English-Spanish description incorporating the historical and dialectal elements of linguistics. English syntax, phonology, morphology and semantics. Theories and principles of teaching in bilingual systems. Taught in English.

464A-464B. *(174A-174B.)* **Literature for the Bilingual Student (3-3)**

Semester I: The study of Iberian, Spanish-American and Chicano literature for the preschool, elementary, and junior high bilingual student. May be used in lieu of Elementary Education 512. Semester II: The study of Iberian, Spanish-American, and Chicano literature for the high school, college, and adult school bilingual student. Taught in Spanish.

465. *(179.)* **Bilingual Practicum (4) II**

Eight hours of laboratory.

Prerequisites: Mexican-American Studies 460 or 461A, and 470.

Methods of teaching Spanish and English in elementary, junior high, and high school, emphasizing all valid linguistic approaches to language learning.

466A-466B. *(175A-175B.)* **Bilingual Materials and Curriculum (3-3) I, II**

One lecture and four hours of laboratory.

Prerequisite: Credit or concurrent registration in Mexican-American Studies 460.

Semester I: Investigation, evaluation and adaptation of existing materials in bilingual and bicultural education. Semester II: Design and development of curricula appropriate to bilingual and bicultural programs.

470. *(178.)* **Bilingual Systems Methods (3) I**

Prerequisites: Mexican-American Studies 460; and 461A and 461B or 466A-466B.

Theory of teaching methods within a bilingual and bicultural program.

480. *(180.)* **The Mexican-American and the Schools (3) I, II**

Prerequisite: Mexican-American Studies 110A or 110B.

The Mexican-American child's experience in the school system from preschool through high school with emphasis on social, intellectual and emotional growth and development.

482. *(182.)* **Mexican-American Curricula (3)**

Prerequisite: Mexican-American Studies 480.

Studies of current theories in Mexican-American curricula and their development.

483. *(183.)* **Rural and Migrant Education (3)**

Prerequisite: Mexican-American Studies 480.

The Mexican-American rural and migrant student; problems and new programs.

484. *(184.)* **Counseling the Mexican-American Student (3) I**

Prerequisite: Mexican-American Studies 480.

Motivation counseling at all levels; parent counseling and involvement; recruiting for secondary continuation and college.

485. *(185.)* **Testing the Mexican-American Student (3)**

Prerequisite: Mexican-American Studies 480.

Cultural bias in testing; development of new testing methods.

496. *(196.)* **Selected Topics in Mexican-American Studies (3)**

Intensive exploration of selected topics in the area of Mexican-American Studies. May be repeated with new content. Maximum credit six units.

497. *(197.)* **Senior Survey in Mexican-American Studies (3)**

Prerequisite: Mexican-American Studies 301B.

Survey integrating studies of selected areas of Mexican-American Studies. Senior report will be written.

499. *(199.)* **Special Study (1-3)**

Individual study. Maximum credit six units.

Prerequisites: Consent of instructor and chairman of Mexican-American Studies.

Microbiology

In the College of Sciences

Faculty

Emeritus: Myers
Professors: Baxter, Kelly, Moore, Walch (Chairman)
Associate Professors: Anderes, Phelps, Steenbergen

Offered by the Department

Master of Science degree in microbiology.
Master of Arts or Master of Science degree in biology with an emphasis in microbiology.
Major in microbiology with the A.B. degree in liberal arts and sciences.
Major in microbiology with the B.S. degree in applied arts and sciences.
Major in Environmental Health with the B.S. degree in applied arts and sciences.
Minor in microbiology.
Single subject teaching credential in life sciences in area of microbiology.

Microbiology Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog. To satisfy the requirement in foreign language, it is strongly recommended that students select French, German or Russian.

A Minor is not required with this major.

Preparation for the major. Biology 100, 100L and 215 or Mathematics 119; Chemistry 200A-200B, 230 or 231, and 250 or 251; Mathematics 121 and 122, or 140 and 150; and Physics 115A-115B, or 124A-124B and 125A-125B. (39-42 units.) Recommended Chemistry 140.

Major. A minimum of 24 upper division units in Microbiology and approved related fields to include Microbiology 310, 320, 330, and 515 or Biology 540; and Chemistry 361A-361B. Remaining units to be selected from courses in microbiology, and approved courses in other biological sciences, chemistry and physics.

Microbiology Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Biology 100, 100L and 215 or Mathematics 119; Chemistry 200A-200B, 230 or 231, and 250 or 251; Mathematics 121 and 122, or 140 and 150; and Physics 115A-115B, or 124A-124B and 125A-125B. (39-42 units.) Recommended Chemistry 140.

Major. A minimum of 36 upper division units in microbiology and approved related fields to include Microbiology 310, 320, 330, and 510 or 520; Chemistry 361A-361B; and three of the following courses: Microbiology 515, 525, 535, 560. Recommended Chemistry 310A, 310B and 467. Remaining courses to be selected from courses in microbiology and approved courses in other biological sciences, chemistry and physics.

Medical Technology Curriculum

In Applied Arts and Sciences

The curriculum in medical technology, which prepares for the licensed profession of Public Health Microbiologist or Clinical Laboratory Technologist or Bioanalyst, may be obtained by taking the microbiology major with the B.S. degree, but following a modified arrangement of courses. A description of the curriculum follows:

Public Health Microbiologist. To fulfill the academic requirements to qualify for the licensing examination given by the California State Department of Public Health for Public Health Microbiologist, the student should follow the major in microbiology described for the B.S. degree, but should include Microbiology 520, 525, 530, 535 and Zoology 535. Recommended Microbiology 430A-430B, 515, 535L; Zoology 508 and 526.

Clinical Technologist. To fulfill the academic requirements to qualify for the licensing examination given by the State for Clinical Technologist and the certification examination for medical technologists given by the American Society of Clinical Pathologists, the student should follow the major in microbiology described for the B.S. degree, but should include Microbiology 520, 525, 530, 535, Chemistry 467, and Zoology 535. Recommended: Biology 570 and 571; Microbiology 430A-430B, 515, 535L; Zoology 508 and 526.

Environmental Health Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

This program is approved by the California State Department of Health. Upon completion of degree requirements and one year of experience as an Assistant Sanitarian with a local public health department, the graduate will be admitted to the State of California examination for Registered Sanitarian.

Preparation for the major. Biology 100 and 100L; Biology 215 or Mathematics 119; Chemistry 200A-200B, 230 or 231, and 250 or 251; Geology 100; Health Science and Safety 102; Mathematics 121 and 122, or 140 and 150; Physics 115A-115B, or 124A-124B and 125A-125B; and Sociology 101. (48-53 units.)

Major. A minimum of 36 upper division units to include Microbiology 310, 410, 420, 430A-430B, 520; Biology 520; Engineering 414, 514; Public Administration 320; Zoology 526. The prerequisites for Engineering 414 are waived for students in this major.

Microbiology Minor

The minor in microbiology consists of a minimum of 15 units in microbiology to include Microbiology 310, 320 and 330.

Courses in the minor may not be counted toward the major or general education.

Microbiology

For the Single Subject Teaching Credential in Life Sciences

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

The requirements for the single subject teaching credential in life sciences which includes the area of microbiology are being revised. For further information consult the department.

LOWER DIVISION COURSES

110. *(1.)* **Microbiology and Man (3) I, II**

The biology of microorganisms and their significance in disease, agriculture, sanitation and industry. Not open to biological sciences, nursing and dietetics majors. Fulfills the general education requirement in the natural science area.

110L. *(1L.)* **Microbiology and Man, Laboratory (1) I, II**

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Microbiology 110.

Laboratory exercises designed to complement material presented in Microbiology 110. Fulfills the general education laboratory requirement in the natural science area.

210. *(10.)* **Fundamentals of Microbiology (4) I, II**

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 100A-100B or 200A-200B. Students with credit in Microbiology 110 may enroll but will receive only one additional unit of credit.

A course for nursing and dietetics majors. Study of the microorganisms of the environment, including the disease-producing organisms, their actions and reactions.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

310. *(101.)* **General Microbiology (4) I, II, S**
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 230 or 231.
The actions and reactions of microorganisms in response to their environment, both natural and as changed by other organisms, including man. Also includes an introduction to the pathogens.

320. *(105.)* **Microbial Physiology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 310; Chemistry 250 or 251; and Physics 124A-124B. Recommended: Chemistry 361A; Physics 125A-125B.
Physiology of selected bacteria, fungi, and other microorganisms.

330. *(103.)* **Fundamentals of Immunology and Serology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 310; Chemistry 361A; and one other upper division biological science course.
The immunochemistry of antigens and antibodies and their reactions. Immunohematology and hypersensitivity. Serological techniques.

360. *(140.)* **History of Microbiology (2) I, II**
Prerequisite: Microbiology 110, 210, or 310.
The development of microbiology as a specialty area of the biological sciences and its influence on social and political developments.

370. *(118.)* **Community Epidemiology (3) I, II**
Prerequisite: Microbiology 210.
A course for other than biological sciences majors. Epidemiological concepts and methods as they apply to current community problems.

410. *(112.)* **Principles of Environmental Health (4) I**
Three lectures and three hours of laboratory and field work.
Prerequisites: Biology 215 or Mathematics 119; Health Science and Safety 102; and Microbiology 310.
General principles of environmental sanitation, including the relationship of the various aspects of physical environment to preventive medicine; the provision of clean air and water, proper waste disposal, safe food supply, and adequate habitation.

420. *(113.)* **Environmental Health Administration (4) II**
Three lectures and three hours of field work.
Prerequisite: Microbiology 410.
Concepts of organization and administration applied to environmental health; factors affecting these at the local, national and international levels.

430A-430B. *(111A-111B.)* **Epidemiology (2-2)**
Prerequisite: Microbiology 520; Biology 215 or Mathematics 119.
Study of the transmission, distribution, and control of infectious and noninfectious diseases in the community.

490. *(190.)* **Investigation and Report in Microbiology (2) I, II**
Prerequisites: Microbiology 310 and at least one additional upper division course in microbiology.
Investigation and reports on current microbiological literature.

495. *(198.)* **Methods of Investigation (2) I, II**
One discussion and three hours of laboratory.
Prerequisite: Microbiology 310.
Laboratory methods used in microbiological research. Preparation and utilization of microbiological culture media and diagnostic reagents. Maximum credit four units.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Fifteen upper division units in the major with an average of B (3.0) or better.

510. *(115.)* **Advanced General Microbiology (4) II**
Two lectures and six hours of laboratory.
Prerequisite: Microbiology 310.
Taxonomy, comparative physiology and ecology of representative microorganisms found in various natural environments.

515. *(114.)* **Bacterial and Viral Genetics (2) I, II**
Prerequisite: Microbiology 310.
The genetics of bacteriophages; selected animal viruses and bacteria.

515L. *(114L.)* **Bacterial and Viral Genetics Laboratory (2) I**
Six hours of laboratory.
Prerequisite: Credit or concurrent registration in Microbiology 515.

520. *(102.)* **Pathogenic Bacteriology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 310; Chemistry 250 or 251. Recommended: Chemistry 361A.
Bacterial and rickettsial agents of disease in man and other animals. Consideration of host-parasite relationships, the biology of the inciting agents and mechanisms of host resistance. Laboratory experience in isolation and identification of bacterial pathogens.

525. *(104.)* **Medical Mycology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Microbiology 310.
Mycotic agents of disease in human and other animals. Consideration of the biology of fungi; concepts of host-parasite relationships, including factors affecting virulence and immunity. Experience in systematic identification.

530. *(109.)* **Hematology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Microbiology 310.
The study of normal and pathological blood with chemical, physical and microscopic methods.

535. *(107.)* **General Virology (2) I, II**
Prerequisite: Microbiology 310. Recommended: Microbiology 330 and 520.
Viruses, their structure, function, culture, and methods of study.

535L. *(107L.)* **General Virology Laboratory (2) II**
Six hours of laboratory.
Prerequisites: Microbiology 520 and credit or concurrent registration in Microbiology 535.
The culture, isolation, and characterization of viruses.

560. *(116.)* **Marine Microbiology (2) I**
Prerequisite: Microbiology 310.
Microbiological population of estuary and ocean waters; interrelationships with other organisms and the physical and chemical environment.

560L. Marine Microbiology Laboratory (2) I
Six hours of laboratory.
Prerequisite: Credit or concurrent registration in Microbiology 560.

570. *(130.)* **Experimental Immunology (4) I**
Two lectures and six hours of laboratory.
Prerequisite: Microbiology 330.
The study of selected antigens and antibodies and their reactions.

580. *(120.)* **Animal Viruses (4) I**
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 520 and 535. Recommended: Microbiology 330 and 535L.
Animal virus identification and investigation, emphasizing cell culture, cytopathic effects and serology.

590. *(180.)* **Electron Microscopy (4) II**
Two lectures and six hours of laboratory.
Prerequisites: Physics 115A-115B or 124A-124B and Microbiology 310. Recommended: Microbiology 535, and Zoology 508.
Principles and techniques in the biological application of the electron microscope.

GRADUATE COURSES

600. *(200.)* **Seminar (2 or 3)**
Prerequisite: Consent of instructor.
An intensive study in advanced microbiology; topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

610. *(240.)* **Seminar in General Microbiology (2)**
Prerequisite: Microbiology 320.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

620. *(205.)* **Seminar in Microbial Physiology (2)**
Prerequisite: Microbiology 320.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

630. *(260.)* **Seminar in Immunology and Serology (2)**
Prerequisite: Microbiology 330.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

640. *(215.)* **Seminar in Bacterial and Viral Genetics (2)**
Prerequisite: Microbiology 515.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

650. *(210.)* **Seminar in Pathogenic Bacteriology (2)**
Prerequisite: Microbiology 520.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

660. *(230.)* **Seminar in Medical Mycology (2)**
Prerequisite: Microbiology 525.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

670. *(250.)* **Seminar in Virology (2)**
Prerequisite: Microbiology 535.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

680. *(245.)* **Seminar in Aquatic Microbiology (2)**
Prerequisite: Microbiology 320 or 560 or Biology 531.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

720. *(272.)* **Advanced Pathogenic Bacteriology (3)**
Prerequisites: Microbiology 520 and consent of instructor.
Biological and chemical nature of disease-producing bacteria. Application of experimental information to diagnostic laboratory procedures.

725. *(270.)* **Biology of Animal Pathogenic Fungi (3)**
Prerequisite: Microbiology 525.
Distribution and pathogenesis of fungi-causing disease in man and other animals.

790. *(290.)* **Bibliography (1)**
Use of basic reference books, journals, pertinent bibliographies preparatory to the writing of a master's thesis.

791. *(291.)* **Research Techniques (3)**
Prerequisites: Major in a biological science and two upper division courses in the area of microbiology or consent of instructor.
Analysis of research procedures in microbiology.

797. *(297.)* **Research (1-3) Cr/NC**
Research in one of the fields of microbiology.
Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.

Music

In the College of Professional Studies

The Department of Music is a Member of the National Association of Schools of Music.

Faculty

Emeritus: Smith, L. D., Smith, D., Springston

Professors: Anderson, Blyth, Bruderer, Brunson, Estes, Forman, Genzlinger, Hogg, Hurd, Lambert, Mracek, Savage, Sheldon, Smith (Chairman), Snider, Ward-Steinman

Associate Professors: Almond, Loomis, Meadows, Mitchell, Moe, Rohfleisch, Yates

Assistant Professors, Flye, Hill, Logan, Murphy

Lecturers: Greenbush, Lloyd, O'Donnell

Offered by the Department

Master of Arts degree in Music

Major in music with the A.B. degree in applied arts and sciences.

Bachelor of Music degree in applied arts and sciences.

Minor in music.

Teaching major in music for the single subject teaching credential.

Music Curricula

The music curricula are designed to fulfill the needs of all students: (1) those who have professional ambitions in music performance, or seek a foundation for graduate study leading to college or university teaching; (2) those who are preparing for one of the several state teaching credentials; (3) those whose major professional interest is in another department, and are seeking musical study as a minor; and (4) those who are interested in music as an elective study area for the enrichment of their cultural background.

General Basic Requirements

General basic requirements for the B.M. degree in applied arts and sciences, the A.B. degree with a major in music in applied arts and sciences or in teacher education are as follows:

1. Upon entering the department, each student is required to take an examination in piano for classification, and to commence on no less than four consecutive semesters of class piano study for credit.

2. In the area of performance studies, each entering student is required to declare his major instrument (voice, piano, clarinet, etc.), take an examination thereon for classification and complete six semesters of study on that instrument for the A.B. degree for the Single Subject Teaching Credential and eight semesters for the B.M. degree. (The requirements in terms of semesters of study may be reduced for transfer students on the basis of the examination for classification.)

3. To qualify for upper division study, music majors must complete successfully a Junior Level examination which will be administered following the fourth semester of study in Music 250.

Appearance in at least one student recital during each semester in residence, according to departmental recital requirements.

4. As laboratory experience, participation in one or two performing groups each semester, to meet the requirement in courses numbered 170 through 190 and 370 through 390 as stated in each of the majors, half of this requirement to be met in a major group in which the major instrument or voice is regularly used.

Music Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Music 110A-110B, 110C-110D (may be waived in full or in part by examination); 115A; four units selected from courses numbered 120A through 135; 158A-158B; four units selected from courses numbered 170 through 190; 246A-246B; four units of Music 250; 258A-258B. (31-35 units.)

Major. A minimum of 37 upper division units to include Music 358A-358B; five units selected from courses numbered Music 370 through 390; 446A-446B-446C; one unit selected from Music 448A or 449A; four units of Music 450; 552A-552B; 555; elect one course from Music 351B, 351C, 351D, or 510.

Music Major

With the B.M. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Music 110A-110B, 110C-110D, (may be waived in full or in part by examination), 158A-158B, 258A-258B; six units selected from courses numbered Music 170 through 190; four to eight units in Music 250. (26-34 units.)

Major. Thirty-eight to forty-two upper division units to include two units selected from Music 448A-448B or 449A-449B, 358A-358B, 552A-552B, six units selected from courses numbered 370 through 390, four to eight units in Music 450, and the requirements in one of the following fields of emphasis:

(a) Performance. Ten units to include Music 367, 497, and seven units to be selected with the aid of the departmental adviser. (Pianists, vocalists, and string performers must include Music 541 and 542.)

Students emphasizing performance must appear in a joint recital during the junior year and must present a solo recital during the senior year. The student must pass an audition of the program to be performed before the music faculty no less than one month in advance of the recitals.

(b) Music History and Literature. Ten units to include four units of Music 499 and six units of courses to be selected with the aid of the departmental adviser from related fields such as history, etc.

During his senior year, the student emphasizing music history and literature is required to organize, prepare program notes, and present two recitals consisting of recorded or "live" performances. Each will deal with representative works of a certain period, composers, or styles to be compared. Such students must pass an audition of the lecture and the music to be performed no less than one month in advance of the recitals.

(c) Composition. Ten units to include two units of Music 207, two units of Music 497, 507 and four units selected with the aid of the departmental adviser.

An interview with the Department Chairman is required for admission to this emphasis.

The student emphasizing composition is required to present a concert of his compositions during the senior year and present the scores of works to be performed to the music faculty no less than one month in advance of the performance.

Foreign Language Requirement. Eight to twelve units (or equivalent knowledge demonstrated in a test of reading knowledge administered by the foreign language department concerned in consultation with the Department of Music) as follows:

1. Vocalists-one semester each of French, German, and Italian. 2. Music History and Literature students-12 units of French, German, or Italian. 3. All other-eight units of one foreign language chosen from French, German, or Italian (except that classical guitar students may substitute Spanish).

Music Minor

To be admitted to the minor program, the student must demonstrate vocal or instrumental performing ability.

The minor in music consists of 26 units in music to include Music 110A-110B, 158A-158B, 258A-258B, and eight units of electives, six units of which must be in upper division courses selected in consultation with the departmental adviser.

Courses in the minor may not be counted toward the major or general education.

Music Major

For the Single Subject Teaching Credential

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Students in teacher education may use this major for the A.B. degree in applied arts and sciences by completing additional departmental requirements in recital attendance and performance, and proficiency examinations in voice and piano.

Preparation for the major. Music 110A-110B, 110C-110D (may be waived in full or in part by examination); 115A; four units selected from courses numbered 120A through 135; 158A-158B; four units selected from courses numbered 170 through 190; 246A-246B; four units of Music 250; 258A-258B. (31-35 units.)

Major. A minimum of 30 upper division units to include Music 358A-358B; two units selected from courses numbered Music 370 through 390; 446A-446B-446C; one unit selected from Music 448A or 449A; two units of Music 450; 552A-552B; and 555.

Electives in Music

The Music Department offers certain courses for students who are interested in music as an elective study area for the enrichment of their cultural background. Courses particularly suited for these needs are Music 151 and 351 and the music courses numbered 170 to 190 and from 370 to 390. Some students will be musically prepared to elect courses which may or may not be included in this group. Enrollment by qualified students who wish to elect these courses is encouraged.

Performances Studies for Credit

Credit may be allowed for performance studies under the following conditions:

1. Properly enrolled music majors may enroll for performance studies with resident faculty without an additional fee.
2. Properly enrolled music majors who elect to study off campus with a teacher approved by the Department of Music may do so and may apply for credit by examination. Application for such credit must be made each semester in the Office of the Registrar within the official time limits for filing a change of program. The examination will consist of the regular jury examination required of all music majors at the conclusion of each semester.
3. Students may under no circumstances change teachers in the middle of a semester without first securing the permission of the chairman of the Department of Music.
4. Prior to the start of performance studies at San Diego State University, the student is required to take a preliminary audition conducted by Department of Music faculty which will indicate his status at the beginning of his study.
5. Students who have dropped out of school or have stopped taking performance studies for credit for one semester or more, upon resumption of that instruction for credit are required to present another preliminary audition.
6. At the end of each semester, the Department of Music will sponsor a jury examination to satisfy itself that its standards have been met.

LOWER DIVISION COURSES

101. *(1.)* **Recitals (1) I, II Cr/NC**
Preparation for individual solo performances and attendance at a minimum of 12 concerts or recitals in accordance with departmental requirements. Maximum credit four units.

102. *(2.)* **Basic Musicianship for Non-Music Majors (3) I, II**
Four hours.
Rudimentary music theory involving the elements of music: melody, rhythm, and harmony. Developing the understanding of these elements through instrumental and vocal experiences which include the use of unison and part-singing, the keyboard, and simple melodic and harmonic instruments.

110A-110B. *(10A-10B.)* **Piano-Elementary Class Instruction (1-1) I, II**
Two hours.
Prerequisite: Music 110A is prerequisite to 110B.
Basic keyboard experience through study of music reading, notation, scales, chords, and sight-reading covering a repertoire of beginning and intermediate songs and piano literature, with emphasis on keyboard harmony. Required of music majors and minors and credential candidates for teaching at the kindergarten-primary level.

110C-110D. *(10C-10D.)* **Piano—Elementary Class Instruction (1-1) I, II**
Two hours.
Prerequisite: Music 110B is prerequisite to 110C; and 110C to 110D.
Continuation of Music 110A-110B.

115A. *(15A.)* **Voice—Elementary Class Instruction (1) I, II**
Two hours.
Mastery of the fundamentals of voice. Not open to voice majors.

115B. *(15B.)* **Voice—Elementary Class Instruction (1) I, II**
Two hours.
Prerequisite: Music 115A.
Observation of individual or group lessons; critiques and discussion; performance in class.

120A. *(20A.)* **Strings—Elementary Class Instruction (1) I**
Two hours.
Fundamentals of violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Not open to students with credit in Music 320A.

120B. *(20B.)* **Strings—Elementary Class Instruction (1) II**
Two hours.
Prerequisite: Music 120A or 320A.
Fundamentals of violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 120A or 320A. Not open to students with credit in Music 320B.

125A. *(25A.)* **Clarinet and Flute—Elementary Class Instruction (1) I, II**
Two hours.
Fundamentals of the clarinet and flute by lecture and acquisition of elementary skills. Not open to students with credit in Music 325A.

125B. *(25B.)* **Oboe and Bassoon—Elementary Class Instruction (1) I, II**
Two hours.
Fundamentals of oboe and bassoon by lecture and acquisition of elementary skills. Not open to students with credit in Music 325B.

130. *(30.)* **Brass—Elementary Class Instruction (1) I**
Two hours.
Fundamentals of brass instruments by lecture and acquisition of elementary skills. Not open to students with credit in Music 330.

135. *(35.)* **Percussion—Elementary Class Instruction (1) I, II**
Two hours.
Fundamentals of percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Not open to students with credit in Music 335.

140. *(40.)* **Guitar—Elementary Class Instruction (1) I, II**
Two hours.
Open only to music or elementary education majors. Fundamentals of guitar by acquisition of elementary skills. Not open to students with credit in Music 340.

151. *(51.)* **Introduction to Music (3) I**
Practical approach to hearing music with understanding and pleasure, through study of representative compositions of various styles and performance media, great musicians and their art. Music correlated with other arts through lectures, recordings, concerts. Closed to music majors and minors.

153. *(53.)* **Opera Theatre (2) I, II**
Four hours.
The interpretation and characterization of light and grand opera. Specific work in coordination of operatic ensemble. Maximum credit eight units.

158A-158B. *(8A-8B.)* **Comprehensive Musicianship (3-3) I, II**
Two lectures and two hours of activity.
Prerequisite: Music 158A is prerequisite to 158B.
Direct analysis of musical styles and forms as they have evolved historically; composition, improvisation, performance, and instrumentation; sight-singing, dictation, harmony. Parallel developments in related arts; comparisons with non-Western musical systems.

Performance Organization Courses

The performance organization courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques.

170. *(70.)* **Chamber Music (1) I, II**
Three hours. Four hours for opera.
Prerequisite: Consent of instructor.
Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. Maximum credit four units.

175. *(75.)* **Marching Band (1) I**
Concurrent registration in Music 175 and 176 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
Maximum credit two units.

176. *(76.)* **Symphonic Band (1) I, II**
Semester I: Concurrent registration in Music 175 and 176 required. Combined activity, six hours. Semester II: Activity, five hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

177. Wind Ensemble (1) I, II
Five hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

180. *(80.)* **Symphony Orchestra (1) I, II**
Five hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

185. *(85.)* **Concert Choir (1) I, II**
Five hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

186. *(86.)* **Treble Clef (1) I, II**
Three hours.
Maximum credit four units.

187. *(87.)* **Men's Glee Club (1) I, II**
Three hours.
Maximum credit four units.

188. *(88.)* **University Chorus (1) I, II**
Three hours.
Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. Maximum credit four units.

189. *(89.)* **Jazz Ensemble (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

190. *(90.)* **Collegium Musicum (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

207. *(7.)* **Composition Laboratory (1) II**
Three hours of laboratory.
Prerequisite: Consent of instructor.
Original writing in different homophonic and polyphonic forms for various media. Maximum credit two units.

246. Practicum in Music (1) I, II
Three hours of laboratory.
Materials and techniques used in instruction with field observation.
A. Performance Areas.
B. General Music.

250. *(50.)* **Performance Studies (1-2) I, II**
Prerequisite: Open only to music majors. Audition and approval by departmental faculty.
Fifteen one-half hour private lessons or thirty one-hour group sessions for one unit; fifteen one-hour private lessons for two units.
Studies in technical, stylistic, and aesthetic elements of artistic performance. Candidates for the B.M. degree with Performance emphasis enroll for two units of credit per semester. Candidates for the A.B. degree and for the B.M. degree in composition and in music history and literature enroll for one unit of credit per semester. For conditions under which credit is given, see Performance Studies for Credit in the section of the music major. Maximum credit for Music 250 is eight units.

A. Piano	J. Bassoon	R. Viola
B. Harpsichord	K. French Horn	S. Cello
C. Organ	L. Trumpet	T. Contrabass
D. Voice	M. Trombone	U. Harp
E. Flute	N. Baritone Horn	V. Classical Guitar
F. Oboe	O. Tuba	X. Classical Accordion
G. Clarinet	P. Percussion	Y. Composition
H. Saxophone	Q. Violin	

258A-258B. *(58A-58B.)* **Comprehensive Musicianship (5-5) I, II**
Four lectures and two hours of activity.
Prerequisite: Music 158B. Music 258A is prerequisite to 258B.
Continuation of Music 158A and 158B. Late 19th and 20th century harmony. Counterpoint and texture in Medieval, Renaissance, and Baroque styles.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. *(101.)* **Recitals (1) I, II Cr/NC**
Preparation for individual solo performances and attendance at a minimum of 12 concerts or recitals in accordance with department requirements. Maximum credit four units.

310. *(110.)* **Electronic Music (2)**
One lecture and three hours of laboratory.
Prerequisite: Consent of instructor.
Principles and techniques of electronic sound synthesis, musique concrete, and multimedia application in live performance.

320A. *(120A.)* **Strings—Elementary Class Instruction (1) I**
Two hours.
Fundamentals of violin, viola, cello and string bass by lecture and acquisition of elementary skills. Not open to students with credit in Music 120A.

320B. *(120B.)* **Strings—Elementary Class Instruction (1) II**
Two hours.
Prerequisite: Music 120A or 320A.
Fundamentals of violin, viola, cello and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 120A or 320A. Not open to students with credit in Music 120B.

325A. *(125A.)* **Clarinet and Flute—Elementary Class Instruction (1) I, II**
Two hours.
Fundamentals of the clarinet and flute by lecture and acquisition of elementary skills. Not open to students with credit in Music 125A.

325B. *(125B.)* **Oboe and Bassoon—Elementary Class Instruction (1) I, II**
Two hours.
Fundamentals of oboe and bassoon by lecture and acquisition of elementary skills. Not open to students with credit in Music 125B.

330. *(130.)* **Brass—Elementary Class Instruction (1) I**
Two hours.
Fundamentals of brass instruments by lecture and acquisition of elementary skills. Not open to students with credit in Music 130.

335. *(135.)* **Percussion—Elementary Class Instruction (1) I, II**
Two hours.
Fundamentals of percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Not open to students with credit in Music 135.

340. *(140.)* **Guitar—Elementary Class Instruction (1) I, II**
Two hours.
Open only to music or elementary education majors.
Fundamentals of guitar by acquisition of elementary skills. Not open to students with credit in Music 140.

343. *(143.)* **Music Literature for Children (3) I, II**
Prerequisite: Music 102 or 158B.
Analytical study of music suitable for children of all ages. Background information, musical structure and functions of this music in the lives of children are included.

344. *(144.)* **Folk Music (3) I, II**
Prerequisite: Music 102 or 158B.
The origin and development of folk music; the social instruments and their use. Participation in singing and playing folk music.

345. *(145.)* **Music in Contemporary Life (3) I, II**
Prerequisite: Music 102 or 158B.
Functional music in society to include its psychological, physical and recreational uses; music as communication; the composer, the musician, and the audience.

347. *(147.)* **Perspectives in Music (3) I, II**
Prerequisite: Music 102 or 158B.
Musical understandings from nonperformance aspects and perspectives regarding the relationships of music to the visual arts and the humanities.

351. *(151.)* **Great Music (3) I, II**
Significant music literature of the various historical periods with emphasis on the stylistic characteristics through directed listening.
A. Musical Masterpieces of the 18th and 19th Centuries.
B. Musical Masterpieces of the 20th Century.
C. Masterpieces of Grand Opera.
D. Twentieth Century American Jazz.

353. *(153.)* **Opera Theatre (2) I, II**
Four hours.
Interpretation and characterization of light and grand opera. Specific work in coordination of opera ensemble. Maximum credit eight units.

355. *(155.)* **Ethnic Musics (3)**
World music outside the European art tradition with emphasis on the musics of India, Africa, East Asia and Indonesia.

358A-358B. *(158A-158B.)* **Comprehensive Musicianship (5-5) I, II**
Four lectures and two hours of laboratory.
Prerequisite: Music 258B. Music 358A is prerequisite to 358B.
Continuation of Music 258A-258B. Counterpoint from 18th to 20th century, serial techniques, jazz, electronic music. Individual projects in instrumentation, composition, analysis, non-Western musics.

367. *(167.)* **Junior Recital (1) I, II**
Prerequisite: Junior standing in music.
Selection of literature for recital program not to exceed 30 minutes in length; theoretical analysis and historical study of scores chosen; preparation for public performance; and examination before committee of music department faculty.

Performance Organization Courses

The performance group courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble, and designed to provide students with practical experience in rehearsal techniques.

370. *(170.)* **Chamber Music (1) I, II**
Three hours. Four hours for opera.
Prerequisite: Consent of instructor.
Section for string, woodwind, brass, piano, vocal, and mixed ensemble groups. Maximum credit four units.

375. *(175.)* **Marching Band (1) I**
Concurrent registration in Music 375 and 376 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
Maximum credit two units.

376. *(176.)* **Symphonic Band (1) I, II**
Semester I: Concurrent registration in 375 and 376 required. Combined activity, six hours.
Semester II: Five hours per week.
Prerequisite: Consent of instructor.
Maximum credit four units.

377. Wind Ensemble (1) I, II
Prerequisite: Consent of instructor.
Maximum credit four units.

380. *(180.)* **Symphony Orchestra (1) I, II**
Five hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

385. *(185.)* **Concert Choir (1) I, II**
Five hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

386. *(186.)* **Treble Clef (1) I, II**
Three hours.
Maximum credit four units.

387. *(187.)* **Men's Glee Club (1) I, II**
Three hours.
Maximum credit four units.

388. *(188.)* **University Chorus (1) I, II**
Three hours.
Open to all persons interested in performing oratorio, cantata, opera and the extended choral works. No entrance auditions are required. Maximum credit four units.

389. *(189.)* **Jazz Ensemble (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

390. *(190.)* **Collegium Musicum (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
Maximum credit four units.

446. Practicum in Music (2) I, II
One lecture and two hours of activity.
Advanced materials and techniques used in instruction, with field observation.
A. Choral Music
B. Instrumental Music
C. General Music

448A-448B. *(148A-148B.)* **Choral Conducting (1-1) I, II**
Three hours.
Prerequisite: Music 258B. Music 448A is prerequisite to 448B.
Elements of baton technique and development of basic skills common to choral conducting. Representative literature and techniques for choral organizations will be studied and performed. Practical experience in typical conducting situations will be emphasized in various grade levels.

449A-449B. *(149A-149B.)* **Instrumental Conducting (1-1) I, II**
Three hours.
Prerequisite: Music 258B. Music 449A is prerequisite to 449B.
Orchestra and band scores of graduated levels of advancement. The class will prepare and conduct instrumental works in public performance.

450. *(150.)* **Performance Studies (1-3) I, II**
Prerequisite: Open only to music majors. Audition and approval by departmental faculty.
Fifteen one-half hour private lessons or thirty one-hour group sessions for one unit; 15 one-hour private lessons for two units.
Studies in technical, stylistic and aesthetic elements of artistic performance. Candidates for the B.M. degree with Performance emphasis enroll for two units of credit per semester. Candidates for the A.B. degree and for the B.M. degree in composition and in music history and literature enroll for one unit of credit per semester. For conditions under which credit is given, see Performance Studies for Credit in the section on the music major. Maximum credit for Music 450 is eight units.

A. Piano
B. Harpsichord
C. Organ
D. Voice
E. Flute
F. Oboe
G. Clarinet
H. Saxophone
J. Bassoon
K. French Horn
L. Trumpet
M. Trombone
N. Baritone Horn
O. Tuba
P. Percussion
Q. Violin
R. Viola
S. Cello
T. Contrabass
U. Harp
V. Classical Guitar
X. Classical Accordion
Y. Composition

496. *(196.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

497. *(197.)* **Senior Recital (2) I, II**
Prerequisite: Senior standing in music.
Selection of literature for recital program not to exceed one hour in length; theoretical analysis and historical study of scores chosen; preparation for public performance; and examination before committee of music department faculty.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of the department chairman.

507. *(107.)* **Composition Laboratory (1) II**
Three hours of laboratory.
Prerequisites: Music 207 and consent of instructor.
Continuation of Music 207. Maximum credit two units.

541. *(141.)* **Performance Studies Pedagogy (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Consent of instructor.
Teaching beginning and intermediate applied music. Survey and evaluation of teaching materials. Observation of individual or group lessons.
A. Piano
B. Strings
C. Voice

542. *(142.)* **Performance Studies Laboratory (2) I, II**
One lecture and three hours of laboratory.
Prerequisite: Music 541A is prerequisite to 542A and 541B is prerequisite to 542B.
Practical experience in the teaching of individual or group lessons.
A. Piano
B. Strings
C. Voice

552A-552B. *(152A-152B.)* **History of Music (3-3) I, II**
Prerequisite: Music 258B. Music 552A is prerequisite to 552B.
The chronological development of musical art and forms from the Middle Ages to the present. Analytical score study and assigned recordings. Familiarity with musicological resources through individual assignments.

554. *(154.)* **Music Literature (2) I, II**
Prerequisite: Music 258B.
A concentrated study of the literature in the several areas listed. Analysis by use of scores and of recordings, when available.
A. Chamber Music Literature—Strings
B. Symphonic Literature
C. Keyboard Literature
D. Song Literature

GRADUATE COURSES

600. *(200.)* **Seminar in Music Education (3)**
Prerequisite: Consent of instructor.
Seminars in music education are offered to provide an opportunity for concentrated study in the several areas listed.
A. Development and Teaching of Strings
B. Choral and Vocal Techniques
C. General Music

601. *(201.)* **Foundations of Music Education (3)**
History and philosophy of music education in relation to current trends in the teaching of music.

602. *(202.)* **Administration and Supervision of Music Education (3)**
Curriculum, scheduling, finance, human relations, organizational aspects, and the role of the supervisor-consultant.

604. *(204.)* **Comparative Music Education (3)**
Various international philosophical and technical approaches to teaching music to include the Orff, Kodaly, Suzuki and other systems.

607. *(207.)* **Composition (2-3)**
Three hours of laboratory and public performance of an extended original work as a project.
Prerequisite: Music 507.
Advanced composition for various media, development of original idiom, intensive study of modern music.

608. *(208.)* **History and Development of Music Theory (3)**
Prerequisite: Music 552B.
Survey of important theoretical approaches to music, from pre-Socratic writers to the present.

609. *(209.)* **Advanced Orchestration (2)**
Intensive work in the practical scoring for ensemble, full orchestra, and symphonic band. Score analysis. Selected works of the class members will be performed.

611. *(211.)* **Analytical Studies of Music (3)**
Melodic, formal, contrapuntal and harmonic analysis of music.

613. *(213.)* **Seminar: Music Theory (3)**
Principles of traditional harmony and ear training.

614. *(210.)* **Electronic Music (3)**
Prerequisite: Undergraduate concentration in composition.
Theory, techniques and composition of various kinds of electronic music.

648A. *(246A.)* **Advanced Choral Conducting (2)**
Prerequisite: Music 346B.
Course designed to develop skills at professional level; study of different styles of choral literature and their relationship to conductor's art; score analysis and experience in conducting.

648B. *(246B.)* **Advanced Instrumental Conducting (2)**
Prerequisite: Music 346B.
Course designed to develop skills at professional level; study of conducting style as related to band and orchestra literature score analysis and experience in conducting.

650. *(250.)* **Advanced Performance Studies (2)**
Fifteen one-hour private lessons.
Prerequisite: Audition before music faculty.
Advanced studies in technical, stylistic and aesthetic elements of artistic performance culminating in a graduate recital. Maximum credit four units applicable on a master's degree.

A. Piano	J. Bassoon	R. Viola
B. Harpsichord	K. French Horn	S. Cello
C. Organ	L. Trumpet	T. Contrabass
D. Voice	M. Trombone	U. Harp
E. Flute	N. Baritone Horn	V. Classical Guitar
F. Oboe	O. Tuba	X. Classical Accordion
G. Clarinet	P. Percussion	Y. Composition
H. Saxophone	Q. Violin	

652. *(252.)* **Seminar in Music History (3)**
Prerequisites: Music 552B and consent of instructor.
Seminars in music history are offered for intensive study in each of the historical eras as listed below.
A. Music of the Middle Ages and Renaissance
B. Music of the Baroque Era
C. Music of the 18th and 19th Centuries
D. Twentieth Century Music
E. American Music

655. *(253.)* **Musicology (3)**
Prerequisite: Music 552B.
Problems and research in musicology. Projects in bibliography, source materials, music history, criticism, aesthetics and related fields. Writing and presentation of a scholarly paper.

660. *(255.)* **Seminar: A Major Composer (3)**
Prerequisite: Music 552B. Completion of a seminar in Music 652A is recommended.
The life, milieu and works of a major composer, such as Bach, Mozart or Schubert will be studied. Maximum credit six units applicable on a master's degree.

665. *(260.)* **Seminar in the Notation of Polyphonic Music (3)**
Prerequisite: Music 552B. Completion of Music 652A is recommended.
Problems related to the notation of Medieval, Renaissance and Baroque music. Examples will be transcribed into modern notation.
A. Notation of Ensemble Music: White Mensural Notation.
B. Notation of Ensemble Music: Black Notation to the End of Franconian Notation.

670. *(270.)* **Seminar: Interpretation of Early Music (3)**
Prerequisites: Completion of Music 652A and 652B is recommended.
Performance practice in Medieval, Renaissance and Baroque music; projects in music editing; reports; performance on historical instruments. Participation in the Collegium Musicum required.

690. *(290.)* **Research Procedures in Music (3)**
Reference materials, bibliography, investigation of current research in music, processes of thesis topic selection and techniques of scholarly writing.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for a master's degree.

799B. Thesis or Project (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.

Nursing

In the College of Professional Studies

Agency Member of the National League for Nursing

Accredited by the California Board of Nursing Education and Nurse Registration and by the National League for Nursing

Faculty

Emeritus: Nye
Professors: Black, Coveny, Johnson, Moses, Salerno, Sirovica, Thomas
Associate Professor: Laiho
Assistant Professors: Barton, Flagg, La Monica, Laws, Leslie, Moffett, Rehman, Richards, Roth, Verderber, Warnock
Lecturers: Clerkin, Colwell, Dodson, Ford, Peters, Reimschissel, Schwartz, Wong

Offered by Nursing

Major in nursing with the B.S. degree in applied arts and sciences

Nursing Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Compliance with Assembly Bill No. 2878 necessitates revision of both prerequisites and course offerings in the School of Nursing. All pre-nursing students must check with the School of Nursing for current information.

The curriculum in nursing requires completion of a minimum of 128 units as prescribed, with a grade of C or better in each nursing course completed in satisfaction of requirements for the degree. Directed clinical experience in hospitals and health agencies in San Diego County is an integral part of the program. Graduates are eligible to apply for licensing as a registered nurse in California and to apply for the California Certificate of Public Health Nursing.

All students, including registered nurses, are subject to the same requirements. However, graduates of associate degree and diploma programs in nursing may, after evaluation of their competency, be placed in appropriate advanced nursing classes.

Nursing reserves the right to evaluate for acceptance, prerequisite courses required for nursing major completed over five years prior to application for admission or readmission.

Preparation for the major. Biology 261; Chemistry 200A-200B, 230; Microbiology 210; Psychology 101; Sociology 101, Zoology 108; three units in human growth and development; three units in personality development; three units in marriage and the family. (42 units.) Students must earn a minimum overall G.P.A. of 2.5 in courses listed under preparation for the major prior to acceptance into the nursing major. During the semester that the pre-nursing student is completing the prerequisite courses she must make application for admission to Nursing. Application forms are available in the Nursing office.

Major. A minimum of 50 upper division units in Nursing to include Microbiology 370, Nursing 301, 302, 303A-303B, 304A-304B, 311, 312, 321, 322, 323, 324, 331, 332, 335; and four units selected from Nursing 341, 342, 343, 344 and 345. All courses in the nursing program must be taken in sequence (see below). A minimum grade of C must be earned in each nursing course in order to enroll in the next sequential course. A nursing student who earns less than a grade of C must repeat that course prior to being admitted to the next course in sequence. No course in the major may be repeated more than once.

Sequence of Courses in the Nursing Major (50 Units).

First Level Courses

	Units
Nursing 301	3
Nursing 302	4
Nursing 303A	2
Nursing 304A	2
	11

Second Level Courses

	Units
Nursing 303B	1
Nursing 304B	2
Nursing 311	3
Nursing 312	4
Micro. 370	3
	13

Third Level Courses

	Units
Nursing 321	4
Nursing 322	4
Nursing 323	3
Nursing 324	3
	14

Fourth Level Courses

	Units
Nursing 331	2
Nursing 332	3
Nursing 335	3
*Nursing elective	4
	12

*Selected from one of the following: Nursing 341, 342, 343, 344, 345, 346.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. *(101.)* **Maternal-Neonatal Nursing (3) I, II**
Prerequisites: Minimum grade of C in each course listed under preparation for the major. Minimum overall GPA of 2.50 in courses listed under preparation for the major in nursing; concurrent registration in Nursing 302, 303A and 304A.
Principles of care of mothers and newborn infants, including the recognition of the manifestation of basic needs with emphasis on the importance of family relationships.

302. *(102.)* **Maternal-Neonatal Nursing Experience (4) I, II**
Twelve hours of laboratory.
Prerequisites: Concurrent registration in Nursing 301, 303A, and 304A.
Clinical experience in the care of mothers and newborn infants including all phases of the maternity cycle.

303A-303B. *(103A-103B.)* **Psychiatric and Mental Health Nursing (2-1) I, II**
Prerequisites: For Nursing 303A, concurrent registration in Nursing 301, 302, and 304A; for Nursing 303B, Nursing 303A and concurrent registration in Nursing 304B, 311 and 312.
Beginning development in the utilization of principles and concepts of mental hygiene in meeting needs of patients exhibiting both normal and deviant behavior.

304A-304B. *(104A-104B.)* **Psychiatric and Mental Health Nursing Experience (2-2) I, II**
Six hours of laboratory.
Prerequisites: For Nursing 304A, concurrent registration in Nursing 301, 302, and 303A; for Nursing 304B, Nursing 304A and concurrent registration in Nursing 303B, 311 and 312.
Clinical experience focusing on the utilization of mental health concepts in meeting needs of patients.

311. *(130.)* **Child Health Nursing (3) I, II**
Prerequisites: Nursing 301 and concurrent registration in Nursing 303B, 304B and 312.
Nursing care needs of the well and the sick child from birth through adolescence.

312. *(131.)* **Child Health Nursing Experience (4) I, II**
Twelve hours of laboratory.
Prerequisites: Concurrent registration in Nursing 303B, 304B and 311.
Clinical experience focusing on growth, developmental and health needs of the child in a variety of settings.

321. *(105.)* **Adult Health Nursing (4) I, II**
Prerequisites: Nursing 311 and concurrent registration in Nursing 322, 323 and 324.
The analysis of the health-illness needs of the adult and the nursing therapies necessary for the promotion of optimum health.

322. *(106.)* **Adult Health Nursing Experience (4) I, II**
Twelve hours of laboratory.
Prerequisites: Concurrent registration in Nursing 321, 323 and 324.
Clinical experience in recognizing and meeting the health needs of the adult patient in a variety of settings.

323. *(132.)* **Community Health Nursing (3) I, II**
Prerequisites: Microbiology 370, Nursing 311 and concurrent registration in Nursing 321, 322 and 324.
Principles and concepts of community health necessary to maintain the health of individuals, families and groups.

324. *(133.)* **Community Health Experience (3) I, II**
Nine hours of laboratory.
Prerequisites: Concurrent registration in Nursing 321, 322 and 323.
Clinical experience, in conjunction with community agencies, directed toward attaining and maintaining the health of the total population.

331. *(136.)* **Management of Patient Care (2) I, II**
Prerequisites: Nursing 323 and concurrent registration in Nursing 332 and 335.
Principles of administration applied to the management and direction of the nursing team. Focus directed toward the development of the professional nurse in assuming a leadership role.

332. *(137.)* **Management of Patient Care Experience (3) I, II**
Nine hours of laboratory.
Prerequisites: Nursing 324 and concurrent registration in Nursing 331 and 335.
Clinical experience in utilizing tools and skills of management in assessing, providing and directing health care.

335. *(116.)* **The Professional Role (3) I, II**
Prerequisite: Concurrent registration in Nursing 331 and 332.
Development of the nursing profession in Western Civilization. Focus on the multifaceted role of the professional nurse in modern social order.

341. *(151.)* **Advanced Concepts in Clinical Nursing (4) Irregular**
Two lectures and six hours of laboratory.
Prerequisite: Nursing 323.
Theory and selected practice in the care of the patient with complex problems requiring intensive care, coronary care and/or rehabilitation.

342. *(152.)* **Advanced Psychiatric and Mental Health Nursing (4) Irregular**
Two lectures and six hours of laboratory.
Prerequisite: Nursing 323.
Theory of and directed experience in the treatment and rehabilitation of patients with emotional and psychiatric disorders. Focus on the role of the nurse as a member of the mental health team in a variety of community settings.

343. *(153.)* **Geriatric Nursing (4) Irregular**
Two lectures and six hours of laboratory.
Prerequisite: Nursing 323.
Principles of gerontology as they apply to the nursing care of the older patient in a variety of settings.

344. *(154.)* **Advanced Maternal-Neonatal Nursing (4) Irregular**
Two lectures and six hours of laboratory.
Prerequisite: Nursing 323.
Theory of and experience in the care of the high-risk maternity patient and the high-risk neonate with emphasis on the needs of the family.

345. *(155.)* **Cancer Nursing (4) Irregular**
Two lectures and six hours of laboratory.
Prerequisite: Nursing 323.
Theory and selected experience in the care of the cancer patient. Scope of cancer problem, pathological processes of malignancies, current medical therapies and appropriate nursing intervention are included.

346. Ambulatory Child Health Nursing (4) Irregular
Two lectures and six hours of laboratory.
Prerequisite: Nursing 323.
Well child supervision. Emphasis on the physical and developmental assessment of infants.

400. *(160.)* **School Nursing (3) Extension**
Prerequisite: Nursing 323.
The application of health principles and current best practices in schools with emphasis on the functions of the school nurse related to the school, home and community.

401A. *(165A.)* **The School Nurse Practitioner (6) Irregular**
Four lectures and six hours of laboratory.
Prerequisites: Bachelor's degree in Nursing; Nursing 400.
Primary health care of school age children. Emphasis on the physical assessment.

401B. *(165B.)* **The School Nurse Practitioner (4) Irregular**
Two lectures and six hours of laboratory.
Prerequisite: Nursing 401A.
Theory and supervised practice of assessing the health-illness of children in the school system.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

Oceanography

Administered by the Dean of the College of Sciences

San Diego State University provides preparation for work in the oceans by offering degree programs in fundamental fields supplemented by marine-related course work and oceanographic experience. Interdisciplinary instructional and research activities are coordinated by the Center for Marine Studies. Ocean-oriented courses and bachelor's degree programs are available in the departments of: Biology, Botany, Chemistry, Civil and Mechanical Engineering, Geography, Geological Sciences, Microbiology, Physical Sciences, Physics and Zoology. Master's degree with emphasis on marine problems may be earned in these departments and in the School of Business Administration. The Ph.D. degree is offered in Chemistry, Ecology and Genetics jointly with the University of California. Certification by the San Diego State University Diving Control Board is required for all faculty and students performing SCUBA diving under the auspices of the University. Certification information can be obtained upon application to the Control Board via the Center for Marine Studies.

320. *(100.)* **The Oceans (2) I, II**

Prerequisites: One introductory college course in a life science and one in a physical science.

Biological and physical aspects of the oceans and their significance to man; problems of modern oceanography. Not open for credit to students majoring in the sciences.

400. *(196.)* **Practical Oceanography (6) I, II Cr/NC**

Laboratory, field work, or on-the-job training by arrangement.

Prerequisites: Chemistry 200A-200B; Physics 124A-124B and 125A-125B; a course in intermediate college algebra and an elementary course in statistics. Recommended: a course in analytical chemistry (Chemistry 250 or 251).

Practical experience in oceanography at shore installations and at sea. An intensive full-time program in the laboratory and field aspects of the marine sciences. Offered only when ship scheduling permits. Enrollment only by application; students will be notifed of selection by the tenth week of the semester preceding the desired interval because of ship berth limitations. Students will normally participate on extended cruises at sea and are advised not to enroll for other courses nor to make employment commitments during the semester.

For additional courses in Oceanography see:

Biology 531. Biological Oceanography
Chemistry 501. Chemical Oceanography
Geology 540. Marine Geology
Microbiology 560. Marine Microbiology
Physical Science 330. Physical Oceanography
Zoology 350. Marine Biology

Philosophy

In the College of Arts and Letters

Faculty

Professors: Crawford, Friedman, Howard, Koppelman, McClurg, Nelson, O'Reilly, Ruja, Shields, Snyder, Warren, Weissman (Chairman)
Associate Professors: Carella, Feenberg, Lauer, Rosenstein, Troxell
Assistant Professor: Weston
Lecturer: Manheimer

Offered by the Department

Master of Arts degree in philosophy.
Major in philosophy with the A.B. degree in liberal arts and sciences.
Minor in philosophy.

Philosophy Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Nine lower division units in philosophy including Philosophy 120.

Major. A minimum of 24 upper division units in philosophy to include Philosophy 301 and either Philosophy 303, 502, and 504, or Philosophy 523, 525 and 528.

Philosophy Minor

The minor in philosophy consists of a minimum of 15 units in philosophy, nine units of which must be in upper division courses. Philosophy 301 is recommended.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

101. *(1.)* **Introduction to Philosophy: Values (3) I, II**

Introduction to philosophical inquiry, with emphasis on problems of value. Each student is encouraged to think independently and formulate his own tentative conclusions.

102. *(2.)* **Introduction to Philosophy: Knowledge and Reality (3) I, II**

Introduction to philosophical inquiry with emphasis on problems of knowledge and reality. Each student is encouraged to think independently and formulate his own tentative conclusions.

103. *(3.)* **Historical Introduction to Philosophy (3) I, II**

Introduction to philosophical inquiry through study of the works of major philosophers in their historical contexts.

120. *(20.)* **Logic (3) I, II**

Introduction to deductive and inductive logic. Logic and language. Analysis of fallacies. Uses of logic in science and in daily life.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3)**

Refer to Honors Program.

301. *(101.)* **History of Philosophy I (3) I, II**

Prerequisite: Three units of philosophy.

Thales through Marcus Aurelius.

303. *(103.)* **History of Philosophy III (3)**

Prerequisite: Philosophy 301. Recommended: Philosophy 502.

Nicholas of Cusa through Kant.

329. *(129.)* **Social Ethics (3)**
Prerequisite: Philosophy 101, 102 or 103.
Ethical issues of contemporary life. Individualism vs. collectivism; democracy vs. dictatorship; ethical problems arising in law, medicine, business, government and interpersonal relationships.

334. *(134.)* **Philosophy of Literature (3)**
Prerequisite: Six units of philosophy.
Study of literature of philosophical significance, and of philosophical problems of literature.

336. *(136.)* **Jewish Philosophy (3)**
Prerequisite: Three units of philosophy.
Outstanding men and movements, e.g., Biblical ethics and law, Philo of Alexandria, the rabbinical tradition, the Kabbala, Moses ben Maimon, Moses Mendelssohn and Martin Buber.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisites: Twelve upper division units in philosophy and consent of instructor.

502. *(102.)* **History of Philosophy II (3)**
Prerequisite: Philosophy 301.
Plotinus through William of Occam.

504. *(104.)* **History of Philosophy IV (3)**
Prerequisite: Philosophy 303.
Fichte through Royce.

505A-505B. *(105A-105B.)* **Twentieth Century Philosophy (3-3)**
Prerequisite: Six units of philosophy.
Historical treatment of major philosophical issues, movements and figures in American and European philosophy. Semester I: Emphasis on Great Britain and the United States. Semester II: Emphasis on continental Europe.

508. *(108.)* **Existentialism (3)**
Prerequisite: Six units of philosophy.
The philosophical aspects of Existentialism. Major emphasis is on the diversity of thought within a common approach as this is shown in individual thinkers.

509. *(109.)* **Ordinary Language Analysis (3)**
Prerequisite: Six units of philosophy.
Foundations of linguistic philosophy with emphasis on achieving an awareness of the relationship between thinking and language.

510. *(110.)* **Philosophy of Law (3)**
Prerequisites: Three units of philosophy and three units of political science.
The nature of law and the logic of legal reasoning. An exploration of certain key legal concepts such as causation, responsibility, personality and property.

512. *(112.)* **Political Philosophy (3)**
Prerequisite: Philosophy 101, 102 or 103.
Selected aspects of the political structures within which we live, such as law, power, sovereignty, justice, liberty, welfare.

521. *(121.)* **Deductive Logic (3)**
Prerequisite: Philosophy 120 or Mathematics 160.
Principles of inference for symbolic deductive systems; connectives, quantifiers, relations and sets. Interpretations of deductive systems in mathematics, science and ordinary language. Not open to students with credit in Mathematics 523.

522. *(122.)* **Inductive Logic (3)**
Prerequisite: Philosophy 120.
Definition, classification and division. The logic of experimentation and statistics. Formation and validation of hypotheses. Probability theories.

523. *(123.)* **Theory of Knowledge (3)**
Prerequisite: Six units of philosophy.
The major theories of human knowledge: mysticism, rationalism, empiricism, pragmatism.

525. *(125.)* **Metaphysics (3)**
Prerequisite: Six units of philosophy.
Prominent theories of reality, e.g., realism and nominalism, materialism and idealism, teleology and determinism.

527. *(127.)* **Values and Social Science (3)**
Prerequisite: Six units of philosophy.
Analysis and discussion of the nature of values and value-judgment with particular reference to the social sciences. Among relevant issues: the naturalistic fallacy, facts and values; authoritarianism, emotivism, objective relativism; the individual and the community.

528. *(128.)* **Theory of Ethics (3)**
Prerequisite: Six units of philosophy.
Significant and typical value theories and systems and the concrete problems such theories seek to explain. Emphasis will be on moral values.

531. *(131.)* **Philosophy of Language (3)**
Prerequisite: Six units of philosophy.
An introduction to theories of meaning for natural languages and formal systems; concepts of truth, synonymy and analyticity; related epistemological and ontological problems.

532. *(132.)* **Philosophy of History (3)**
Prerequisite: Six units of philosophy.
The nature of history and historical inquiry. As metaphysics: A study of theories of historical development. As methodology: History as science, truth and fact in history, historical objectivity, the purpose of history.

533. *(133.)* **Philosophy of Education (3)**
Prerequisite: Philosophy 101, 102 or 103.
Various philosophical viewpoints concerning education. The functions of education as conceived by major figures in the western philosophical tradition.

535. *(135.)* **Philosophy of Religion (3)**
Prerequisite: Six units of philosophy.
Philosophical examination of issues raised by the religious impulse in man.

537. *(137.)* **Philosophy of Science (3)**
Prerequisite: Six units of philosophy.
The basic concepts and methods underlying contemporary scientific thought. Contributions of the special sciences to a view of the universe as a whole.

541. *(141.)* **History of Aesthetics (3)**
Prerequisite: Philosophy 101, 102 or 103.
Major documents in the history of aesthetics.

542. *(142.)* **Philosophy of Art (3)**
Prerequisite: Six units of philosophy.
The nature of aesthetic experience. Principal contemporary theories of art in relation to actual artistic production and to the function of art in society.

564. *(164.)* **American Philosophy (3)**
Prerequisite: Six units of philosophy.
A systematic and critical study of the work of American philosophers from the Puritans through the Pragmatists. Major emphasis is placed on Peirce, James, Royce, Santayana, Dewey and Whitehead.

575. *(175.)* **A Major Philosopher (3)**
Prerequisite: Philosophy 301.
The writings of one major philosopher. May be repeated with new content. Maximum credit six units applicable to the major. Maximum credit six units applicable on a master's degree.

595. *(195.)* **Selected Topics (3)**
Prerequisite: Six units of philosophy.
A critical analysis of a major problem or movement in philosophy. May be repeated with new content. Maximum credit six units applicable toward the major in philosophy. Maximum credit six units for both 595 and 795 applicable on a master's degree.

596. *(196.)* **Topics in Asian Thought (3)**
Prerequisite: Six units of philosophy.
Selected philosophical themes, traditions or figures, e.g., substantialism and nonsubstantialism in Indian Thought, Chinese Buddhist Schools, Gandhi. Maximum credit six units with three units applicable on a master's degree.

GRADUATE COURSES

601. *(201.)* **Seminar in Ancient Philosophy (3)**
Prerequisite: Twelve upper division units in philosophy including Philosophy 301.
Directed research in a major author (e.g., Plato or Aristotle), or a school (e.g., the Pythagoreans or the Stoics), or a problem (e.g., causation or the state). Maximum credit six units applicable on a master's degree.

602. *(202.)* **Seminar in Medieval Philosophy (3)**
Prerequisite: Twelve upper division units in philosophy including Philosophy 502.
Directed research in a major author (e.g., Augustine or Aquinas), or a school (e.g., neo-Aristotelianism), or a problem (e.g., political philosophy or reason and authority). Maximum credit six units applicable on a master's degree.

603. *(203.)* **Seminar in Modern Philosophy (3)**
Prerequisite: Twelve upper division units in philosophy including Philosophy 303.
Directed research in a major author (e.g., Hume or Kant), or a school (e.g., the continental rationalists or the British empiricists), or a problem (e.g., the nature of substance). Maximum credit six units applicable on a master's degree.

605. *(205.)* **Seminar in Contemporary Philosophy (3)**
Prerequisite: Twelve upper division units in philosophy including Philosophy 505A or 505B.
Directed research in a major author (e.g., Dewey or Wittgenstein), or a school (e.g., the pragmatists or the language analysts), or a problem (e.g., perception or personhood). Maximum credit six units applicable on a master's degree.

611. *(211.)* **Seminar in Legal Philosophy (3)**
Prerequisite: Twelve upper division units in philosophy.
Directed research in recurrent themes of philosophical significance in jurisprudential literature.

612. *(212.)* **Seminar in Political Philosophy (3)**
Prerequisite: Twelve upper division units in philosophy.
Directed research in a major problem in political philosophy or the work of a major political philosopher.

621. *(221.)* **Seminar in Deductive Logic (3)**
Prerequisite: Twelve upper division units in philosophy including Philosophy 521.
A comparison of deductive systems in logic. Problems of definability, consistency and completeness. The role of logic in the foundations of mathematics.

623. *(223.)* **Seminar in Epistemology (3)**
Prerequisite: Twelve upper division units in philosophy.
Basic problems concerning meaning, perception and knowledge.

625. *(225.)* **Seminar in Metaphysics (3)**
Prerequisite: Twelve upper division units in philosophy.
An inquiry into the search for significant qualities of reality.

628. *(228.)* **Seminar in Ethics (3)**
Prerequisite: Twelve upper division units in philosophy.
Contemporary ethical issues. Critical analysis of the works of some leading theorists, such as Moore, Dewey, Stevenson and Toulmin.

631. *(231.)* **Seminar in Semantics and Logical Theory (3)**
Prerequisite: Twelve upper division units in philosophy including Philosophy 521 and 531.
Contemporary issues in the foundations of logic and theories of language.

635. *(235.)* **Seminar in Philosophy of Religion (3)**
Prerequisite: Twelve upper division units in philosophy including Philosophy 535.
A philosophical investigation of the nature of religious thought: its structure, growth and significance.

636. *(236.)* **Seminar in Philosophy of Art (3)**
Prerequisite: Twelve upper division units in philosophy.
An analysis, criticism and comparative study of selected philosophies of art.

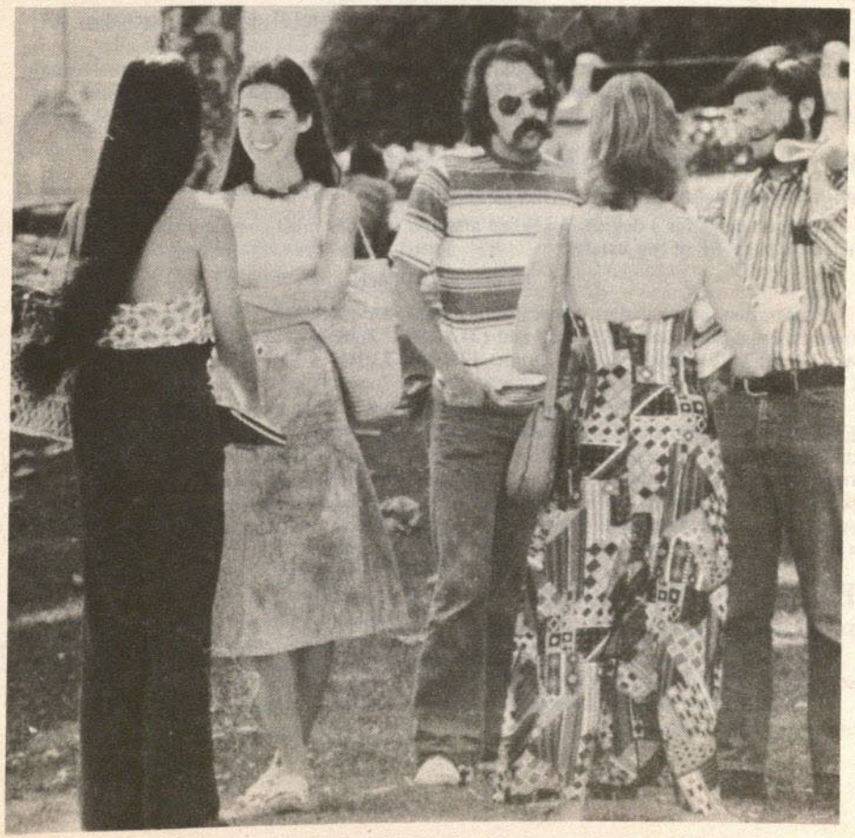
637. *(237.)* **Seminar in Philosophy of Science (3)**
Prerequisite: Twelve upper division units in philosophy including Philosophy 522 and 537.
The methodology of the empirical sciences. The logical structure of science.

795. *(295.)* **Seminar in Selected Topics (3)**
Prerequisite: Twelve upper division units in philosophy.
Directed research in a major problem or movement in philosophy. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisites: Twelve upper division units in philosophy and consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.



Physical Education

In the College of Professional Studies

Faculty

Emeritus: Schwob, Shannon, Sportsman, Terry, Tollefsen

Professors: Andrus, Benton, Carter, Cullen, Fox, Governali, Kasch, Lockman, Murphy, Olsen, A., Olsen, L., Phillips, Schutte, Scott, Ziegenfuss

Associate Professors: Barone, Broadbent, Cave, Franz, Friedman, Moore, Seider, Sucec, Wells (Chairman), Williamson

Assistant Professors: Gutowski, Hollyfield, Lamke, Landis, Quinn, Smith, Whitby, Wilhelm, Willis

Lecturers: Freischlag, Howell, Iverson, Lee

Offered by the Department

Master of Arts degree in physical education.
Major in physical education with the A.B. degree in liberal arts and sciences.
Major in physical education with the A.B. degree in applied arts and sciences.
Teaching major in physical education for the single subject teaching credential.
Minor in physical education.
Minor in dance.

Physical Education Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the requirements listed on page 64 of this catalog.

Preparation for the major. Biology 462; Physical Education 141, 175, 190; Psychology 101; Zoology 108. (17 units.)

Major. A minimum of 24 upper division units in physical education to include 12 units from Physical Education 371, 560, 561, 570, 575, 585 and 12 units selected with the approval of the adviser.

Physical Education Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the requirements listed on page 64 of this catalog.

Emphasis in Dance

Preparation for the major. Physical Education 150A-150B, 152, 153, 154; one unit selected from Physical Education 133A-133B and 134A-134B; Zoology 108; and 16 units selected from Art 101, 157, 201, 220, 258, 259; Drama 105, 130, 231, 250; Music 110A, 135, 151; Speech Communication 111A. (28 units.)

Major. A minimum of 24 upper division units to include four units from Physical Education 345D, 345E or 554A; 345F, 350, 351, 352, 353, 555A, 556; and two units of upper division electives to be selected with the approval of the dance adviser. In addition to course requirements, the student must be a member of the Dance-Theater group and must participate in a minimum of four semesters of dance programs, preferably in the junior and senior years. Substitution for such participation will require departmental approval. This emphasis does not meet the teaching credential requirements.

Physical Education Major

For the Single Subject Teaching Credential

All candidates for a teaching credential must complete all requirements as outlined in the section of this catalog on the School of Education.

This major may be used by students as an undergraduate major for the A.B. degree in applied arts and sciences.

Preparation for the major. Biology 462; Physical Education 141, 175, 190; Psychology 101; Zoology 108. (17 units.) Competency tests must be passed in three team sports, three individual or dual sports, one dance, one gymnastics, one swimming, one physical fitness, one track and field (women), one combatives (men).

Major. A minimum of 35 upper division units to include Physical Education 371, 560, 561, 570, 575, 580, 585; two units from each of the following groups for a total of 14 units: Physical fitness (345A); team sports (345L-men; 341C, 345M or 345N-women); individual sports (345I-men; 345I or 345J-women); dance (women) (341B, 345D, 345E or 345F); coaching (men) (331A, 331B, 331C or 331D); and six units from Physical Education 322, 331, 341 or 345.

Physical Education Minor

The minor in physical education, planned in consultation with an adviser, consists of a minimum of 15 units in physical education, nine units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

Dance Minor

The minor in dance consists of Physical Education 133A-133B, 134A-134B, 150A-150B, 153, 154; two units selected from Physical Education 350, 351, 352 or 555A, 556; and three upper division units selected from the areas of art, drama and music with the approval of the adviser in dance. (15 units.)

Courses in the minor may not be counted toward the major or general education.

Types of Activity Courses

A health history record is required of each student entering the university. Adapted physical education classes to care for special needs are offered. The content of these courses is planned to give each student an opportunity to participate in many activities of carryover value, developmental nature and recreational interest. An opportunity is afforded students to participate in competitive sports in the extramural and intramural programs.

LOWER DIVISION COURSES

Courses offered for one unit credit meet two hours per week or equivalent. "A" signifies a beginning class, "B" intermediate.

101A. *(1A.)* **Physical Fitness and Figure Control (1)**
102A-102B. *(2A-2B.)* **Conditioning (1-1)**
103A-103B. *(3A-3B.)* **Jogging (1-1)**
104A-104B. *(4A-4B.)* **Weight Training (1-1)**
105A. *(5A.)* **Individual Adaptives (1)**
Prerequisite: Consent of instructor. Individual exercise programs for those who are handicapped in some respect, or who have functional defects or deficiencies amenable to improvement through exercise. May be repeated for credit.
108A-108B. *(8A-8B.)* **Basketball (1-1)**
109A-109B. *(9A-9B.)* **Soccer (1-1)**
110A-110B. *(10A-10B.)* **Volleyball (1-1)**
111A-111B. *(11A-11B.)* **Softball (1-1)**
112A-112B. *(12A-12B.)* **Field Hockey (1-1)**
113A-113B. *(13A-13B.)* **Flag Football (1-1)**
114A-114B. *(14A-14B.)* **Wrestling (1-1)**
115A-115B. *(15A-15B.)* **Track and Field (1-1)**
116A-116B. *(16A-16B.)* **Golf (1-1)**
117A-117B. *(17A-17B.)* **Archery (1-1)**
118A-118B. *(18A-18B.)* **Tennis (1-1)**

119A-119B. *(19A-19B.)* **Bowling (1-1)**
120A-120B. *(20A-20B.)* **Badminton (1-1)**
121A-121B. *(21A-21B.)* **Handball (1-1)**
122A-122B. *(22A-22B.)* **Fencing (1-1)**
123A-123B. *(23A-23B.)* **Racquetball (1-1)**
124A-124B. *(24A-24B.)* **Sailing (1-1)**
125A-125B. *(25A-25B.)* **Gymnastics (Men) (1-1)**
126A. *(26A.)* **Rhythmic Gymnastics (Women) (1)**
127A-127B. *(27A-27B.)* **Apparatus Gymnastics (Women) (1-1)**
128A-128B. *(28A-28B.)* **Ice Skating (1-1)**
129A-129B. *(29A-29B.)* **Swimming (1-1)**
130A-130B. *(30A-30B.)* **Synchronized Swimming (1-1)**
131. *(31.)* **Life Saving (1)**
132A-132B. *(32A-32B.)* **Ballroom Dance (1-1)**
133A-133B. *(33A-33B.* **Folk and Square Dance (1-1)**
134A-134B. *(34A-34B.)* **Modern Dance (1-1)**
135A-135B. *(35A-35B.)* **Ballet (1-1)**
136A-136B. *(36A-36B.)* **Jazz (1-1)**
138. *(38.)* **Selected Activities (1)**
May be repeated with new activity for additional credit. See class schedule for semester offerings.

139. *(39.)* **Women's and Coed Teams (1)**
Maximum credit four units.
A. Archery
B. Badminton
C. Basketball
D. Fencing
E. Field Hockey
F. Golf
G. Gymnastics
H. Softball
I. Swimming
J. Tennis
K. Track and Field
L. Volleyball
M. Other

141. *(41.)* **Physical Education of Children (2)**
Four hours of activity.
Application of the principles of motor learning and muscular fitness to the elementary physical education activity program. Includes a practical field experience with elementary students.

145. *(45.)* **Dance (2)**
Four hours of activity.
Competency development in dance. Emphasis on skills, movements, facilities and organizational procedures in dance.

147A-147B. *(47A-47B.)* **Officiating Women's Sports (1-1)**
Two hours of activity.
Prerequisite: Consent of instructor.
Practice in officiating techniques in women's sports leading to official's ratings:
A. Volleyball
B. Softball, Basketball. May be repeated once with new content.

150A-150B. *(50A-50B.)* **Advanced Modern Dance (1-1)**
Two hours of activity.
Prerequisite: Physical Education 134B.
Skill techniques. Compositional factors and devices. Materials of design, rhythm and dynamics in group compositions. The use of percussion and various forms of accompaniment.

152. *(52.)* **Advanced Skill Techniques in Dance (1)**
Two hours of activity.
Prerequisite: Consent of instructor.
Progressively difficult dance techniques using several creative approaches. Emphasis on motivation, body design, rhythm and dynamics.

153. *(53.)* **Introduction to Dance (2)**
Dance as an art form with emphasis on the development of contemporary trends; American dance personalities and their contributions.

154. *(54.)* **Rhythmic Analysis Related to Movement (2)**
Music as related to movement; notation and simple music forms applied to all movement activities; percussion accompaniment; writing of percussion scores, music repertoire for dance.

175. *(75.)* **Sociocultural Foundations of Physical Activity (3)**
Integrated approach to the understanding of the historical, philosophical and sociological forces shaping the development of physical education and sport.

190. *(90.)* **Skill Competency in Physical Education (2) Cr/NC**
Four hours of activity.
Designed for potential physical education majors and minors as a prerequisite to all professional teaching method course offerings.
Proficiency tests will be given in each area commonly taught in secondary physical education.

UPPER DIVISION COURSES

320. *(120.)* **Skin and Scuba Diving (2)**
Four hours of activity.
Prerequisites: Medical examination, waiver for hazardous procedures, pass swimming competency test.
Function and knowledge of underwater diving to include diving physiology, hyperbaric conditions, medical hazards, safety procedures associated with scuba diving, proper care and operation of equipment.

322. *(122.)* **Practicum: Life Saving and WSI (2)**
Four hours of activity.
Prerequisite: Pass swimming competency test.
Content designed to qualify expert swimmers in both American Red Cross Life Saving and Water Safety Instructor's Certification. Includes methods and materials for teaching all levels of swimming.

330. *(130.)* **Physical Welfare of the Athlete (3)**
Two lectures and two hours of activity.
Prevention, diagnosis and treatment of athletic injuries; the use of ergogenic aids; nutrition; the conditioning program, including basic knowledge of appropriate parameters—flexibility, strength, endurance and related areas.

331. *(131.)* **Practicum: Theory and Analysis of Coaching Competitive Sports (2)**
Four hours of activity.
Concentrated study to include mechanical analysis, tactics and strategy, scouting, officiating and rules, and daily-seasonal practice planning in one of the sports listed below.
A. Basketball
B. Football
C. Baseball
D. Track and Field (including Cross Country)
E. Women's Field Sports
F. Additional sports (offered on student demand) may be repeated with new content.

341. *(141.)* **Practicum: Physical Education Activities for Elementary Schools (2)**
Four hours of activity.
Prerequisite: Physical Education 141.
In-depth study of selected physical education activities for elementary school children. Includes teaching techniques, unit planning, progressions and resource materials.
A. Movement exploration activities for children
B. Rhythm and dance activities for children
C. Ball and sports activities for children
D. Track and field activities for children
E. Gymnastic activities for children

345. *(145.)* **Practicum: Physical Education Activities for Secondary Schools (2)**
Four hours of activity.
Prerequisite: Passing competency tests in each activity covered in section.
Selection and care of equipment, skill analysis, teaching progressions, evaluation techniques, organizational procedures and resource materials for selected activities as listed.
A. Weight Training, Physical Fitness
B. Track and Field (Men)
C. Track and Field; Softball (Women)
D. Folk Dance
E. Square and Ballroom Dance
F. Modern Dance
G. Gymnastics (Men)
H. Gymnastics (Women)
I. Tennis, Badminton, Racquetball.
J. Archery, Golf, Handball
K. Speedball, Softball, Touch Football (Men)
L. Volleyball, Basketball, Soccer (Men)
M. Hockey, Soccer, Flag Football (Women)
N. Volleyball, Basketball (Women)
O. Combatives (Men)

350. *(150.)* **Dance Composition (Preclassic Forms) (3)**
Two lectures and two hours of activity.
Prerequisites: Physical Education 152 and 154.
Compositions based on a study of preclassic dance forms as a contribution to form in contemporary dance. Study of the music of the period. Critical evaluation of group and individual compositions.

351. *(151.)* **Dance Composition (Modern Forms) (3)**
Two lectures and two hours of activity.
Prerequisites: Physical Education 152 and 154.
Compositions related to contemporary art forms emphasizing the interaction of form and content in the creative idea. The temporal, spatial, dynamic and dramatic elements of choreography.

352. *(152.)* **Workshop in Dance (1-2)**
Choreographic techniques and skills with visiting master teachers; written report or project. Maximum credit four units.

353. *(153.)* **Dance Production (3)**
Two lectures and two hours of activity.
Lecture-demonstration, recital and concert forms of dance programs. Presentation and staging of original solo and group compositions.

362. *(162.)* **Exercise Physiology Laboratory (1)**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Physical Education 561.
Laboratory experiences in the application of exercises and the analysis of the results.

364. *(164.)* **Kinesiology—Biomechanics Lab (1)**
Three hours of laboratory.
Prerequisites: Physical Education 560 and 563.
Experiments in application of kinesiology and biomechanics to human movement.

368. *(168.)* **Adapted and Special Physical Education Laboratory (1-4)**
Three hours of laboratory per unit.
Prerequisites: Credit or concurrent registration in Physical Education 567.
Supervised laboratory of practicum experience in adapted or special physical education programs. Maximum credit four units.

371. *(171.)* **Physical Growth and Development (3)**
Principles of human growth; performance as affected by developmental levels and individual differences in structure and function.

375. *(175.)* **Contemporary Sociocultural Aspects of Physical Activity (3)**
Current sociological and cultural factors influencing the role and significance of sport and physical activity in modern American society.

380. *(180.)* **Physical Education Programs (3)**
Organization of physical education programs in the public schools. Includes curriculum development, program content, legal bases, materials, facilities and constraints in the discipline of physical education.

382A-382B. *(182A-182B.)* **Administration of Interscholastic Sports and Extracurricular Activities (3-3)**
Materials covering the organization and administration of activities such as interscholastic sports, drill teams, extracurricular clubs, special events and programs, cheerleaders, intramural and extramural activities.
A. Interscholastic sports
B. Extracurricular activities

397. *(197.)* **Workshop in Physical Education (1-2)**
Methods, techniques and development of skills in such areas as aquatics, combatives, gymnastics, rhythms and dance, and individual and team sports. Designed for secondary school administrators, teachers, coaches, recreation and youth leaders. Maximum credit six units.

398. *(198.)* **Supervised Field Experience (1-3)**
Prerequisite: Consent of department chairman.
Supervised practical experience in the area of physical education.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3)**
Individual study. Maximum credit six units.
Prerequisite: Consent of department chairman.

554A-554B. *(154A-154B.)* **Problems in Dance (2-2)**
Prerequisite: Physical Education 150A.
Problems in ethnic or modern dance; history, anthropological basis, stagecraft, accompaniment, costuming.

555A-555B. *(155A-155B.)* **Choreography in Contemporary Dance (3-3)**
Two lectures and two hours of activity.
Prerequisite: Consent of instructor.
Experimentation in dance, relating contemporary theories to other art forms. Force and time-space relationships as factors of choreography.
A. Production problems for large and small groups.
B. Production problems for trios, duos and solos.

556. *(156.)* **History and Philosophy of Dance (2)**
The cultural background of all forms of dance in various civilizations with emphasis on the relationship of the social structure to the existing dance forms.

560. *(160.)* **Applied Anatomy and Kinesiology (3)**
Prerequisites: Biology 462 and Zoology 108.
Arthrology, syndesmology and myology, with emphasis on movement analysis. Muscle groups and their functional relationships. Application of simple mechanical principles to movement analysis.

561. *(161.)* **Physiology of Exercise (3)**
Prerequisites: Biology 462 and Zoology 108.
Effects of physical activities on the physiological functions of the body.

563. *(163.)* **Biomechanics of Human Movement (2)**
Prerequisite: Zoology 108.
Mechanical principles as applied to movement; analysis and application to selected motor skills.

565. *(165.)* **Prevention and Rehabilitation of Injuries to Athletes (2)**
One lecture and three hours of laboratory.
Prerequisites: Physical Education 560 and 561.
Prevention and care of athletic injuries. Sports safety and effects of environment on health and welfare of the athlete. First aid, use of prescribed modalities.

567. *(167.)* **Adapted and Special Physical Education (2)**
Prerequisites: Physical Education 560 and 561.
Adaptation of programs for atypical and handicapped individuals, including prescribed exercises, activities and evaluation.

570. *(170.)* **Psychological Bases of Physical Education (3)**
Prerequisite: Psychology 101.
Psychological parameters related to physical performance and the acquisition of motor skills.

585. *(185.)* **Measurement and Evaluation in Physical Education (3)**
Two lectures and two hours of activity.
Elements of statistical techniques appropriate to physical education criteria for test selection; construction and evaluation of tests; and the administration of a testing program in physical education.

GRADUATE COURSES

600. *(200.)* **Seminar (3)**
An intensive study in advanced physical education, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

604. *(204.)* **Problems in Recreation (3)**
(Same course as Recreation 604.)
Current problems facing the recreation profession, through a review of literature, discussion of trends, and observation of school and community situations. Analysis and evaluation of actual problems. Written reports required.

631. *(206.)* **Seminar in Competitive Athletics (3)**
Prerequisite: Major or minor in physical education or recreation.
Knowledge and appreciation of the skills, techniques and teaching methods involved in the coaching of athletics; the study of possible solutions to problems associated with the program of competitive school athletics.

660. *(207.)* **Advanced Kinesiology and Biomechanics (3)**
Prerequisite: Physical Education 560.
Principles of mechanics applied to the analysis of human motion. Electromyography and cinematography as aids in analysis. Kinetic analysis of movement.

661. *(208.)* **Advanced Physiology of Exercise (3)**
Prerequisites: Physical Education 560 and 561.
Advanced aspects of the physiology of exercise. Effects of exercise on human beings in relation to health, longevity, morphology and performance.

662. *(223.)* **Advanced Exercise Physiology Laboratory (3)**
Nine hours of laboratory.
Prerequisite: Physical Education 567.
A laboratory course designed to develop competency in respiratory metabolism pulmonary function, gas analysis, blood chemistry and ergometry. Experience in the application of exercise procedures with human subjects and analysis and interpretation of results.

663. *(221.)* **Exercise Electrocardiography (3)**
Principles of resting and exercise electrocardiography with emphasis on ergometric methods and application to exercise physiology.

666. *(227.)* **Fitness of Adults (3)**
One lecture and six hours of laboratory.
Prerequisite: Physical Education 567.
Evaluation, exercise prescription and training of adults. An understanding of the underlying hypokinetic diseases of adults and the procedures used in coping with the associated health problems of an automated environment.

667. *(209.)* **Advanced Adapted Activities (3)**
Prerequisite: Physical Education 567.
Postural divergencies, lack of physical development, physical handicaps and special programs. Individual exercise programs. Preventive and corrective exercises. Functional examinations and the physician's report. Ethical procedures and limitations.

668. *(220.)* **Principles of Neuromuscular Tension (3)**
Prerequisite: Physical Education 560.
Theories underlying the causes of muscular hypertension and the application of hypokinetic principles in daily living.

670. *(261.)* **Seminar in Motor Learning and Motor Performance (3)**
Prerequisite: Physical Education 570.
A review of research in physical education and related fields plus experimental laboratory experiences in motor learning.

674. *(215.)* **Philosophical Foundations for Physical Education (3)**
Major philosophies and their application in physical education.

675. *(203.)* **History of Physical Education (3)**
Historical forces guiding the development of physical education from ancient to modern times.

676. *(205.)* **Current Trends and Issues in Physical Education (3)**
A critical appraisal of contemporary trends and issues.
Investigation and analysis of professional literature.

677. *(213.)* **Problems in Physical Education (3)**
Prerequisite: Major or minor in physical education.
A study of selected areas of the physical education program.

680. *(201.)* **Curriculum in Physical Education (3)**
Prerequisite: Major or minor in physical education.
Curricula in physical education. Special emphasis on curriculum construction and evaluation.

682. *(202.)* **Administration of Physical Education in the Secondary Schools (3)**
Prerequisite: Major or minor in physical education.
Topics include personnel problems, selection and maintenance of equipment and facilities, program organization and evaluation, budget and related items.

685. *(211.)* **Advanced Evaluation in Physical Education (3)**
Prerequisite: Physical Education 585.
Methods, statistical techniques and apparatus used in testing physical performance. Sources of error, limitations on application and interpretation. Practice in construction and use of tests.

791. *(291.)* **Research Techniques (3)**
Prerequisites: Major in physical education and Physical Education 585.
Principles and methods of planning and carrying out the investigation of problems related to physical education. The development of research designs and practice in formulating and testing hypotheses as well as the interpretation of results. (Prerequisite to thesis.)

795. *(295.)* **Seminar in Physical Education (3)**
Prerequisites: Physical Education 791 and advancement to candidacy for the master's degree in physical education.
Selected subjects in physical education culminating in written projects. Limited to students following Plan B for the Master of Arts degree in Physical Education.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of department chairman.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.

Physical Science

In the College of Sciences

Faculty

Emeritus: Watson
Professors: Dessel, Merzbacher, Shull (Chairman)
Associate Professors: Feher, Ingmanson, Metzger, Springer, Wallace
Assistant Professors: Dowler, Jackson, May, Phleger, Thompson

Offered by the Department

Master of Arts degree in physical sciences for teaching.
Teaching major in the physical sciences for the single subject teaching credential.
Minor in physical science.

Physical Science

For the Single Subject Teaching Credential

The requirements for the single subject teaching credential in physical sciences are in the process of being revised. For further information consult the department.

Physical Science Minor

The minor in physical science consists of a minimum of 15 units selected from astronomy, chemistry, geology, physical science and physics with the approval of the department adviser. Nine of the 15 units must be in upper division courses, six units of which must be taken in physical science.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

100A-100B. *(2A-2B.)* **Physical Science (3-3) I, II**

Introduction to concepts and processes in science intended to show why science is essential to a liberal education by recognizing relationship with other areas of knowledge such as philosophy, literature, fine arts, economics. See class schedule for emphasis which varies with instructor. Physical Science 100A not open to students with credit in Physical Science 102 or 210A.

102. *(1.)* **Physical Science with Laboratory (4) I, II**

Six hours of lecture and laboratory.

Description same as Physical Science 100A except that laboratory activity is fully integrated with lecture material. Experiments and observations are done when relevant to the subject discussed. Satisfies general education requirement in physical science including laboratory. Not open to students with credit in Physical Science 100A or 210A.

103. *(3.)* **Experimental Methods in Physical Science (1) I, II**

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Physical Science 100A.

Methods in physical science as illustrated by the use of significant examples from the various disciplines. The technique of observation, measurement and discovery of relationships. Fulfills the general education laboratory requirement in the natural science area.

115. Natural History (1) I, II

Seven meetings and one weekend.

The observational, phenomenological and descriptive study of the physical environment; astronomy, geology and meteorology. Students submit a written report on the study.

120. *(55.)* **Technology and Human Values (3) II**

Prerequisite: Physical Science 102.

Technologies such as solar and fusion power, lasers, computer services, transport, synthetic food and their impact on values and life styles of developed countries. Characteristics of postindustrial society, future shock and biological revolution. Curve extrapolation and simulation by games and computer.

210A-210B. *(10A-10B.)* **Structure and Concepts of Physical Science (4-4) I, II**

Three lectures and three hours of laboratory.

Physical Science 210A is prerequisite to 210B.

Emphasis on processes of inquiry which are characteristic of physical science. Approach is suited for people interested in science instruction at the elementary level. Not open to students with credit or concurrent registration in Physical Science 100A or 102.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

305. *(130.)* **Modern Physical Science (3) I, II**

Prerequisite: At least one college-level course in the physical sciences or life sciences.

Current topics in physical science. Emphasis on broad interdisciplinary subject areas directed toward extending general education in science related to contemporary issues raised by science and technology. Consult class schedule for topic of current semester. May be repeated with new content. Maximum credit six units.

310-S. *(140-S.)* **Contemporary Problems in Physical Science (1) S Cr/NC**

A series of six weekly lectures on varied aspects of physical science. Reading and reports required of students enrolled for credit. Maximum credit three units. These lectures are open to the public.

311. *(150.)* **Readings in Physical Science (3) I**

Reading of selected materials with informal class discussion of topics. Emphasis on the historical background, the philosophical implications and the impact of science on thought and culture.

315. *(142.)* **History of Science I (3) I, II**

Prerequisites: Completion of minimum general education requirements in science and six units of history.

The growth and development of science from antiquity to the 15th century. Emphasis on man's cognitive reactions to his environment through the coalescence of the occult arts, empirical practices and rational thought associated with early scientific theory.

316. *(143.)* **History of Science II (3) I, II**

Prerequisite: Physical Science 315.

The major developments during the 16th through 19th centuries: The scientific revolution, the rise of empiricism, the emerging role of scientific societies. Histories of particular theories in both the life sciences and physical sciences.

317. *(160.)* **Development of Scientific Thought (3) I, II**

Prerequisites: Six units from astronomy, chemistry, geology, physical science, or physics; and Mathematics 121.

Basic scientific concepts and their historical development with emphasis on the problem of theory construction. The relationship between disciplined imagination and observational fact, as illustrated by selected case histories. Limitations of scientific inquiry.

330. *(110.)* **Physical Oceanography (3) I, II**

Prerequisites: Chemistry 200A, Mathematics 140, Physics 115A or 124A.

History and structure of the ocean basins; geochemistry and origins of sea water; dynamics of ocean currents, waves and tides, heat budget of the oceans.

400. Seminar (2 or 3) I, II

A directed study of a topic to be chosen by instructor and announced in class schedule. Maximum credit six units.

412A-412B. *(120.)* **Processes and Inquiry in Physical Science (3-3) I, II**

Prerequisites: One lower division course in physical or life science.

Investigation of processes in science and the rational thinking skills characteristic of the physical sciences.

422A-422B. *(135A-135B.)* **Curricula in Physical Science (3-3) I, II**

Two lectures and three hours of laboratory.

Prerequisite: Introductory course work in physical science, physics or chemistry.

Principles of physical science as presented in national curriculum study courses such as Project Physics, PSSC, IPS, and PSNS.

430. *(169.)* **Interpretation of Quantum Mechanics (3) I, II**
Identity, causality, questions of reality; the uncertainty principle. Especially intended for upper division students in the humanities who are curious about modern science.

431. *(162.)* **The Origins of Life (3) II**
Prerequisite: Completion of general education requirements in science, including Chemistry 200A or Physical Science 100A or 102.
Theories of chemical evolution with emphasis on multidisciplinary aspects involving geology, geochemistry, cosmochemistry and molecular biology.

496. *(196.)* **Advanced Physical Science (1-3) I, II**
Prerequisite: Consent of instructor.
Selected topics in classical and modern physical science. May be repeated with new content. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Prerequisite: Consent of instructor.
Individual study or laboratory work on a special problem in physical science selected by the student. Maximum credit six units.

GRADUATE COURSES

700. *(200.)* **Seminar (2 or 3)**
An intensive study in advanced physical science, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

710. *(210.)* **Advanced Topics in Physical Science (3) I, II**
Prerequisite: Undergraduate major or minor in one of the physical sciences.
Selected topics in classical and modern physical science. Topics covered in a particular semester to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* Thesis or Project (3) Cr/NC
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a thesis or project in one of the physical sciences for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.

Physics

In the College of Sciences

Faculty

Emeritus: Clark, Craig, Kalbfell, Moe
Professors: Garrison, Morris, Nichols, Piserchio, Rehfuss, Roeder, Skolil, Smith Snodgrass, Teasdale, Templin (Chairman), Wolf, Wolter
Associate Professors: Cottrell, Lilly
Assistant Professors: Burnett, Solomon

Offered by the Department

Master of Arts degree in physics.
Master of Science degree in physics.
Master of Science degree in radiological physics.
Major in chemical physics with the B.S. degree in applied arts and sciences.
Major in physics with the A.B. degree in liberal arts and sciences.
Major in physics with the B.S. degree in applied arts and sciences.
Single Subject teaching credential in physical sciences in the area of physics.
Minor in physics.

Chemical Physics Major

With the B.S. Degree in Applied Arts and Sciences

Preparation for the major. Chemistry 200A-200B or 204A-204B, 231 and 251; Mathematics 150, 151 and 152; Physics 195A-195B-195C. (43 units.)

Major. A minimum of 39 upper division units to include Chemistry 410A-410B, 431, 520A and 550; Mathematics 340A; Physics 311, 350A-350B, 354A-354B, 357 and 510.

Physics Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the requirements listed on page 64 of this catalog.

To meet the foreign language requirement for graduation, students should choose French, German or Russian.

A minor in mathematics is required. It should include Mathematics 150, 151, 152, 340A-340B, and three units from Mathematics 521A, 532 or 534A. Mathematics 302 is acceptable for students preparing for elementary or secondary teaching. Students planning graduate work in physics should take additional mathematics beyond these listed.

Preparation for the major. Chemistry 200A-200B or 204A-204B; Mathematics 150, 151, 152; Physics 195A-195B-195C. (35 units.)

Major. A minimum of 27 upper division units in physics and mathematics to include Physics 311, 350A-350B, 354A-354B, 357 and 400; Mathematics 340A-340B. The student should choose the remaining units with the guidance of the departmental adviser. For preparation for graduate work in physics, the student should choose from Physics 306, 408, 496, 497, 498, 510, 532, 542, 552 and 564.

Physics Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Chemistry 200A-200B or 204A-204B; Mathematics 150, 151 and 152; Physics 195A-195B-195C. (35 units.)

Major. A minimum of 39 upper division units in physics and mathematics to include Mathematics 340A-340B, Physics 311, 313, 350A-350B, 354A-354B, 357, 400, 497, 498 and six units of electives.

Physics Minor

The minor in physics consists of a minimum of 15 units in physics, six units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

Physics

For the Single Subject Teaching Credential in Physical Sciences

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

The requirements for the single subject teaching credential in physical sciences which includes the area of physics are being revised. For further information consult the department.

LOWER DIVISION COURSES

Maximum credit 15 units for any combination of Physics 107, 115A-115B, 124A-124B, 125A-125B, 195A-195B-195C and 195E.

107. *(5.)* **Introductory Physics (4) I, II**

Three lectures and three hours of laboratory.

Some of the more important phenomena and concepts in physics with practical illustrations and applications. Not open to students with credit for Physics 115A-115B, 124A-124B, 195A-195B-195C or 195E.

109. Physics of Musical Sounds (3) I, II

Physiological properties of sound, the ear and its perception of sounds, the effects of acoustical environment, the behavior of musical instruments, and the various applications of electronics to the production, reproduction and compositions of music.

115A-115B. *(1A-1B.)* **Elementary Physics (4-4) I, II**

Two lectures, one discussion and three hours of laboratory.

Prerequisites: Two years of high school mathematics. Physics 115A is prerequisite to 115B. Not open to students who have had high school physics.

This course is for students in those liberal arts and preprofessional courses not requiring physics with calculus. Physics 115A is not open to students with credit in 124A or 195A; 115B is not open to students with credit in 124B, 195B, 195C or 195E.

124A-124B. *(2A-2B.)* **General Physics (3-3) I, II**

Prerequisites: Completion of high school physics. Physics 124A is prerequisite to 124B. Recommended: For Physics 124A, concurrent registration in 125A; for Physics 124B, concurrent registration in 125B.

This course is for students in those liberal arts and preprofessional courses not requiring physics with calculus. Physics 124A is not open to students with credit in 115A or 195A; 124B not open to students with credit in 115B, 195B, 195C or 195E.

125A-125B. *(3A-3B.)* **Physical Measurements (1-1) I, II**

Three hours of laboratory.

Prerequisite for 125A: Credit or concurrent registration in Physics 124A.

Prerequisite for 125B: Physics 125A and credit or concurrent registration in Physics 124B.

A laboratory course to accompany Physics 124A-124B. Semester I: Properties of matter, mechanics, heat and sound. Semester II: Electricity, magnetism and light. Physics 125A is not open to students with credit in 115A or 195A; 125B not open to students with credit in 115B, 195B, or 195C.

149. *(11.)* **Special Topics in Physics (1-2) I, II**

Prerequisite: Credit or concurrent registration in Physics 115B, 124B, or 195B; or credit in Physics 107.

Individual study and laboratory work in the area of the student's major interest. Each student will be assigned a member of the staff who will supervise his work.

195A-195B-195C. *(4A-4B-4C.)* **Principles of Physics (4-4-4) I, II**

Three lectures and three hours of laboratory.

Prerequisites for 195A: Completion of high school physics and credit or concurrent registration in Mathematics 150. Prerequisites for 195B: Physics 195A and credit or concurrent registration in Mathematics 151. Prerequisites for 195C: Physics 195B or 195E and credit or concurrent registration in Mathematics 152. Certain students may, with consent of the Department, substitute credit in Mathematics 122 for the indicated Mathematics courses.

This course is designed to give a thorough understanding of the fundamental principles of physics in the areas of mechanics, wave motion, heat, electricity and light.

195E. *(4E.)* **Principles of Physics for Engineers (4)**

Three lectures and three hours of laboratory.

Prerequisites: Completion of high school physics or equivalent and credit or concurrent registration in Engineering 200.

Designed to prepare the engineering student for Physics 195C without duplication of the material on mechanics present in the engineering curriculum. Open only to engineering majors. Not open to students with credit in Physics 195A or 195B.

215. *(73.)* **Introductory Electronics (3) I, II**

Two lectures and three hours of laboratory.

Prerequisites: Physics 115B, or 124B and 125B, or 195B; and Mathematics 122.

Modern electronic devices and their utilization in scientific instruments. Not open to students with credit in Physics 311.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**

Refer to Honors Program.

302. *(118.)* **Nuclear Energy (2)**

Prerequisite: Physics 115B, or 124B and 125B, or 195C, or 107.

Nuclear sources of energy, introduction to nuclear reactors, radiation problems associated with nuclear reactors and devices, plowshare, radioactivity in the environment.

303. *(121.)* **Radiation Physics (3)**

One lecture and six hours of laboratory.

Prerequisite: Physics 115B, or 124B and 125B.

X-rays, radioactivity, interaction of radiation with matter, and methods of measurement. May not be used in the physics major.

304. *(111.)* **Concepts in Modern Physics (3) I, II**

Prerequisite: Physics 107, 115B, or 124B.

Modern developments in physics for nonphysics majors, including relativity, introductory quantum theory, and atomic, nuclear and solid state physics.

306. *(106.)* **Optics (3) II**

Prerequisite: Mathematics 340A.

Reflection, refraction, dispersion, interference, diffraction, double refraction and polarization, with applications to optical instruments, wave propagation, radiation, spectra and the nature of light.

307. *(107.)* **Optical Design (3)**

Prerequisite: Physics 195C.

Ray tracing, aberrations, matrix methods, optical instrumentation.

311. *(103.)* **Electronics for Scientists (3) I, II**

Two lectures and three hours of laboratory.

Prerequisites: Physics 115B or 124B and 125B or 195B; and Mathematics 122; and upper division standing in one of the physical or life sciences.

Modern electronic devices and their utilization in scientific instruments. Not open to students with credit in Physics 215.

313. *(104.)* **Advanced Electronics (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Physics 215 or 311.
Conventional and operational amplifiers, oscillators, pulse and digital electronics, with emphasis on their use in the modern physics laboratory.

315. *(123.)* **Methods of Electronic Instrumentation (2)**
Six hours of laboratory.
Prerequisite: Physics 115B, or 124B and 125B, or 195B.
Modern electronics instrumentation used in making physical measurements. May not be used in the physics major.

350A-350B. *(100A-100B.)* **Classical Physics (3-3) I, II**
Prerequisites: Physics 195C and credit or concurrent registration in Mathematics 340A.
Semester I: Newtonian mechanics and wave motion. Semester II: Electrostatics and magnetostatics.

354A-354B. *(102A-102B.)* **Modern Physics (3-3) I, II**
Prerequisite: Physics 195C. Physics 354A is prerequisite to 354B.
Semester I: Atomic and molecular physics, solid state physics, atomic spectroscopy and introductory quantum mechanics. Semester II: Kinetic theory, classical and quantum statistics, and thermal radiation.

357. *(116.)* **Advanced Physical Measurements (3)**
One lecture and six hours of laboratory.
Prerequisites: Physics 195C and credit or concurrent registration in Physics 215 or 311.
A course stressing laboratory experiments and measurements chosen from the major areas of physics.

400. *(170.)* **Electromagnetic Theory (3) I, II**
Prerequisites: Mathematics 340B, Physics 350B and 354B.
Electrostatics and magnetostatics treated by vector methods; Maxwell's equations. Electromagnetic induction, radiation and wave propagation.

408. *(175.)* **Advanced Mechanics (3) I**
Prerequisites: Mathematics 340B and Physics 350B.
Special theory of relativity, generalized coordinates. Lagrangian and Hamiltonian formulations, normal coordinates, theory of vibrations and introduction to continuum mechanics.

413. *(163.)* **Electronic Instrumentation (2) I**
Six hours of laboratory.
Prerequisites: Physics 313 and credit or concurrent registration in Physics 512.
Transducers, clocks and counters, active and digital filters, lock-in detection, analog-to-digital (A/D) and digital-to-analog (D/A) conversion, digital readout devices with emphasis on their use in modern laboratories.

415. *(164.)* **Techniques of Scientific Instrumentation (3) II**
One lecture and six hours of laboratory.
Prerequisite: Physics 195C.
Nuclear and optical instrumentation, low temperature and high vacuum techniques, magnet technology.

416. *(154.)* **Theory of Scientific Instrumentation (3) I**
Prerequisites: Physics 215 or 311, and Mathematics 152.
Transducers, noise, signal-to-noise ratio improvement, lock-in detection, signal averaging, time-domain/frequency-domain analysis, the discrete Fourier Transform, digital filtering and processing of experimental data.

418. *(193.)* **Minicomputer Interfacing (3) II**
Two lectures and three hours of laboratory.
Prerequisite: Physics 313.
Theory and practice of minicomputer control and interfacing techniques. Elementary machine language programming, computer control of experiments, basics of ADC and DAC, information theory, and minicomputer architecture will be covered.

420. *(173.)* **Physical Electronics (3) I**
Prerequisites: Mathematics 340B, Physics 350B and 354B.
Conductors; Fermi model; thermionic, photoelectric and field emission,; contact potentials; space charge. Semiconductors, linear equivalent, circuits, elements of frequency and time domain analysis, linear feedback circuits.

431A-431B. *(135A-135B.)* **PSSC and PPC Physics (4-4)**
Three lectures and discussions and three hours of laboratory.
Prerequisite: Physics 115B, or 124B and 125B.
A new approach to the study of major concepts of physics. Designed for those who plan to teach science. The course is based on materials prepared by national groups of teachers such as the Physical Science Study Committee and the Harvard Project Physics.

496. *(196.)* **Advanced Physics (1-3) I, II**
Prerequisite: Consent of instructor.
Selected topics in classical and modern physics. May be repeated with the consent of the instructor. Maximum credit six units.

498A. *198A.* **Senior Research (1) I, II**
One discussion period and two additional hours per week to be arranged.
Prerequisite: Senior standing in physics and an acceptable plan for graduation within one year.
Selection and design of individual research project. Oral and written progress reports.

498B. *(198B.)* **Senior Research (2) I, II**
Two discussion periods and four additional hours per week to be arranged.
Prerequisite: Physics 498A with grade of C or better.
Laboratory work, progress reports, oral and written final reports.

499. *(199.)* **Special Study (1-3) I, II**
Individual study or laboratory work on a special problem in physics selected by the student. Each student will be assigned a member of the staff who will supervise his work. Credit, hours and topics to be arranged in each case. Maximum credit six units.

510. *(190.)* **Introductory Quantum Mechanics (3) I, II**
Prerequisites: Mathematics 340B, Physics 350B and 354B.
The physical basis of the quantum theory and its mathematical formulation in terms of Schroedinger's wave equation.

520. *(156.)* **Digital Computers (3) I**
Prerequisites: Mathematics 107 and 340B; Physics 215 or 311.
The binary number system; electronic and magnetic flip-flop circuits; memory devices; programming; complete computer systems. Auxiliary equipment for inserting information and reading out results rapidly. Typical applications and limitations.

532. *(180.)* **Solid State Physics (3) II**
Prerequisites: Mathematics 340B, Physics 350B and 354B.
Elastic, thermal, electric, magnetic and optical properties of solids. Introduction to the energy band theory of solids, with applications to dielectrics, semiconductors and metals.

541. *(122.)* **Senior Physics Laboratory (2) I, II**
Six hours of laboratory.
Prerequisite: Physics 357.
Advanced experimental measurements in the field of classical and modern physics, in one of the following areas: acoustics, nuclear physics, heat and thermodynamics, advanced electronics, electricity and magnetism, microwaves and solid state physics. Combinations to two areas in one semester may be taken with the consent of the instructor. May be repeated with new content. Maximum credit four units.

542. *(114.)* **Acoustics (3) I**
Prerequisites: Physics 350B and 357.
Wave motion and its application to the production, transmission and reception of sound. Development of acoustic circuits using electroacoustic analogs.

552. *(186.)* **Modern Optics (3) I**
Prerequisites: Mathematics 340B, Physics 350B and 354B.
Optics of solids, coherence and partial coherence theory, Fourier optics, holography.

553. *(187.)* **Modern Optics Laboratory (2) I, II**
Six hours of laboratory.
Prerequisite: Credit or concurrent registration in Physics 552.
Experiments in various fields of modern optics such as holography, Fourier spectroscopy, spatial filtering, nonlinear effects and coherence measurements. May be repeated with new content with the approval of the instructor for a maximum of four units.

561. *(148.)* **Nuclear Physics Laboratory (3) II**
One lecture and six hours of laboratory.
Prerequisite: Physics 303 or 357.
Techniques and instrumentation for the detection, identification and measurement of the properties of nuclear radiations and particles, and their use in the study of nuclear reactions.

564. *(151.)* **Nuclear Physics (3) I, II**
Prerequisite: Physics 510.
Nuclear Phenomena, theory of the nucleus, cosmic rays, and high-energy reactions of particles.

570. Relativity (3)
Prerequisites: Mathematics 149 or 520, 531 or 340B and Physics 356.
Relative coordinates, Lorentz transformation, covariant formation of the laws of physics, applications of special relativity, introduction to curved space time, cosmology.

GRADUATE COURSES

600. *(200.)* **Seminar (1-3)**
Prerequisite: Consent of instructor.
An intensive study in advanced physics, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

602A-602B. *(210A-210B.)* **Mathematics of Physics (3-3)**
Prerequisite: Mathematics 340B. Physics 602A is prerequisite to 602B.
Topics from matrix theory, vector and tensor analysis, orthogonal function theory, calculus of variations and probability theory with particular emphasis on applications to physical theory.

604A-604B. *(270A-270B.)* **Electromagnetic Theory (3-3)**
Prerequisite: Physics 400. Physics 604A is prerequisite to 604B.
Boundary value problems; time varying electric and magnetic fields; propagation of radiation; antennas, wave guides.

606. *(219.)* **Statistical Mechanics (3)**
Prerequisites: Physics 408 and 510.
Claysical and quantum statistics, kinetic theory, low-pressure phenomena, Boltzmann transport equation, irreversible processes.

608. *(205.)* **Theoretical Mechanics (3)**
Prerequisite: Physics 408.
Mechanics utilizing vector and tensor methods. Study of the motion of rigid bodies, vibration, coupled circuits. Lagrange's and Hamilton's equations. Principle of least action.

610A-610B. *(275A-275B.)* **Quantum Mechanics (3-3)**
Prerequisites: Physics 564 and 408. Physics 610A is prerequisite to 610B.
Quantum theory of radiation, molecular and nuclear systems. Approximation methods.

632. *(280.)* **Theory of the Solid State (3)**
Prerequisites: Physics 408, 510 and 532.
The band theory of solids, with applications to the electrical and optical properties of dielectrics, semiconductors and metals.

642. *(214.)* **Advanced Acoustics (2)**
Prerequisite: Physics 542.
The acoustic wave equation in two and three dimensions. Propagation of sound in bounded media and enclosures. Radiation and scattering. Electrical-mechanical-acoustical elements and circuits.

646. *(232.)* **Concepts in Relativity (2)**
Prerequisites: Physics 431A and credit or concurrent registration in Physics 431B.
The development of the concepts of relative motion from Einstein's assumptions and from experimental results. Designed for physics teachers.

648. *(231.)* **History of Physics (2)**
Prerequisite: Bachelor's degree in physics or chemistry.
Lectures and readings in the history of physics with emphasis on the history of classical physics and the subsequent development of the quantum theory.

652. *(286.)* **Advanced Optics (3)**
Prerequisite: Physics 552.
Selected topics in advanced optics such as rigorous diffraction theory, optical spectra, lasers, nonlinear optics and applications of Fourier analysis to optical systems and information processing.

653. Advanced Optics Laboratory (2) I, II
Six hours of laboratory.
Prerequisite: Registration requires prior approval of instructor.
Experimental projects involving lasers, nonlinear, optical phenomena, Fourier optics, spectroscopy, optical scattering and other areas of current optical interest.

654. Gravitation (3)
Prerequisite: Graduate standing, Mathematics 149 or 520, 531 or 340B and Physics 570.
Differential geometry, metric geodesies, Equivalence Principle, collapsed objects, black holes, gravitational waves, evolution of the universe.

655. *(220.)* **Radiation Physics (3) I**
Two lectures and three hours of laboratory.
Prerequisite: Physics 561.
Topics and problems including sources of nuclear, X-ray and accelerator radiation; its interaction with matter; shielding and detection.

657. *(221.)* **Radiological Physics (1) II**
Three hours of laboratory.
Prerequisite: Physics 655.
Topics and experimental problems in the use of ionizing radiation in diagnosis and therapy.

659. *(222.)* **Health Physics (3) II**
One lecture and six hours of laboratory.
Prerequisite: Physics 561.
Principles of radiation protection, radiation safety criteria and the assumptions inherent in radiation protection guides.

660. Physics of Nuclear Medicine (1) II
Three hours of laboratory.
Prerequisite: Physics 655.
Topics and experimental problems in the diagnostic use of radioactive isotopes in nuclear medicine.

661. *(248.)* **Advanced Nuclear Physics Laboratory (3)**
One lecture and six hours of laboratory.
Prerequisite: Physics 561.
Experimental work involving subcritical reactor assembly, neutron generator, whole-body counter, etc.

664. *(251.)* **Nuclear Physics (3)**
Prerequisites: Physics 408, 510, and 564.
Theory of nuclear forces, nuclear reactions, interaction of radiation with matter, radioactivity, nuclear structure and high energy physics.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Consent of department chairman.
Research in one of the fields of physics. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis in physics for the master's degree.

799B. Thesis Extension (0) Cr/NC

Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.

Registration required in any semester or term following assignment of SP in course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Political Science

In the College of Arts and Letters

Faculty

Emeritus: Leiffer

Professors: Andrain, Crain, Feierabend, Generales, Gripp, Janssen, Johns, Kahng, Miles, Nesvold, Padgett, Schultze

Associate Professors: Anderson, Conniff, Cutter, Funston, Hobbs, Lewin, Terrell (Chairman)

Assistant Professors: Fairlie, Jones, Keiser, Loveman, Soule

Lecturers: Binion, George, Goldstein, Hydoski

Offered by the Department

Master of Arts degree in political science.

Major in political science with the A.B. degree in liberal arts and sciences.

Minor in political science.

Political Science Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Students majoring in political science must complete a minor in another field to be approved by the chairman of the major department.

Preparation for the major. Political Science 110, 120, 130 and three units of either statistics or logic. (12 units.)

Major. A minimum of 24 upper division units to include (a) three units in Political Science 340 or 497, and (b) 21 upper division units in political science distributed among at least four of the groups listed below, provided that at least three units shall be taken in Group I.

Group I:	Political Theory. Courses numbered 302 to 310 and 501A to 514.
Group II.	Research Methods. Courses numbered 515A-515B.
Group III.	Politics. Courses numbered 320 to 344 and 520 to 543-S.
Group IV.	Public Law. Courses numbered 345 to 354 and 546 and 547A-547B.
Group V.	Comparative Government. Courses numbered 370 and 374 and 555 to 571.
Group VI.	International Relations. Courses numbered 375A to 394 and 576 to 590.

Political Science Minor

The minor in political science consists of a minimum of 15 units of political science, to include Political Science 110, and 120 or 130, and nine units in upper division courses.

Courses in the minor may not be counted toward the major or general education.

110. *(1.)* **Introduction to Political Science (3) I, II**

Basic concepts of political science including an introduction to the scope of the discipline and representative methods of acquiring political knowledge. Illustrative materials drawn primarily from the American experience.

Completion of both Political Science 110 and 120 will meet all requirements in American Institutions.

120. *(2.)* **Introduction to American Government and Politics (3) I, II**

The origin and development, structure and operation of the government of the United States, national, state and local.

Completion of both Political Science 110 and 120 will meet all requirements in American Institutions. Political Science 120 will meet the requirements in U.S. Constitution and California government.

130. *(3.)* **Introduction to Comparative Government (3) I, II**

Analytical models and techniques for examination of the problems of decision-making and control in various political systems. Emphasis on patterns of political action in various cultural contexts.

140. *(4.)* **Elementary Statistics for Political Science (3)**
Prerequisites: Political Science 110 and 120, and Mathematics 103 or qualification on mathematics placement examination.
Quantitative methods in political science. Tabular and graphic presentation, measures of central tendency, simple correlation and sampling techniques. Not open to students with credit for another course in statistics.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

395-S. *(196-S.)* **Institute of Public Affairs (1-3) S**
Study of selected phases of American or Comparative Government. May be repeated with new content and consent of instructor. Maximum credit six units.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

497. *(197.)* **Investigation and Report (3) I, II**
Analysis of special topics. Admission by permission of instructor.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisites: Twelve upper division units in political science and consent of the instructor.

Political Theory (Group I)

302. *(112.)* **Modern Political Thought (3) I, II**
Major writers of political thought in the last two centuries, including Burke, J.S. Mill, Freud, Marx, Weber and Sartre. The following topics may be covered: conservatism, liberalism, utilitarianism, socialism, fascism, positivism and existentialism.

303. *(106A.)* **Socialist Political Thought (3) I, II**
Prerequisites: Political Science 110 or 120, and 302 or 501B.
Socialist thought from an historical perspective.

310. *(110.)* **Politics and the Arts (3) I, II**
Prerequisites: Political Science 110 and 120.
The contribution of the artistic media to the activity and understanding of politics. This course does not meet the departmental requirements for majors of a course from Group I.

501A-501B. *(111A-111B.)* **Theory of the State (3-3)**
Prerequisite: Political Science 501A is prerequisite to 501B.
The nature of the state, its organization and activities, and its relation to the individual and other states.

504. *(106B.)* **Socialist Political Thought (3) I, II**
Prerequisites: Political Science 110 or 120, and 501B or 302.
Selected topics in socialist thought.

505. *(105.)* **American Political Thought (3) I, II**
The development of American ideas concerning political authority from the period of colonial foundation to the present time.

513. *(113.)* **The Theory of Political Inquiry (3)**
Prerequisites: Political Science 110, 120 and 130.
Philosophical bases of science with reference to political science. Concepts, concept formation, theory building and verification.

514. *(114.)* **Problems in Political Theory (3)**
Prerequisite: Six upper division units in political theory.
Research methods in political theory; intensive development of selected issues.

522. *(118.)* **Urban Politics (3)**
Prerequisite: Political Science 110 or 120.
The processes by which social conflicts in American urban areas are represented and regulated. Urban political culture; ecology; group development and activity; power structures; and reform movements are surveyed. The character of the urban political "problem" and proposed solutions are evaluated.

523. *(119.)* **Community Political Behavior (3)**
Prerequisite: Political Science 110 or 120.
The studies of structure of community power are summarized and critically evaluated. The issues of community conflict are treated both by case study and comparative methods. Examples are drawn primarily from American-urban experience.

530. *(120.)* **Political Parties (3) I, II**
Prerequisite: Political Science 120 or 320 or 520.
A critical analysis of the political party as a part of the process of government; party organization and activities; nominating and campaign methods; theories and functions of the party system; party responsibility. The function of the two-party system in American government.

531. *(126.)* **Political Groups and Movements (3) I, II**
Prerequisite: Political Science 110 or 120.
Pressure group activity, lobbies, mass movements; factors which explain origins and motivations of group behavior; votes, money, information, protest as political resources; theories of pluralism, power elite and mass society; class and ethnic politics.

536. *(124.)* **The American Presidency (3) I, II**
Prerequisites: Political Science 110 and 120.
Analysis of principal institutions, functions and problems of the presidency and federal executive branch. Attention given to presidential leadership, staffing, executive-legislative relations and policy formation.

537. *(129.)* **The Politics of Bureaucracy (3) I, II**
Prerequisites: Political Science 110 and 120.
An analysis of the bureaucracy as an actor in the political system.

543-S. *(123-S.)* **Contemporary American Politics (3) S**
A consideration of a selected group of current major political problems in terms of their possible future implications and of their relationship to established American democratic principles and ideals.

Public Law (Group IV)

345. *(136.)* **Constitutional Government (3) I, II**
Prerequisites: Political Science 110 and 120.
Constitutionalism as a concept of legal and political philosophy; foundations of American constitutionalism; origin and framing of the American Constitution; philosophy of the American Constitution; application of constitutional principles to contemporary political situations and problems.

348. *(135.)* **The Supreme Court and Contemporary Issues (3) I, II**
Recent decisions of the Supreme Court of the United States and their relationship to contemporary political and social issues.

354. *(137.)* **Special Problems in Public Law (3) I, II**
Prerequisites: Political Science 110 and 120, and three upper division units within Group IV.
Intensive exploration of selected issues in the field of constitutional law.

546. *(138.)* **Law and the Political System (3)**
Forces influencing the making of law; relationship between social and legal change; nature and limits of the judicial function.

547A-547B. *(139A-139B.)* **American Constitutional Law (3-3)**
Prerequisite: Political Science 547A is prerequisite to 547B.
Principles of American Constitutional law. Includes judicial review, the federal system, the separation of powers, the nature of selected Congressional powers, and the liberties protected by the constitution against national and state action. Meets the graduation requirement in the United States Constitution.

Research Methods (Group II)

515A-515B. *(100A-100B.)* **Research Methods in Political Science (3-3) I, II**
Prerequisite: Political Science 140. Political Science 515A is prerequisite to 515B.
The research process, from research design through data processing, analysis and interpretation. Problems of application to election statistics, census data, roll-call records, sample survey data and biographical information.

Politics (Group III)

320. *(115.)* **American Institutions (3) I, II**
The principles of the Constitution of the United States of America, and a survey of the political and social institutions which have developed under the Constitution. Meets the graduation requirement in the United States Constitution and California state and local government. When taken with Political Science 505, 321 or 522, will also meet requirements in American history, institutions and ideals. Not open to students with credit in Political Science 120.

321. *(117.)* **State Politics (3) I, II**
Public policy making within the context of statewide politics, state-federal and state-local relations, including both official and unofficial institutions. Emphasis on California. Meets the graduation requirement in California Government.

325. *(121.)* **Political Behavior (3) I, II**
Prerequisites: Political Science 140.
Social and attitudinal variables in political behavior. Quantitative research data as used in electoral studies.

326. *(122.)* **Political Communication (3) I, II**
Prerequisite: Political Science 120.
Communication as a political process; the effects of political communications on individuals and groups.

332. *(132.)* **Minority Political Thought and Politics in the United States (3) I, II**
Political attitudes, behavior and thought of selected minority groups.

335. *(130.)* **Government and Public Policy (3)**
Prerequisite: Political Science 120.
Theory and practice of process of formulating public policy, roles of administrators, legislators, courts, interest groups and political parties; public agencies and public interest, case studies in formulating public policies.

338. *(125.)* **The Legislative Process (3) I, II**
A detailed analysis of legislatures. Special attention will be devoted to the impact of dynamic factors on formal procedures.

340. *(128.)* **Internship in Politics (2-6) I, II, S**
Prerequisites: Three upper division units within Group III and consent of instructor. Students will be assigned selectively to functional areas of politics, such as political party headquarters, elective public offices and nonpartisan political groups for work under joint supervision of activity heads and the course instructor. Participation will include project and internship conferences.

341. *(133.)* **Advanced Field Research (3) I, II**
Prerequisites: Consent of instructor and Political Science 335 or previous experience in field research.
Students will design and organize field research projects.

344. *(131.)* **Special Problems in American Politics (3) I, II**
Prerequisites: Political Science 110 and 120 and three upper division units within Group III.
Intensive exploration of selected issues in the field of American politics.

520. *(116.)* **American National Government (3) I, II**
Prerequisite: Political Science 120 or 320, or History 110A-110B.
An intensive examination of the primary institutions of the national government. Critical analysis of changing aspects of traditional relationships among the institutions of president, congress and the judiciary.

Comparative Government (Group V)

370. *(182.)* **Political Violence (3)**
Prerequisite: Political Science 110, 120 or 130.
Underlying conditions, expressions and consequences of violence within political systems.

374. *(198.)* **Special Problems in Comparative Politics (3) I, II**
Prerequisites: Political Science 110, 120, 130 and three upper division units within Group V.
Intensive exploration of selected issues in the field of comparative politics.

555. *(190.)* **Comparative Political Systems (3) I, II**
Prerequisite: Political Science 130.
An examination of selected political and governmental systems for purposes of comparative study and analysis to determine similarities, differences and general patterns and universals among political systems.

556. *(185.)* **Governments of Continental Europe (3) I, II**
The political systems of countries of western continental Europe.

557. *(180.)* **Government of England (3) II**
The structure and functioning of the English parliamentary system with emphasis on present-day political principles and parties.

558. *(186.)* **Comparative Communist Governments (3) I, II**
The interrelations between the theory and practice of modern communism as found in representative communist systems.

559. *(181.)* **Government of the Soviet Union (3) I**
Theory and practice of government in the Soviet Union, with some attention to foreign affairs.

561. *(191.)* **Governments and Politics of the Developing Areas (3) I, II**
Prerequisite: Political Science 110 or 130.
Internal political systems, governmental structures and the foreign policies of developing nations.

562. *(187.)* **Governments and Politics of the Far East (3)**
The internal political structure and foreign policies of China, Japan and Korea.

563. *(189.)* **Government and Politics of the Middle East (3)**
The governmental and political structures of representative states in the Middle East including Turkey, Israel and the Arab states.

564. *(192.)* **Political Change in Contemporary Africa (3) II**
General pattern of nationalism in Africa south of the Sahara. Theories of social change and general features of contemporary African political development.

565. *(188.)* **Governments and Politics of the African States (3) I**
Domestic and international politics of specific African states.

566. *(194.)* **Political Change in Latin America (3)**
Prerequisite: Political Science 110 or 130.
General pattern of politics and political development in Latin America with an emphasis on those features which condition domestic and foreign policy making.

567. *(195.)* **Political Systems of Latin America (3)**
Prerequisite: Political Science 566.
Domestic and international politics of selected Latin American states.

568. *(184.)* **The Mexican Political System (3)**
Prerequisite: Political Science 110 or 130.
Principal factors in Mexican governmental decision making. Ideology, political groups, tactics of leaders and governmental structure.

571. *(193.)* **Seminar in Cross-national Studies (3) I, II**
Prerequisite: Any upper division course in comparative politics.
Cross-national analysis of institutional norms, attitudes and behavior in relation to government; factors which determine patterns and styles of political participation in contemporary societies.

International Relations (Group VI)

375A-375B. *(170A-170B.)* **International Relations (3-3) I, II**
An historical and analytical consideration of the basic factors—historic, geographic, economic, ideologic and strategic—which underlie and condition the modern conflict between the "sovereign state" and the "community of nations." Semester I: Origins and development through the nineteenth century. Semester II: Twentieth century experimentation and conflict.

378. *(171.)* **The Conduct of American Foreign Relations (3) I**
The legal, administrative and political organizations by which American foreign policies are formulated and implemented.

393-S. *(168-S.)* **Institute on World Affairs (3) S**
Contemporary problems in international relations. May be repeated once for credit with permission of the instructor.

394. *(178.)* **Special Problems in International Politics (3) I, II**
Prerequisites: Political Science 110, 120 and three upper division units within Group VI.
Intensive exploration of selected issues in the field of international politics.

576. *(172.)* **International Organization (3) I**
The organization by which the international community seeks to provide for the exercise of legislative, administrative and judicial functions on the international level: diplomatic and consular corps; conferences; administration through commissions and unions; amicable procedures for settlement of disputes; the League of Nations-United Nations experiment.

577. *(173.)* **Principles of International Law (3)**
The function of law in the international community. The historical development of the ideas and rules of international law and their place in the modern diplomatic and legal structure.

579. *(174.)* **National Security Policy (3)**
Objectives, instruments and consequences of national security policy.

580. *(177.)* **Comparative Foreign Policies (3)**
Prerequisite: Six units of political science.
Comparison of foreign policies of nations in various regional, socioeconomic and ideological areas.

581. *(176.)* **International Relations of the Developing Nations (3)**
Prerequisite: Six units of political science.
Cooperation and conflict between the developing nations and relations of such nations with the developed countries.

582. *(175.)* **International Relations of the Latin American States (3)**
The foreign policies of the Latin American states; the organization of American states; relationships with the United Nations and with the United States.

590. *(165.)* **Dynamics of Modern International Crises (3) I, II**
Prerequisite: Consent of instructor.
The determination and analysis of facts surrounding international crises since World War II; the evaluation of these crises and their effects upon external policies of the United States and the operations of the United Nations.

GRADUATE COURSES

601. *(200.)* **Seminar in the Scope and Method of Political Science (3)**
The discipline of political science and systematic training in its methodology. Required of all applicants for advanced degrees in political science.

605. *(210.)* **Seminar in Political Theory (3)**
Maximum credit six units applicable on a master's degree.

620. *(215.)* **Seminar in American National Government (3)**
Maximum credit six units applicable on a master's degree.

622. *(255.)* **Seminar in Metropolitan Government and Politics (3)**
Prerequisite: Political Science 321 or 522 or 523.
Government and politics in the world's major metropolitan areas. Maximum credit six units applicable on a master's degree.

623. *(250.)* **Seminar in Local Government (3)**
Selected problems of state and local government and intergovernmental relations. Maximum credit six units applicable on a master's degree.

625. *(221.)* **Seminar in Political Participation (3)**
Prerequisite: Six upper division units in political science, three units of which must be from Political Science courses 320 through 344, 520 through 543S.
American political culture and subculture groupings as related to various dimensions of political behavior.

630. *(220.)* **Seminar in Politics (3)**
Prerequisite: Six upper division units in political science, three units of which must come from Political Science courses 320 through 344, 520 through 543S.
Process by which individuals and groups make demands upon political decision makers; emphasis on the styles, structures, channels and consequences of interest articulation. Maximum credit six units applicable on a master's degree.

638. *(225.)* **Seminar in the Legislative Process (3)**
Prerequisite: Six upper division units in political science.
Legislative institutions and processes. Emphasis on U.S., national, state and local legislatures.

639. *(226.)* **Seminar in Political Psychology (3)**
(Same course as Psychology 746.)
Prerequisites: Six units selected from Psychology 340, 410, 412; Political Science 325, 326, 515A-515B, 555.
Psychological factors of the individual's political behavior; psychological theory as it applies to political variables such as: idology, conflict, consensus and participation.

646. *(230.)* **Seminar in Public Law (3)**
Maximum credit six units applicable on a master's degree.

655. *(280.)* **Seminar in General Comparative Political Systems (3)**
Prerequisite: Political Science 555 or 561, and three additional upper division units in political science.
The field of comparative politics, including historical developments, major theoretical approaches, substantive concerns, uses and limitations of the comparative method, methodological innovations in study of foreign political systems.

656. *(281.)* **Seminar in Western Political Systems (3)**
Prerequisite: Six upper division units in political science.
Comparative study of European and other modern political systems. Conditions responsible for the attainment and maintenance of democratic government. The relationship between social modernity and the functioning of Western democratic political institutions.

658. *(284.)* **Seminar in Communist Political Systems (3)**
Prerequisite: Six upper division units in political science.
The differences and similarities among Communist nations in Europe and Asia, with particular reference to instruments of power and ideology. A comparison of Communist ruling techniques and processes.

661. *(282.)* **Seminar in the Political Systems of the Developing Nations (3)**
Prerequisite: Six upper division units in political science.
Theoretical analysis of political development, modernization and industrialization in the emerging nations. Search for valid generalizations about the non-Western political process. Political trends and developments in the developing nations.

667. *(283.)* **Seminar in Latin American Political Systems (3)**
Prerequisite: Political Science 555 or 561, and three additional upper division units in political science.
Political developments in selected Latin American nations, with emphasis on the Mexican political system.

675. *(270.)* **Seminar in International Relations (3)**
Maximum credit six units applicable on a master's degree.

676. *(272.)* **Seminar in International Organization (3)**
Prerequisite: Political Science 576.
Analysis of selected problems of international organization with special reference to those of the United Nations. Oral and written reports.

685. *(275.)* **Seminar in Theories of International Relations (3)**
Prerequisite: Political Science 375A or 375B.
Theoretical concepts used in the study of international political systems. Maximum credit six units applicable on a master's degree.

700. *(290.)* **Bibliography (1)**
Exercises in the use of basic reference books, journals and specialized bibliographies, preparatory to the writing of a master's project or thesis.

795. *(291.)* **Problem Analysis (3)**
Analytical treatment of selected problems in political science. Review of methods for investigation and reporting of data. Consideration of problems in preparation of project or thesis.

797. *(297.)* **Research in Political Science (3) Cr/NC**
Prerequisite: Consent of the department chairman.
Research in political theory, political parties, comparative government, international relations, public law or American government.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Portuguese

In the College of Arts and Letters

Faculty

Assistant Professor: Windsor

Offered by the Department of Spanish and Portuguese Languages and Literatures

Minor in Portuguese.
Courses in Portuguese.
Major work is not offered.

Portuguese Minor

The minor in Portuguese consists of a minimum of 15 units in Portuguese, six units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Portuguese may be counted as the equivalent of Portuguese 101; three years the equivalent of Portuguese 102; and four years the equivalent of Portuguese 203. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

Native speakers of Portuguese will not receive credit for taking lower division courses in Portuguese except with advance approval from the department.

101. *(1.)* **Elementary (4)**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, reading on Luso-Brazilian culture and civilization, essentials of grammar.

102. *(2.)* **Elementary (4)**
Four lectures and one hour of laboratory.
Prerequisite: Portuguese 101.
Continuation of Portuguese 101.

203. *(3.)* **Intermediate (4)**
Prerequisite: Portuguese 102.
A practical application of the fundamental principles of grammar. Reading in Portuguese of cultural material, short stories, novels or plays; oral practice.

204. *(4.)* **Intermediate (4)**
Prerequisite: Portuguese 203.
Continuation of Portuguese 203.

210. *(10.)* **Conversation (2)**
Prerequisite: Portuguese 102.
Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

211. *(11.)* **Conversation (2)**
Prerequisite: Portuguese 210.
Continuation of Portuguese 210.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

301A-301B. *(101A-101B.)* **Advanced Oral and Written Composition (3-3)**
Prerequisite: Portuguese 204.
Oral and written composition in Portuguese, based on models from modern Portuguese and Brazilian literature.

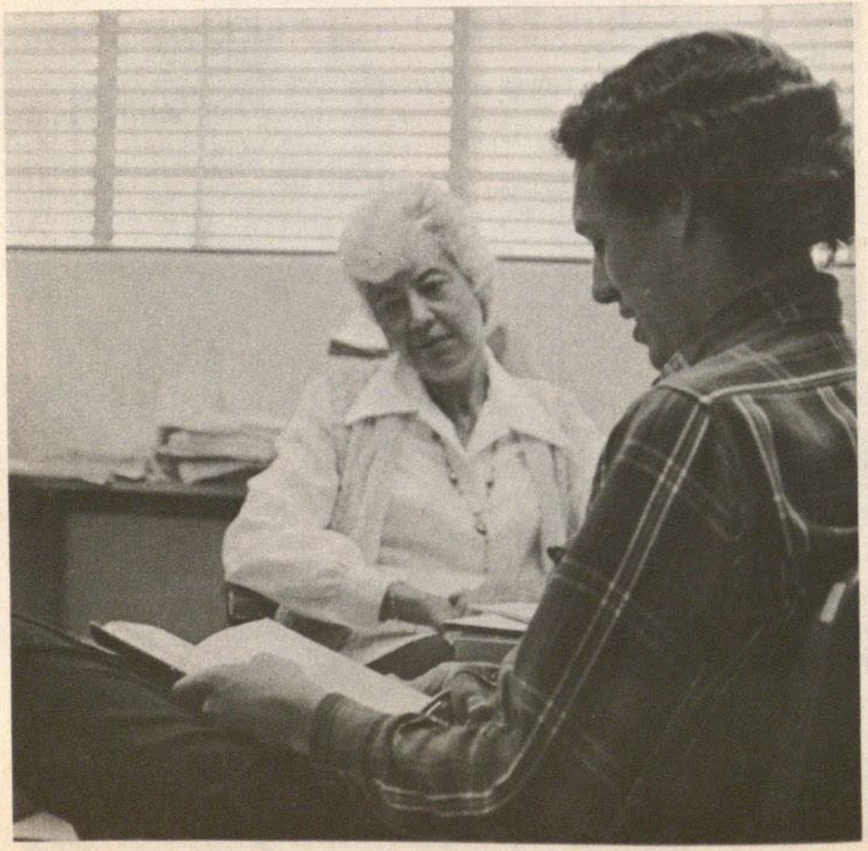
485. *(185.)* **Selected Studies (3)**
Topics in Luso-Brazilian language, literature, culture and linguistics.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

534. *(134.)* **Portuguese Literature (3)**
A study of important movements, authors and works in the literature of Portugal from its beginnings to the present.

535. *(135.)* **Brazilian Literature (3)**
A study of the important movements, authors and works of the literature of Brazil from the colonial period to modern times.



Psychology

In the College of Sciences

Faculty

Emeritus: Carlson, Kidwell, McCollom, Peiffer, Steinmetz, Treat, Turner, Voeks
Professors: Alf, Dicken, Feierabend, Gallo, Graf, Grossberg, Harari, Harrison, Hillix, Hunrichs, Kaplan, O., Karen, Kass, Kinnon, Koppman, Leckart, Leukel, Levine, Linton, McDonald, O'Day, Parker, Penn(Chairman), Radlow, Sattler, Schulte, Segal, Sheposh, Stevens
Associate Professors: Bryson, Defran, Franzini, Graham, Hornbeck, Lynn, Mollenauer, Perrott, Plotnik, Psomas, Rodin, Sand, Smith, Yaremko
Assistant Professors: Eisen, Kaplan, R., Litrownik, McCordick, Price, Spinetta
Lecturers: Bekker, Borges, Bryson, Buchanan, Chase, Hillyard, Scollay

Offered by the Department

Master of Arts degree in psychology.
Master of Science degree in psychology.
Major in psychology with the A.B. degree in liberal arts and sciences.
Minor in psychology.

Psychology Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Two plans are provided for the major in psychology: **Plan A** for those students who wish to extend their liberal arts education in the field of psychology; and **Plan B** for those students expecting to pursue the study of psychology beyond the A.B. degree.

Plan A

Plan A is for a nonprofessional major in psychology and is designed to provide the student with a greater understanding of human behavior as the emphasis in his liberal arts education. The recommended pattern of courses for this program is not designed to facilitate graduate and professional study in psychology.

Preparation for the major. Psychology 101, 210 and 260. (9 units.) Recommended courses in related fields: Six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 330, 340, 350 and 351. It is expected that each student under Plan A will select, with the assistance of his adviser, a pattern of courses in line with his particular objectives in pursuing Plan A.

To facilitate the purpose of Plan A the following courses in other departments are recommended as electives: Biology 350, 549; Economics 330; and courses in family studies and consumer sciences.

Plan B

The purpose of Plan B is to facilitate the specific preparation of those students who wish to pursue graduate and professional preparation in clinical, industrial and personnel, social, and theoretical-experimental psychology.

Preparation for the major. Pshchology 101, 210, 260, and 270. (12 units.) Recommended courses in related fields: Six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 350, 405, 410; and one of the following: 411, 412, 413, 414, 415, 416, 417 or 418; and ten units selected from courses in consultation with the departmental adviser. Psychology 475A-475B may be taken instead of Psychology 270 and 410.

Psychology Minor

The minor in psychology consists of a minimum of 15 units in psychology, nine units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

Approved Courses for Liberal Studies Majors (Group B).

Lower Division Courses: Psychology 101, 110, 210 and 260.
Upper Division Courses: Psychology 330, 340, 350, 351 and 454.

LOWER DIVISION COURSES

101. *(1.)* **Introductory Psychology (3) I, II**
Facts, principles, and concepts which are basic to understanding human behavior.

110. *(10.)* **The Evaluation of Psychological Literature (3) I, II**
Designed to increase the nonpsychologist's ability to evaluate psychological and quasi-psychological writings. Topics include methods of generating information, concept of controlled observations, interpretation of data, pitfalls in decision making and aids to critical thinking. Practical experience in evaluation will be obtained through the criticism of current articles and other activities.

150. *(12.)* **Psychology of Individual Adjustment (3) I, II**
Prerequisite: Psychology 101.
An examination and interpretation of the factors which go into the making of the person as he adapts himself to the social world about him. The development of the normal personality.

210. *(40.)* **Principles of Learning and Perception (3) I, II**
Prerequisite: Psychology 101.
The nature of psychological inquiry. Emphasis on principles and basic experimental data of learning and perception.

260. *(50.)* **Introduction to Physiological Psychology (3) I, II**
Prerequisite: Psychology 101.
Physiological mechanisms underlying the psychological phenomena of sensation, perception, emotion, motivation, learning and psychosomatic disorders.

270. *(70.)* **Statistical Methods in Psychology (3) I, II**
Prerequisites: Psychology 101, and Mathematics 103 or qualification on the mathematics placement examination.
Quantitative methods in psychology. Measures of central tendency and variability, graphic methods and percentiles, linear correlation, applications of the normal probability curve, chi-square, and an introduction to statistical inference. Not open to students with credit in Psychology 475A-475B.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301-S. *(180-S.)* **Contemporary Problems in Psychology (1) S**
Lectures open to the public.
A series of six weekly lectures by visiting psychologists on subjects related to current research problems. Reading and reports required of students enrolled for credit. Maximum credit three units.

316. Operant Behavior (3)
Prerequisite: Psychology 210.
Contingencies of reinforcement, stimulus control, response shaping, aversive control, and other basic principles of operant behavior applied to the understanding and modification of human behavior.

317. Psychology of Verbal Behavior and Learning (3)
Prerequisites: Psychology 101 and consent of instructor.
Analysis of linguistic and cognitive processes within the context of social behavior.

320. *(121.)* **Personnel and Industrial Psychology (3) I, II**
Prerequisites: Psychology 101, and 270 or statistics in another field.
Psychological principles applied to industrial problems of selection, placement and training.

321. *(123.)* **Organizational Psychology (3) I, II**
Prerequisite: Six units of psychology.
The interplay of men and organizations. Psychological literature of the individual and his motivation to work, working in groups, industrial organizations, communications and conflict in industrial organizations.

322. *(120.)* **Consumer Psychology (4)**
Two lectures and six hours of laboratory.
Prerequisites: Three units of psychology, and a course in statistics.
A review of the research literature and methods relevant to the individual as a consumer in our society. Emphasis on methods of measuring attitudes, values, and behavior of people when functioning as consumers.

324. *(124.)* **Engineering Psychology (3) I, II**
Prerequisite: Psychology 101.
Psychological problems of man-machine-environment systems. Visual, auditory, and other sensory factors involved in the interrelations between man and machines and the environment. Survey of origin and basic data of engineering psychology.

325. *(125.)* **Human Factors Psychology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 101 and consent of instructor.
Experimental techniques and procedures in the application of synthesis of behavioral criteria to the design, development, operation and maintenance of man-machine-environmental systems. Government and industry job requirements, routines and practices.

326. *(133.)* **Principles of Personnel Interviewing (3)**
Prerequisite: Psychology 101.
Psychological factors in interviewing; interviewing techniques. Supervised practice in interviewing for purposes of personnel selection, appraisal and development.

330. *(106.)* **Developmental Psychology (3) I, II**
Prerequisite: Psychology 101.
The psychological development of the normal individual from conception through childhood, adolescence, maturity, and old age. Stress is laid upon the interdependence of the various periods of the individual's life. Not open to students with credit in Elementary Education 372 and Family Studies and Consumer Sciences 270.

335. *(107.)* **Psychology of Later Maturity (3) II**
Prerequisite: Psychology 101.
The psychological, physiological, and sociological factors influencing behavior in the later years of life.

340. *(145.)* **Social Psychology (3) I, II**
Prerequisite: Psychology 101.
The major problems and findings concerning group behavior and group membership, the socialization of the individual, and processes of social interaction. Not open to students with credit in Sociology 440.

342. *(122.)* **Public Opinion Measurement (3) I**
(Same course as Journalism 507.)
The history, methods and problems of public opinion and attitude measurement. Emphasis will be placed on the polling of consumers and voters. Students will be given field experience.

347. *(147.)* **Psychology of Contemporary Social Problems (3)**
Prerequisite: Psychology 101.
Discussion of social issues and problems of importance to the contemporary world, from the point of view of psychological theory, method and knowledge.

350. *(150.)* **Abnormal Psychology (3) I, II**
Prerequisite: Six units of psychology.
The causes, symptoms, and modification of behavior disorders with emphasis on neurosis, psychosis, and personality disorder.

351. *(131.)* **Psychology of Personality (3) I, II**
Prerequisite: Six units of psychology.
Principles of personality functioning and adaptation.

365. Drugs and Behavior (3)
Prerequisites: Psychology 101 and 260.
The effects of hallucinogens, tranquilizers, stimulants, alcohol and other depressants, on the nervous system, personality, and intellectual functioning.

375. Computer Methods in Psychology (3)
Prerequisites: Psychology 101, and credit or concurrent registration in Psychology 270.
Fundamentals of programming in "BASIC" computer language. Application to statistics and other quantitative topics in psychology.

386. *(178.)* **Theories of Personality (3) I, II**
Prerequisites: Major in psychology and six upper division units in psychology.
Representative personality theories and supporting evidence.

405. *(105.)* **Psychological Testing and Measurement (3) I, II**
Prerequisite: Psychology 270, or a semester of statistical methods in any other department.
Measurement theory and the basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement.

410. *(110.)* **Introduction to Experimental Psychology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 210 and 270.
Understanding of experimental design, quantitative methods, and experimental reports as they are applied to all areas of psychology. Not open to students with credit in Psychology 475A-475B.

411. *(111.)* **Experimental Psychology: Perception (4)**
Two lectures and six hours of laboratory.
Prerequisite: Psychology 410.
Experimental literature, assigned and original laboratory projects in the field of perception.

412. *(112.)* **Experimental Psychology: Social (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Psychology 410.
Experimental literature, assigned and original laboratory projects in the field of social psychology.

413. *(113.)* **Experimental Psychology: Physiological (4)**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 260 or 460 or six units of biology; and Psychology 410.
Experimental literature, assigned and original laboratory projects in the field of physiological psychology. Surgical and histological techniques necessary to research in brain mechanisms and behavior; includes basic electronics for biological scientists.

414. *(114.)* **Experimental Psychology: Comparative (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Psychology 410.
Experimental literature, assigned and original laboratory projects in the field of comparative psychology.

415. *(115.)* **Experimental Psychology: Personality and Clinical (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 350 and 410.
Experimental and theoretical literature, assigned and original laboratory projects in the field of personality and clinical psychology.

416. *(116.)* **Experimental Psychology: Learning (4)**
Two lectures and six hours of laboratory.
Prerequisite: Psychology 410.
Experimental literature, assigned and original laboratory projects in the field of learning.

417. *(117.)* **Experimental Psychology: Primate Behavior (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Psychology 410.
Experimental literature, assigned and original observational and experimental projects in the field of primate learning and behavior.

418. *(118.)* **Experimental Psychology: Child Development (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 330 and 410.
Methods, techniques and principles used in the scientific study of child behavior.

432. *(108.)* **Advanced Developmental Psychology (3) I, II**
Prerequisite: Psychology 330.
Selected topics in the areas of infancy, childhood and adolescence.

446. *(146.)* **Advanced Topics in Social Psychology (3)**
Prerequisites: Psychology 210 and 340.
An intensive exploration of selected areas within social psychology. May be repeated with new content. Maximum credit six units.

451. *(151.)* **Introduction to Clinical Psychology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 350 and 405.
History and current status of the profession; professional ethics and interprofessional concerns; clinical assessment and prediction; theory and practice of behavior change.

452. *(152.)* **Introduction to Counseling and Therapy (3) I, II**
Two lectures and two hours of activity.
Prerequisites: Twelve upper division units in psychology to include Psychology 351 or 386 and 350.
A survey of theory, methods and research in psychological approaches to personality and behavior change. Practice in basic interviewing and critical analysis of interviews. Not open to students with credit in Psychology 650 or Counselor Education 660.

453. *(153.)* **Advanced Abnormal Psychology (3)**
Prerequisite: Psychology 350.
An intensive study and evaluation of research methodology and current literature concerning the neuroses, psychoses, aphasias, ataxia, mental defect, and psychopharmacology.

454. *(109.)* **Mental Deficiency (3) I, II**
Prerequisite: One of the following: Psychology 330, Elementary Education 362 and Secondary Education 411, 412, or equivalents.
The nature and causes of mental retardation, including the psychological effects of brain injury. Characteristics of the mentally defective.

455. *(155.)* **Psychology of Human Sexual Behavior (3)**
Prerequisites: Psychology 330 and 350.
Evaluation of behavioral and physiological data of normal, aberrant, and dysfunctional human sexual behavior, including description of available treatment methods.

460. *(142.)* **Physiological Psychology (3) I, II**
Prerequisites: Psychology 210 and 260 and three units of biology; or nine units of biology.
An evolutionary approach to the development of complex behavior in higher organisms and man. The neurophysiology of emotion, sleep, bodily needs, instinctive patterns of behavior, and of learning; brain and behavior disorders.

461. *(141.)* **Neural Bases of Behavior (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 260 or six units in the biological sciences.
Elements of neurology and psychobiology with emphasis on sensory, central, and motor mechanisms.

470. *(170.)* **Advanced Statistics (3) I, II**
Prerequisite: Psychology 270.
A further study of quantitative methods in psychology with emphasis on methods of correlation, chi-square, and contingency, and an introduction to the analysis of variance.

471. *(171.)* **Intermediate Correlational Analysis (3)**
Prerequisite: Psychology 270.
Quantitative methods in psychology with emphasis on methods of correlation, multiple correlation, partial correlation, and factor analysis.

475A-475B. *(167A-167B.)* **Statistical Methods and Experimental Psychology (4-4)**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 210 and mathematical aptitude examination.
Integrated approach to the understanding of statistical methods, experimental design and the writing of experimental reports as applied to all areas of psychology. Not open to students with credit in Psychology 270 and 410.

480. *(177.)* **History of Psychology (3) I, II**
Limited to psychology majors with senior standing.
The historical background of modern psychology.

481. *(179.)* **Philosophical Issues in Psychology (3) II**
Prerequisite: Twelve units of psychology.
Modern empiricism and the philosophy of science as related to issues in contemporary psychology.

484. *(174.)* **Theories of Perception (3) I, II**
Prerequisite: Psychology 410.
Study of research and theory in the areas of sensation, perception, and attention.

487. *(175.)* **Theories of Learning (3) I, II**
Prerequisites: Psychology 210 and 270.
The facts, principles, and major theories of learning.

496. *(100.)* **Selected Topics in Psychology (1-3)**
Prerequisite: Six units of psychology.
Intensive study in specific areas of psychology, topic to be announced in the class schedule. Maximum credit six units.

497. *(197.)* **Senior Project (1-3) I, II**
Prerequisites: Twelve units of psychology and consent of instructor.
An individual investigation and report on a research project. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study, including library or laboratory research and a written report. Maximum credit six units.
Prerequisite: Consent of department chairman.

GRADUATE COURSES

605. *(222.)* **Seminar in Theoretical Psychology (3)**
Prerequisites: Psychology 480 or 680, and consent of graduate adviser.
Basic nature of theories, their relationships to data, and the characteristics of various types of constructs used in psychological theories.

607. *(278.)* **Applied Community Psychology (3)**
Prerequisite: Consent of graduate adviser.
Systematic integration of principles of psychotherapy, behavior modification, child development, gerontology, social psychology, vocational testing, and psychological methodology into community psychology.

609. *(295.)* **Field Work in Community Psychology (3)**
Prerequisites: Psychology 607 and consent of graduate adviser.
Applied community psychology in the service of the community, including supervision of undergraduate students and contact with community organizations.

620. Industrial-Organizational Psychology (3)
Prerequisite: Consent of graduate adviser.
Theoretical issues, methodologies, and research findings relevant to the application of psychology to the world of work and to an understanding of behavior in organizations. Not open to students with credit or concurrent registration in Psychology 320 and 321.

621. *(219.)* **Seminar in Personnel Psychology (3)**
Prerequisites: Psychology 320 or 620, and consent of graduate adviser.
Problems and procedures in selection, classification, and performance appraisal, focusing on testing in industry, the interview, and other selection and assessment devices. Criterion development and measurement methods.

622. *(220.)* **Seminar in Organizational Psychology (3)**
Prerequisites: Psychology 321 or 620, and consent of graduate adviser.
Applications of psychological principles and methods of investigation to problems of industrial relations and motivation of employees; factors influencing morale and employee productivity; criteria of job proficiency; psychological aspects of worker-management relationships and leadership.

650. *(233.)* **Counseling and Psychotherapy Laboratory (4)**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 451 or 653, and consent of graduate adviser.
Supervised practice in the application of psychotherapeutic and counseling techniques from selected cognitive, dynamic, interpersonal, and behavioral approaches.

651. *(211.)* **Seminar in Behavior Disorders of Childhood and Adolescence (3)**
Prerequisites: Psychology 330, 350 and consent of graduate adviser.
Contemporary approaches to emotional and behavioral problems of childhood and youth. Considers developmental, cognitive and social variables as well as theory and treatment.

652. *(212.)* **Seminar in Behavior Disorders of Adults (3)**
Prerequisites: Psychology 350 and consent of graduate adviser.
Contemporary approaches to emotional and behavioral problems of adulthood. Considers developmental, cognitive and social variables as well as theory and treatment.

653. Advanced Clinical Psychology (4)
Two lectures and six hours of laboratory.
Prerequisites: Psychology 350, 405 and consent of the graduate adviser.
Clinical assessment, theory and practice of behavior change, and professional ethics. Not open to students with credit or concurrent registration in Psychology 451.

654. *(204.)* **Psychological Assessment I (4)**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 350, 405, and consent of graduate adviser.
Theory and practice in assessment of intelligence and special abilities.

655. *(205.)* **Psychological Assessment II (4)**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 654 and consent of graduate adviser.
Theory and practice in assessment of special abilities, personality and behavior disorders.

656. *(234.)* **Behavior Therapy Laboratory (4)**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 451 or 653, 487 or 711, and consent of graduate adviser.
Supervised practice in the application of behavior therapy (individual treatment) and behavior modification (group method).

670. *(223.)* **Experimental Design (3)**
Prerequisites: Psychology 410 and consent of graduate adviser.
Principles and methods of planning and carrying out systematic investigations to answer questions concerning human behavior with stress on the interdependence of experimental design and statistical evaluation of results. Practice in formulation of testable hypotheses, techniques of equating groups, solution of sampling problems, and interpretation of results.

675. *(225.)* **Principles of Test Construction (3)**
Prerequisites: Psychology 405, 670 and consent of graduate adviser.
Detailed consideration of adequate sampling techniques, item construction, item analysis, determination and enhancement of reliability and validity of tests.

680. *(277.)* **Seminar in the History of Psychology (3)**
Prerequisites: Psychology 410 and consent of graduate adviser.
The history of modern psychology. Not open to students with credit or concurrent registration in Psychology 480.

700. *(200.)* **Seminar (3)**
Prerequisite: Consent of graduate adviser.
An intensive study in advanced psychology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

710. *(224.)* **Advanced Experimental Design (3)**
One lecture and six hours of laboratory.
Prerequisite: Psychology 670 and consent of graduate adviser.
Methods, techniques, and apparatus applicable to questions of various types. Special attention is given to sources of error, limitations on interpretations, and psychophysical methods. Students will design and carry out experiments in preparation for original independent investigations.

711. *(275.)* **Advanced Principles of Learning (3)**
Prerequisite: Consent of graduate adviser.
The empirical data, basic principles and theoretical positions of major learning theorists. Not open to students with credit or concurrent registration in Psychology 487.

718. Research in Operant Behavior (3)
Prerequisites: Psychology 316 or 416 or 487 or 711 and consent of graduate adviser.
Selected research topics in the experimental analysis of behavior. Maximum credit six units.

745. *(221.)* **Seminar in Problems in Social Psychology (3)**
Prerequisites: Psychology 340 or 412, and consent of graduate adviser.
Factors influencing the formation of attitudes, opinions, and stereotypes; the establishment of roles during socialization of the individual; social crises, change, and resistance to change; the causes and alleviation of interpersonal conflict.

746. *(226.)* **Seminar in Political Psychology (3)**
(Same course as Political Science 639.)
Prerequisites: Psychology 340 or 410, and consent of graduate adviser.
Psychological factors of the individual's political behavior; psychological theory as it applies to political variables such as: ideology, conflict, consensus, and participation.

757. *(201.)* **Selected Topics in Clinical Psychology (3)**
Prerequisites: Psychology 451 or 653 and consent of graduate adviser.
Advanced study of such clinical topics as community mental health, forensic psychology, ethics, and autogenic training. Topics will vary on a semester basis.

760. *(230.)* **Seminar in Physiological Correlates of Behavior (3)**
Prerequisites: Psychology 260 or six units of biology; and consent of graduate adviser.
An exploration of current research and theory in physiological psychology with emphasis on behavioral correlates and psychophysiology.

761. *(231.)* **Seminar in Ethology and Comparative Psychology (3)**
(Same course as Biology 610.)
Prerequisites: Psychology 414 or 417 or Biology 520, or Zoology 570, and consent of graduate adviser.
Current problems in ethology and comparative animal behavior. Maximum credit six units applicable on a master's degree.

764. Psychopharmacology and Behavioral Disorders (3)
Prerequisites: Psychology 260 and consent of graduate adviser.
Drugs as cause and cure of behavioral problems. A review of drugs commonly used to change behavior in primary schools, psychiatric centers, in-home programs and mental hospitals.

770. *(270.)* **Statistical Theory (3)**
Prerequisites: Psychology 270, 405 and consent of graduate adviser.
Study of quantitative methods in psychology with emphasis on normal inference and nonparametric statistics. Not open to students with credit or concurrent enrollment in Psychology 470.

771. Correlational Analysis (3)
Prerequisites: Psychology 270 and consent of graduate adviser.
Study of correlational methods in psychology with emphasis on multiple regression and factor analysis; experience in use of computer techniques in multivariate correlational analysis. Not open to students with credit or concurrent registration in Psychology 471.

796. *(296.)* **Clinical Practicum (3 or 6) Cr/NC**
Prerequisites: Psychology 451 or 653 and 650 and 654 and consent of the Department of Psychology Practicum Committee.
The student must arrange his practicum setting in cooperation with the chairman of the Psychology Department Practicum Committee and with the express approval of that committee during the semester prior to enrolling for credit in this course. Maximum credit six units.

797. *(297.)* **Research (1-3) Cr/NC**
Prerequisite: Consent of graduate adviser.
Research in one of the fields of psychology. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of graduate adviser.
Individual projects involving library or laboratory research in any area of psychological investigation or interest. Maximum credit six units applicable on a master's degree.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree. Credit is contingent upon acceptance of the completed thesis by the Department of Psychology.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Public Administration and Urban Studies

In the College of Professional Studies

Public Administration and Urban Studies is a member of the National Association of Schools of Public Affairs and Administration

Faculty

Emeritus: Love
Professors: Bigger, Gilbreath, Kitchen (Chairman)
Associate Professors: Clapp, Gazell, Gitchoff, Hamilton
Assistant Professors: Boostrom, Thompson, Walshok
Lecturers: Corso, Frankum

Offered by Public Administration and Urban Studies

Master of City Planning degree.
Master of Public Administration degree.
Master of Science degree in criminal justice administration.
Major in criminal justice administration with the B.S. degree in applied arts and sciences. (Refer to this section of the catalog on Criminal Justice Administration.)
Major in public administration with the A.B. degree in applied arts and sciences.
Minor in public administration.

Public Administration Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Nine units of social science, a three-unit course in statistics (May be taken in upper division), and Business Administration 180. (15 units.)

Major. A minimum of 36 upper division units to include Public Administration 301, 497 or 498; and additional upper division courses selected with approval of the departmental adviser, including a three-unit course in statistics if not taken in the lower division. Within this program, students may elect to specialize in urban management. Interested students should seek guidance from the director.

Public Administration Minor

The minor in public administration consists of a minimum of 15 units, to include either a course in statistics or Business Administration 180, Public Administration 301 and three other upper division public administration courses selected with the guidance of an adviser in public administration.

Courses in the minor may not be counted toward the major or general education.

Certificate in Public Administration

This certificate is designed primarily for persons who hold administrative or managerial positions or for those who seek to prepare for such responsibilities. Previous academic experience is not a prerequisite; nor need the program be accompanied by work toward a degree. Candidacy will be established by the director of the program. The awarding of the certificate requires completion of an approved pattern of eight courses with a minimum grade point average of 2.5 (C+).

For further information, consult the director, Public Administration Certificate Program.

The department's undergraduate courses fall into three main areas:

(1) *Criminal justice.* Most relevant are courses numbered Criminal Justice Administration 301, 310, 320, 321, 530 and 531.

(2) *Public administration.* Most relevant are courses numbered Public Administration 301, 305, 310, 312, 330, 340, 341, 460, 462, 470, 530, 531, 540 and 580.

(3) *Urban studies.* Most relevant are courses numbered Public Administration 320, 510, 512 and 520.

LOWER DIVISION COURSES

200. *(90.)* **The Urban Scene (3)**
Urban society as an environment in which people interact with such public institutions as municipal and county administrations, school districts, and special authorities; community control over institutions within the urban conglomerate; improving urban life styles.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to the Honors Program.

301. *(140.)* **Concepts and Issues in Public Administration (3)**
Theory and practice of governmental administration in differing environments; role of administrators in public policy; issues facing administrators, techniques of administration.

305. *(141.)* **Studies in Public Administration (1-3) I, II**
Offered only in Extension.
Analysis of selected administrative processes and problems of governmental agencies, their legal and political relations to other agencies and to the public. May be repeated with new content with consent of instructor.

310. *(143.)* **Management of Urban Governments (3) I, II**
Problems of local units of government in the urban environment. Organization and function of local agencies. Emphasis on California.

311. *(151.)* **California Law of Municipal Corporations (3) I, II**
Offered only in Extension.
California law governing the nature, regulation and control of the counties, charter cities, sixth class cities, school districts and special districts. The creation, alteration, dissolution, legal actions by and against, powers and duties; rights and liabilities of local governments.

312. *(142.)* **Management of State Governments (3) I, II**
Administrative and constitutional problems of state management in the American federal system. Emphasis on California.

315. *(153.)* **Management of the Federal Government (3) I, II**
Prerequisite: Public Administration 301.
Problems in the administration of the federal government: for example, leadership, specialization, unity of command, oversight.

320. *(160.)* **Principles of Planning (3) I, II**
An introduction to community planning: regional, county, and city. Consideration of the Master Plan, including its purposes, contents, and method of adoption.

330. *(144.)* **Public Personnel Administration (3) I, II**
Analysis of personnel problems. Supervision and management of public employees and public organizations in an age of change.

340. *(145.)* **Administrative Behavior (3) I**
Social, psychological, and behavioral theories of organization; concepts of administrative leadership; organization and the individual; emphasis on governmental organizations.

341. *(152.)* **Administrative Management (3) I, II**
Areas and problems of administrative research; methods of analyzing structures and procedures in organizations; planning and administration of programs; design of forms; job classification and salary surveys; preparation of administrative reports.

415. *(161.)* **Field Studies in Government (3) II, S**
Prerequisite: Public Administration 301.
Study of organization, policies and functions of selected government agencies. Discussion by responsible officers and inspection of work operations and facilities in management, public safety, public works and utilities, and other major governmental operations.

441. Mathematical Notation in Public Administration (3) I, II
Prerequisite: Public Administration 301.
Mathematics and mathematical notation for analysis of public administration systems. Use of public administration literature to define and illustrate utilization of mathematical forms and expressions.

460. *(147.)* **Administration and Public Policy Development (3) I, II**
Process of formulating public policy with emphasis on the role of public agencies.

462. *(135.)* **Selected Topics in Public Affairs (3)**
Selected topics in the administration of public policy and problems of public administrative organization.

470. *(136.)* **Administrative Law (3) II**
The law of public office and public officers, powers of administrative authorities, scope and limits of administrative powers, remedies against administrative action.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

497. *(197.)* **Investigation and Report (3) I, II**
Analysis of special topics. Admission by permission of instructor.

498. *(198.)* **Internship in Public Administration (2-6) I, II**
Prerequisite: Consent of instructor.
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisites: Twelve upper division units in public administration and consent of instructor.

510. *(154.)* **Intergovernmental Relations in the United States (3) II**
Prerequisite: Public Administration 310 or 312 or 315.
Constitution, political and administrative characteristics of American federalism, including regionalism, interstate compacts, and grants-in-aid.

512. *(148.)* **The Metropolitan Area (3) I, II**
Prerequisite: Public Administration 310 or 312.
Problems of government and administration arising from population patterns and physical and social structures of metropolitan areas.

520. *(150.)* **Decision Making in the Urban Community (3) I, II**
Prerequisite: Public Administration 310.
Processes of decision making in the management of urban communities.

530. *(114.)* **Negotiation and Bargaining in the Public Service (3)**
Prerequisite: Public Administration 301.
Specific issues such as strategies, the effects of threat, the physical setting, use of a third-party observer and theories of advocacy. Emphasis on analyzing simulations of the bargaining process and developing effective negotiation skills.

531. *(115.)* **Governmental Employer-Employee Relations (3) I, II**
Prerequisite: Public Administration 330.
Historical development, legal basis and organizational implications of governmental employer-employee relations; emphasis on California local government.

540. *(156.)* **Public Administrative Systems Analysis (3)**
Prerequisites: Public Administration 301 and a statistics course.
Systems and organization analysis; work standards and units; procedures analysis; administrative planning.

550. *(162.)* **Fiscal and Budgetary Policy (3) I, II**
Prerequisite: Public Administration 301.
Policies of fiscal administration and budgeting; political implications of the governmental budget process; revenue, debt, and treasury management; the functions of accounting and financial reporting.

580. *(149.)* **Comparative Public Administration (3) II**
Prerequisite: Public Administration 301.
Administrative organization and process of selected foreign and American governments. Analysis of the cultural basis of administrative systems.

GRADUATE COURSES

600. *(201.)* **Scope of Public Administration (3)**
Prerequisite: Six upper division units in public administration.
The development of public administration as an academic discipline; a systematic evaluation of the rise and operations of large-scale public bureaucracies.

605. *(205A.)* **Empirical Approaches to Public Administration: Qualitative Analysis (3)**
Prerequisite: Public Administration 600.
Examination of basic research approaches, i.e., legal, historical, and small-group, etc.

606. *(205B.)* **Empirical Approaches to Public Administration: Quantitative Analysis (3)**
Prerequisite: Public Administration 600.
Study of techniques for the gathering of data on public administration with reference to survey research and methodology; examination of various data analysis methods.

620. *(250.)* **Management of Urban Governments (3)**
Selected problems in the management of urban governments. Maximum credit six units applicable on a master's degree.

621. *(255.)* **The Metropolitan Area (3)**
Prerequisite: Public Administration 310, 512 or 520.
Selected problems in the government and administration of the world's major metropolitan areas.

630. *(241.)* **Seminar in Public Personnel Administration (3)**
Prerequisite: Public Administration 600.
Analysis of selected problems in personnel administration; special emphasis on organizational development and consultation skills as emerging personnel functions. Maximum credit six units applicable on a master's degree.

640. *(240.)* **Seminar in Public Administration (3)**
Maximum credit six units applicable on a master's degree.

642. *(203.)* **Seminar in Theory of Administrative Organization (3)**
Prerequisite: Public Administration 600.
Organization and management; the executive role, decision making; bureaucracy; authority and power; communication and control and organizational system; tactics and strategies in effective management.

650. *(230.)* **Seminar in Public Financial Management (3)**
Prerequisite: Public Administration 550.
Problems in the administration and budgeting of public revenues.

660. *(260.)* **Administration and Public Policy Development (3)**
Prerequisite: Twelve upper division units in social science.
Social, political and administrative problems involved in governmental program development and change.

662. *(243.)* **Science, Technology and Public Policy (3)**
Prerequisite: Public Administration 600, or equivalent seminar in another department.
The influence of science and technology on governmental policy making; scientists as administrators and advisers; governmental policy making for science and technology; government as a sponsor of research and development.

680. *(249.)* **Seminar in Comparative Administration (3)**
Prerequisite: Public Administration 301.
Selected problems in administration, organization, and processes of foreign and international governments. Maximum credit six units applicable on a master's degree.

791. *(245.)* **Readings in Public Administration (3)**
Prerequisite: Credit or concurrent registration in Public Administration 600.
Selected readings in the literature of public administration.

792. *(291.)* **Problem Analysis (3)**
Analytical treatment of selected problems in Public Administration. Review of methods for investigation and reporting of data. Consideration of problems in preparation of projects or thesis.

796. *(296.)* **Internship in Public Administration (1-6)**
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences. Admission by consent of instructor.

797. *(297.)* **Research in Public Administration (3) Cr/NC**
Prerequisite: Consent of Director, Public Administration and Urban Studies.
Research in one of the areas of public administration.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with the Director and instructor.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

City Planning Courses

GRADUATE COURSES

610. *(CP266A.)* **Seminar in Urban Planning (3)**
Prerequisite: Public Administration 320.
Introductory seminar to the Master of City Planning Program, focusing on the planner's perspective of urban problems and goal formation.

620. *(CP266B.)* **Seminar in Urban Planning Methodologies (3)**
Prerequisite: City Planning 610.
Procedures and analytical techniques in urban planning.

630. *(CP266C.)* **Seminar in Urban Planning Implementation (3)**
Prerequisite: City Planning 620.
Analysis of the content and function of zoning, subdivision regulation, codes, capital budgeting, urban renewal, model cities, and other implementation methods and programs.

640. *(CP266D.)* **Seminar in Urban Planning Theory (3)**
Prerequisite: City Planning 630.
Alternative theories of planning and organization of the planning function. Emphasis on conceptual foundations, relationship to governmental structure, decision making, and ideological and ethical orientations.

650. *(CP260.)* **Seminar in Urban Theory (3)**
Prerequisite: Public Administration 320.
Study of the various empirically and normatively based theories of the city and urbanization process, with emphasis on communication and transaction and institutional approaches.

660. *(CP265.)* **Seminar in Planning Administration (3)**
The administration of the planning function in urban government. Relationships between the planner and public and private agencies, governmental departments and elected officials. Case studies and problems.

670. *(CP262.)* **History of Urban Planning (3)**
History of urban development and of the field of urban planning.

680. *(CP267.)* **Readings in Urban Planning (3)**
Selected topics in urban planning. Maximum credit six units applicable on a master's degree.

690. *(CP297.)* **Research in Urban Planning (3) Cr/NC**
Prerequisite: Consent of Director of City Planning Program.
Research in one of the areas of urban planning. Maximum credit six units applicable on a master's degree.

700. *(CP261.)* **Urban Design and Land Use Planning Studio (6) Cr/NC**
Two lectures and eight hours of laboratory.
Prerequisite: City Planning 620.
Laboratory course concerned with graphic expression, principles of land use planning, land development, and urban design. Project integrating principles.

796. *(CP296.)* **Internship in Urban Planning (3-6)**
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences.

798. *(CP298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff.
To be arranged with Director of City Planning and instructor. Individual study. Maximum credit six units.

Recreation

In the College of Professional Studies

Faculty

Professors: Butler, Hanson
Associate Professor: Peterson (Chairman)
Assistant Professors: Duncan, Hutchinson, Namba
Lecturer: Soulek

Offered by the Department

Major in recreation administration with the A.B. degree in applied arts and sciences.
Minor in recreation.

A cooperative education program is available on a selective basis, whereby a student alternates semesters of study and full-time, paid work experience during the final two years of college. This program normally results in a one-year delay in date of graduation. Students in the program profit from approximately one and one-half years of full-time work experience prior to graduation.

Inquiries and applications should be directed to the Department Chairman.

Recreation Administration Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

The major in recreation administration may be planned with an emphasis in one of the following four areas: (1) Leisure Agency Leadership, (2) Outdoor Recreation, (3) Park and Recreation Management, or (4) Recreation Rehabilitation.

A minor is not required with this major.

Emphasis in Leisure Agency Leadership

Preparation for the major. Music 102; Physical Education 132A, 133A, 133B; Psychology 101; Sociology 101; Recreation 101, 104, 107, 110, 284. (27 units.)

Major. A minimum of 37 upper division units to include Recreation 340, 465 and 484 or 498; Health Science and Safety 330; Industrial Arts 301; Journalism 480; Psychology 330. Nine units selected from Psychology 340, 351, 452; Sociology 513, 514, 525, 557. Eight units selected from Recreation 351; Art 587; Industrial Arts 402, 540; Educational Technology and Librarianship 540; Drama 310; Physical Education 322, 345D, 345E.

Emphasis in Outdoor Recreation

Preparation for the major. Recreation 101, 104, 110; Biology 100, 100L; Botany 100; Economics 120; Geography 101; and six or more units selected from Anthropology 101; Engineering 110; Geology 100, 101; Zoology 150, 160. (28 units.)

Major. A minimum of 36 upper division units to include Recreation 465, 475, 485; Biology 420; Geography 370, 371, 575; Health Science and Safety 330; and 12 units selected from Anthropology 541; Botany 312; Business Administration 350, 351; History 540; Industrial Arts 301; Journalism 480; Psychology 340; Sociology 550; Zoology 314, 350, 510, 515, 516, 517, 518 and 570.

Emphasis in Park and Recreation Management

Preparation for the major. Recreation 101, 104, 107, 110, 284; Psychology 101; Sociology 101. Four units selected from Art 101; Business Administration 290; Music 102; Physical Education 132A, 133A, 133B. (25 units.)

Major. A minimum of 38 upper division units to include Recreation 340, 465, 475 and 484 or 498; Industrial Arts 301; Journalism 480; Public Administration 301, 310. Nine units selected from Psychology 330; Public Administration 320, 330, 341, 550; Sociology 514, 525, 557. Six units selected from Recreation 350, 351, 485; Botany 312; Geography 370, 371, 575.

Emphasis in Recreation Rehabilitation

Preparation for the major. Recreation 101, 104, 107, 110, 284; Psychology 101; Sociology 101; and four units of electives from art, aquatics, business administration, dance, drama or music. (25 units.)

Major. A minimum of 36 upper division units to include Recreation 350, 351, 465 and 484 or 498; Industrial Arts 301; Journalism 480; Psychology 330, 350, 452. Nine units selected from Drama 310, 442; Physical Education 322, 345D, 345E and 345F; Psychology 340, 452; Sociology 536; Elementary Education 596, Special Education 567; Health Science and Safety 510, 561, 573, 574.

Recreation Minor

The minor in recreation consists of a minimum of 19 units to include two lower division units in art, dance, drama, or music; Recreation 101, 107, 110, 465, 484; and Drama 310 or Recreation 340. Recommended: Industrial Arts 301; Physical Education 322, 345D; Psychology 330, Public Administration 330 and Recreation 350.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

101. *(60.)* **Community Recreation (3) I, II**
Scope of community recreation; basic philosophy of leisure time agencies; organizations for youth; program planning; playground practices; basic systems of organizational and policy formation.

104. *(40.)* **Challenges of Leisure (3) I, II**
Study of leisure and its impact on contemporary life; issues affecting recreation in today's urbanized society.

107. *(70.)* **Recreation Leadership (3) I, II**
Two lectures and three hours of laboratory.
Plan and conduct programs in social recreation, recreational dramatics, song leading, handicrafts and low-organized games. Principles of group leadership.

110. *(80.)* **Camp Leadership (3) I, II**
Principles of camp counseling and campcraft skills. Practical sessions aimed at preparing leaders for all aspects of organized youth camping. Required attendance at two week-end outings.

284. *(84.)* **Supervised Field Work (3) I, II Cr/NC**
Prerequisites: Credit or concurrent enrollment in Recreation 107 and 275 hours experience in recreation leadership.
Observation and participation in community recreation leadership. Practical, volunteeer experience in a variety of recreational settings. Minimum of one hour per week in class plus eight hours per week at an agency.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

340. *(140.)* **Conduct of Recreational Sports (2) I, II**
Two lectures plus outside practical experience in the conduct of recreational sports programs.
Organization of competition, community sports programs, administration of intramural athletics, and techniques of officiating.

350. *(150.)* **Recreation in Medical Settings (3) I, II**
Recreation activities to meet the needs of handicapped confined to private, State and Federal treatment centers. Designed for social welfare students, nurses, special education teachers, and medical recreators.

351. *(151.)* **Recreation for Special Groups (3) I, II**
Developing community recreation programs for special groups, such as aging, corrections, mentally ill, physically handicapped, mentally retarded and/or others. Field observations may be required.

448. *(148.)* **Aquatic Administration (3)**
Management of swimming pools, beaches, lakes and marinas; safety factors; legal requirements; health standards; facilities and programming.

449. *(149.)* **Camp Administration (3)**
Prerequisite: Recreation 110.
Operation of resident, day and travel camps. Staff management, health and safety, finances, food services, maintenance, planning and publicity.

465. *(165.)* **Administrative Supervision of Recreation (3) I, II**
Prerequisite: Recreation 101.
Planning, implementing, financing, staffing, supervising and evaluating organized systems of recreational services. Use of social and human resources.

475. *(175.)* **Management of Recreation Areas and Facilities (3) I, II**
Prerequisite: Credit or concurrent registration in Recreation 465.
Role of the recreation administrator in the planning, acquisition, development, financing, staffing and maintaining of recreational lands, waters, and structures. Use of natural and man-made resources in the environment.

484. *(184.)* **Directed Leadership (3) I, II, S Cr/NC**
One lecture and eight hours of supervised activity.
Prerequisite: Recreation 284.
Supervised leadership experience in public and private recreation agencies. Maximum credit six units.

485. *(185.)* **Non-Urban Recreation Resources (3) I, II**
Nature and scope of recreation in nonurban areas. Public demand for recreation and its impact on natural resources. Management, planning, research and operation of regional and national park and recreation areas.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

498. *(198.)* **Internship in Recreation Administration (6-12) I, II, S**
Minimum of 20-40 laboratory hours per week.
Prerequisite: Fifteen units in recreation courses including Recreation 465.
Students will be assigned to various governmental and private agencies conducting recreation programs. Variety of experiences in supervision and administration. An intensive experience jointly supervised by college and agency personnel.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of special study adviser.

GRADUATE COURSES

604. *(204.)* **Problems in Recreation (3) Alternate years**
(Same course as Physical Education 604.)
A survey of current problems facing the recreation profession, a review of literature, discussion of trends and observation of school situations together with the analysis and evaluation of actual problems. Written reports are required.

705. *(205.)* **Park Management (3) Alternate Years**
Prerequisite: Recreation 465.
Fundamentals of general park maintenance. Principles of planning and development. Personnel and budget problems unique to park management. Coordination of activities with other public agencies.

760. *(260.)* **Recreation Administration and Supervision (3) Alternate years**
Prerequisites: Recreation 465 and 484.
Methods, techniques and evaluation systems used by chief administrators, department heads and supervisors in both public and private agencies.

761. *(261.)* **Seminar in Specialized Facilities (3)**
Prerequisite: Recreation 475.
Management methods in planning, developing and operating specialized recreation facilities such as golf courses, zoos and aquaria, botanical gardens and arboreta, beaches and marinas, centers for the handicapped, sports stadia, and others. May be repeated once in a different area of specialization.

Religious Studies

In the College of Arts and Letters

Faculty

Professors: Anderson, Friedman, Jordan (Chairman)
Associate Professor: Khalil
Assistant Professors: Ghazi, Swyhart
Lecturer: Coughlin

Offered by the Department

Major in religious studies with the A.B. degree in liberal arts and sciences.
Minor in religious studies.

Religious Studies Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Religious Studies 100, 200; Philosophy 101, 102. (12 units.)

Major. A minimum of 24 upper division units in religious studies to include either Religious Studies 301 or 305, at least six units from courses listed in Group I below, at least six units from Group II, at least three units from Group III, and Religious Studies 498. Six of the 24 upper division units required for the major may be taken from among those courses other than religious studies courses which are included in Group III below.

Group I: Religious Studies 310, 312, 314, 316, 318, 330, 340, 520, 522.
Group II: Religious Studies 501, 503, 506, 508.
Group III: Religious Studies 350, 351, 363, 365; Anthropology 524; Philosophy 535; Sociology 538.

Religious Studies Minor

The minor in religious studies consists of 15 to 22 units to include at least three lower division units in religious studies, at least three units from Group I below, at least three units from Group II, and at least three units from Group III.

Group I: Religious Studies 310, 312, 314, 316, 318, 330, 340, 520, 522.
Group II: Religious Studies 501, 503, 506, 508.
Group III: Religious Studies 350, 351, 363, 365, Anthropology 524, Philosophy 535, Sociology 538.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

100. *(20.)* **World Religions (3) I, II**
Major figures, attitudes and teachings of world religions.

200. *(50.)* **Problems of Religion (3) I, II**
Problems in the study of religions, based on the study of scripture selected from Eastern and Western religions.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. *(100A.)* **Hebrew Scriptures (3) I, II**
Prerequisite: Three units of religious studies.
The problems of composition and historical significance in the context of religious meanings of the Pentateuch, the Prophets and the Writings.

305. *(100B.)* **The New Testament (3) I, II**
Prerequisite: Three units of religious studies.
The problems of composition and historical significance in the context of religious meanings.

310. *(110.)* **Greek and Latin Fathers (3)**
Prerequisite: Six units of religious studies.
Readings in patristic thought from Ignatius of Antioch through Augustine.

312. *(114.)* **The Eastern Orthodox Tradition (3)**
Prerequisite: Religious Studies 310.
Major doctrines, practices and developments in the Eastern Church from the Patristic period to the present.

314. *(111A.)* **Medieval Western Christianity (3)**
Prerequisite: Religious Studies 310.
Readings in source materials illustrative of the doctrinal and institutional development of the Western Church during the medieval period to early stages of the Reformation.

316. *(111B.)* **The Reformation and Beginnings of Modern Christianity (3)**
Prerequisite: Religious Studies 314.
Readings in source materials illustrative of the doctrinal and institutional development of the Western Church during the Reformation and the Enlightenment.

318. *(192.)* **Recent Christianity (3)**
Prerequisite: Religious Studies 316. Religious Studies 312 is recommended.
Themes in the development of Christian institutions and doctrines in the 19th and 20th centuries.

330. *(115.)* **Judaism (3)**
Prerequisite: Three units of religious studies.
Major trends and teachings from the Talmudic period to the present.

340. *(116.)* **Islam (3)**
Prerequisite: Three units of religious studies.
Major doctrines, practices and developments from the time of Mohammed to the present.

350. *(132.)* **Dynamics of Religious Experience (3)**
Prerequisite: Six units in humanities or social sciences.
Chief data and major approaches in the study of individuals' religious behavior and experiences. Special attention to relevant problems in world religions and philosophical views of man.

351. *(130.)* **Theory and Practice of Worship (3)**
The symbolic structure of devotional performance.

353A-353B. The Human Dimension of Religion and Psychology (3-3)
Prerequisites: Religious Studies 100, 200 or 350. 353A is not prerequisite to 353B.
The meeting of psychology and religion. Semester I: Selected pragmatic and process religious thinkers, psychoanalytic schools of thought, and behavioral psychologists, such as Freud, Dewey, Skinner, Jung, Perls and Whitehead. Semester II: Selected religious thinkers, movements, personality theorists, and humanistic psychologists such as Buber, Laing, Maslow, Iqbal, Yoga, Zen.

360. *(131A.)* **Religion, Music and the Plastic Arts (3)**
The relations between religion, music, painting, sculpture and other visual arts in major cultural traditions.

361. *(131B.)* **Religion, Literature and Drama (3)**
The relations between religion, literature and drama in major cultural traditions.

363. *(135.)* **Religion and Science (3)**
Prerequisite: Religious Studies 100 or 200.
A critical exploration of the relation of science to religious conceptions of human nature and destiny.

365. *(136.)* **Religion and Ethical Problems (3)**
Prerequisite: Religious Studies 301 or 305.
A critical exploration of the modern understanding of scriptural traditions in relation to individual and social ethical concerns.

480. Ways of Spiritual Transformation (3)
Doctrines and practices of metaphysical self-transformation; studies in readings selected from various world religions.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

498. Senior Project (3)
Prerequisites: Twelve upper division units in religious studies with at least three units from Group I, three units from Group II, and three units from Group III. Individual conference and project plus seminar workshop in the comparative study of religious practices, doctrines, themes (such as religious ethics, mysticism), phenomenological studies in religions, etc.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Twelve upper division units in religious studies.

501. *(121A.)* **Religions of India (3)**
Prerequisite: Three units of religious studies.
Phenomenological studies in the major religious traditions of India, especially Hinduism and Buddhism.

503. *(121B.)* **Religions of the Far East (3)**
Prerequisite: Three units of religious studies.
Phenomenological studies in the major religious traditions of east Asia, especially China and Japan.

506. *(126A.)* **Scriptures of India (3)**
Prerequisite: Religious Studies 200, 501 or 503; or six units of philosophy.
The religious and philosophical modes of thought and ways of life in India as reflected in major scriptures; reading and analysis of primary texts in translation.

508. *(126B.)* **Scriptures of Far Eastern Traditions (3)**
Prerequisite: Religious Studies 200, 501 or 503; or six units of philosophy.
The religious and philosophical modes of thought and ways of life in east Asia, especially China and Japan; reading and analysis of primary texts in translation.

518. *(140.)* **The Oracular Tradition (3)**
Prerequisites: Religious Studies 200; and 360, 361, 501, 503, 506 or 508.
Oracular traditions of East and West, with special attention to the *I Ching* and the *Tarot*.

520. *(150.)* **Religious Consciousness in American Society (3)**
Prerequisite: Three units of religious studies.
Critical investigation of the traditions which have helped to shape religious pluralism within American society.

522. *(151.)* **Religion in America (3)**
Prerequisite: Religious Studies 520.
Selected topics in religion in America, such as Deism, transcendentalism, pragmatism, church-state relations, Jewish identity, etc. May be repeated with new content. Maximum credit six units.

580. *(180.)* **A Major Figure (3) I, II**
Prerequisites: Religious Studies 100 or 200, and three upper division units in religious studies.
Life, works and significance of one major figure in a religious tradition. May be repeated with new content. Maximum credit six units.

581. *(181.)* **A Metaphysical Doctrine (3) I, II**
Prerequisites: Philosophy 102, Religious Studies 100 or 200, and three upper division units in religious studies.
Systematic study of a selected theme or problem basic to the teachings of one of the major religious traditions. May be repeated with new content. Maximum credit six units.

Russian

In the College of Arts and Letters

Faculty

Professors: Dukas, Fetzer, Kozlik (Chairman)
Lecturer: Josselson

Offered by the Department of Germanic and Slavic Languages and Literatures

Master of Arts degree in Russian.
Major in Russian with the A.B. degree in liberal arts and sciences.
Minor in Russian.
Teaching major in Russian for the single subject teaching credential in foreign languages.

Russian Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Students majoring in Russian must complete a minor in another field to be approved by the departmental adviser in Russian.

Preparation for the major. Russian 101, 102 (or 105 in lieu of 101 and 102), 203, 204, 210 and 211. (20 units.)

Major. A minimum of 24 upper division units in Russian to include Russian 301A-301B, 311A-311B; and 12 units in period literature excluding Russian 490A-490B, or six units in period literature and six units in Russian linguistics.

Russian Minor

The minor in Russian consists of a minimum of 15 units in Russian to include Russian 204 and six units of upper division courses.

Courses in the minor may not be counted toward the major or general education.

Russian Major

For the Single Subject Teaching Credential in Foreign Languages

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

The requirements for the Russian major for the single subject teaching credential in foreign languages are being revised. For further information consult the department.

Proficiency Examination: Before taking a student teaching assignment in Russian, the candidate for the credential may be required to pass an oral and written proficiency examination in the language, administered by the Department of Germanic and Slavic Languages and Literatures. The candidate must consult with the chairman of the Department of Germanic and Slavic Languages and Literatures concerning this examination.

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Russian may be counted as the equivalent of Russian 101; three years the equivalent of Russian 102; and four years the equivalent of Russian 203. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

Native speakers of Russian will not receive credit for taking lower division courses in Russian except with advance approval from the department.

101. *(1.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, reading in Russian literature, minimum essentials of grammar. Not open to students who have completed three years of high school Russian.

102. *(2.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Prerequisite: Russian 101.
Continuation of Russian 101. Not open to students who have completed four years of high school Russian.

105. Elementary (8) I
Eight lectures and two hours of laboratory.
The elements of Russian; oral emphasis. A one-year course concentrated in one semester. Primarily for credential candidates in Russian.

203. *(3.)* **Intermediate (4) I**
Prerequisite: Russian 102 or 105, or three years of high school Russian.
Practical application of the basic principles of the language. Oral practice, reading in Russian of cultural material.

204. *(4.)* **Intermediate (4) II**
Prerequisite: Russian 203.
Continuation of Russian 203.

208. *(8.)* **Scientific Reading (2)**
Prerequisite: Russian 102 or 105 or three years of high school Russian.
Intensive reading in scientific fields.

210. *(10.)* **Conversation (2) I**
Prerequisite: Russian 102 or 105, or three years of high school Russian.
Practice in the spoken language with emphasis on the articulation of Russian sounds; practical vocabulary; conversation on everyday cultural topics.

211. *(11.)* **Conversation (2) II**
Prerequisite: Russian 203 or 210, or four years of high school Russian.
Continuation of Russian 210.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301A-301B. *(101A-101B.)* **Advanced Grammar and Composition (3-3)**
Prerequisites: Russian 204 and 211.
Advanced grammar and stylistics; intensive writing practice; reports based on outside reading.

311A-311B. *(102A-102B.* **Survey of Russian Literature (3-3)**
Russian literature from its beginnings, with emphasis on the nineteenth and twentieth centuries.

490A-490B. *(144A-144B.)* **Masterpieces of Russian Literature (3-3) I, II**
Selected Russian literary work in English translation. Semester I: The classic Russian authors of the nineteenth century—Pushkin, Gogol, Dostoyevsky, Tolstoy and Chekhov. Semester II: Literature of the Modernist and Soviet periods.

495. *(185.)* **Topics in Russian Literature (3)**
Topics in Russian literature to be selected by instructor. May emphasize an author, period, movement or genre. Intended primarily for the nonspecialist. Does not fulfill language requirement. May be repeated with new content. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

545. *(103.)* **Old Russian Literature (3)**
Masterpieces of Russian literature before 1700.

555A-555B. *(105A-105B.)* **The Russian Short Story, Drama and Poetry of the Nineteenth Century (3-3)**
Development of the Russian short story, drama and poetry of the nineteenth century.

561A-561B. *(110A-110B.)* **The Russian Novel of the Nineteenth Century (3-3)**
Development of the Russian novel of the nineteenth century.

563. *(111.)* **Russian Literature of the Twentieth Century (3)**
Poetry, prose and drama of the twentieth century.

570. Slavic Linguistics (3)
Prerequisite: Russian 204 and 211.
Structural and comparative Slavic linguistics.

580. *(130.)* **Russian Syntax and Stylistics (3)**
Prerequisite: Russian 301A-301B.
The structure of contemporary Russian.

581. *(131.)* **Russian Phonetics and Morphology (3)**
Prerequisite: Russian 204 and 211.
The sounds and forms of contemporary Russian.

GRADUATE COURSES

600. *(290.)* **Research and Criticism (3)**
Prerequisite: Twelve upper division units in Russian.
Purposes and methods of research in Slavic linguistics and in the literatures; theories and practice of literary criticism.

610. *(201.)* **History of the Russian Language (3)**
Prerequisite: Twelve upper division units in Russian.
The historical development of the Russian language.

650A-650B. *(202A-202B.)* **Old Church Slavic (3-3)**
Prerequisite: Twelve upper division units in Russian.
Structure of Old Church Slavic with readings and analysis of medieval Slavic texts.

680. *(203.)* **Seminar in Slavic Linguistics (3)**
Prerequisite: Twelve upper division units in Russian including Russian 570.
Selected topics in historical and comparative Slavic linguistics.

700A-700B. *(204A-204B.)* **The Soviet Novel and Short Story (3-3)**
Prerequisite: Twelve upper division units in Russian.
Intensive study of major writers of Soviet prose fiction.

710. *(205.)* **Russian Poetry from Pushkin to the Present (3)**
Prerequisite: Twelve upper division units in Russian.
The major Russian poets of the nineteenth and twentieth centuries.

750. *(253.)* **Nineteenth Century Russian Literature (3)**
Prerequisite: Twelve upper division units in Russian.
Major developments in the literature of the time.

760. *(255.)* **Seminar: A Major Author or Movement (3)**
Prerequisite: Russian 600.
A major author or movement. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisites: Eighteen upper division units in Russian and consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Social Science

In the College of Arts and Letters

Faculty

Social Science is administered through the Social Science Committee, composed of faculty members from the Departments of Anthropology, Economics, Geography, History, Political Science and Sociology. Mary Jane Moore, Department of Anthropology, is coordinator.

Social Science Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements on page 64 of this catalog.

Preparation for the major. Mathematics 119 or other statistics course offered by a social science department; a six-unit sequence in each of three of the following fields to be selected from the courses indicated: (1) Anthropology 100, 101; (2) Economics 120 and 121, or 103 (for students not using economics as a field of concentration); (3) Geography 101, 102; (4) History 105A-105B, 110A-110B, 115A-115B; (5) Political Science 110, 120, 130; (6) Sociology 101, 110. Social Science 158 may be substituted for one of the three-unit courses except in the area of upper division concentration. Statistics courses taken in a social science department may not be used in fulfillment of that department's six-unit sequence. Two college semesters of one foreign language, preferably Spanish, are recommended for those planning to work in this part of the United States.

Major. A minimum of 30 upper division units to include 15 units in one of the departments listed above; six units in each of two other departments or social science courses; three more units in one of these or a fourth field. Six units may be selected from Mexican-American Studies 302, 303, 304, 305, 306, 320, 376, 390A-390B, 480, 483. Courses covering four fields must be completed. If the requirement for the fourth field is not satisfied by the three upper division units described above, then it may be satisfied by three units of lower division credit.

Emphasis in Africa and the Middle East

The adviser for this emphasis is Dr. David H. Johns, Department of Political Science.

Preparation for the major. History 105A-105B, Humanities 157 and/or 158, and three to six units selected from Anthropology 100, 101; Comparative Literature 220A, 220B, 280A; Economics 120, 121; Geography 101, 102; and Humanities 130, 131. (15 units.) Students should note that a number of the upper division required and recommended courses listed below have lower division prerequisites, but these prerequisites do not constitute requirements *per se* for the completion of the major.

Major. A minimum of 30 upper division units, selected with the consent of the adviser, to include at least 15 units in anthropology, economics, geography, history, political science or religious studies, or a combination of 15 units in art, comparative literature and religious studies. *Required courses:* Anthropology 549 or 574 or 579; Economics 469; Geography 330 or 335; six units from History 573A, 573B, 574, 575A and 575B; and Political Science 563 or 564 or 565. In addition, the following courses are recommended: Anthropology 350, 352, 524, 526, 529; Art 566, 568, 569, 570; Comparative Literature 535; Economics 365, 489; History 505, 539A-539B; Political Science 561, 581; Religious Studies 312, 330, 340.

Foreign Language: Arabic 101, 202, 303 and 304 or Hebrew 101, 102 and 203 or French 101, 102 and 201 or Portuguese 101, 102 and 203. An equivalent level of competency in any other language judged appropriate by the Committee on Africa and the Middle East is acceptable. Competency will be determined by examination.

A minor is not required with the major. Students in this major may wish to consider a minor in Jewish Studies.

Emphasis in Environment

The adviser for this emphasis is Dr. Warren A. Johnson, Department of Geography.

Preparation for the major. Biology 100 and 100L, Chemistry 101A; a six-unit sequence in each of three of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, and (6) sociology. (25 units.) Courses recommended for these sequences are as follows: Anthropology 100 and 101, Economics 120 and 121, Geography 101 and 102, History 105A-105B or 115A-115B, Political Science 110 and 120, Sociology 101 and 110. Additional recommended courses include Chemistry 101B, Geology 100 and 101.

Major. A minimum of 30 upper division units to include 12 units selected from Economics 453 or 458, Geography 370 or 499, Political Science 325 or 523; and 18 units selected from Anthropology 526, 527, 528, 531; Economics 320, 321, 401, 489, 505; Geography 354, 358, 371, 555, 556, 559, 573, 574, 575, 576; History 540; Political Science 321, 338, 520, 521; Sociology 440, 550, 557. Recommended: Biology 351 or 420, and Humanities 357.

Social Science Major

For the Single Subject Teaching Credential

Preparation for the major. Mathematics 119 or other statistics course offered by a social science department; a six-unit sequence in each of three fields to be selected from the following: (1) Anthropology 100, 101; (2) Economics 120 and 121, or 103 (for students not using economics as a field of concentration); (3) Geography 101, 102; (4) History 105A-105B, 110A-110B, 115A-115B; (5) Mexican-American Studies 110A-110B, 115, 120A-120B; (6) Political Science 110, 120, 130; (7) Psychology 101, and 110 or 210; (8) Sociology 101, 110. Social Science 158 may be substituted for one of the three-unit courses except in the area of upper division concentration. Statistics courses taken in a social science department may not be used in fulfillment of that department's six-unit sequence. Two college semesters of one foreign language, preferably Spanish, are recommended for those planning to work in this part of the United States.

Major. A minimum of 30 upper division units to include 15 units in one of the fields listed above; six units in each of two others or social science courses; three more units in one of these or a fourth field.

Courses covering four fields must be completed. If the requirement for the fourth field is not satisfied by the three upper division units described above, then it may be satisfied by three units of lower division credit.

Students concentrating in Mexican-American Studies should select courses from Mexican-American Studies 301, 302, 303, 305, 306, 320, 376, 390A-390B, 480, 483, 486; students concentrating in psychology should select courses from Psychology 320, 321, 322, 330, 340, 342, 347, 350, 351, 452, 453, 454 and 455.

Students with a 15-unit concentration in Mexican-American Studies or psychology must take the remaining 12 lower division units and 15 upper division units in anthropology, economics, geography, history, political science or sociology. All other students may not take more than six units total from among the Mexican-American Studies or psychology courses designated above.

Students majoring in health science who wish a single subject teaching credential in social science should refer to the section on health science and safety.

LOWER DIVISION COURSE

158. Logic of the Social Science (3)

Introduction to the process of evaluation, conceptualization and development of methods common to anthropology, economics, history, geography, political science and sociology. Problems in the use of evidence, forming of hypotheses, implementation of statistics and organization of research through models.

UPPER DIVISION COURSES

498. Senior Seminar (3)

Advanced reading and independent research on selected topic integrating at least two of the social science disciplines. Usually taught by two instructors representing two of the six social science disciplines of anthropology, economics, geography, history, political science and sociology.

580. Topics (6)

Special topics appropriate to an interdisciplinary approach. Reading, observation and evaluation of research material and current scholarship in topic under consideration. Wherever possible taught by team of instructors representing two of six social science disciplines of anthropology, economics, geography, history, political science and sociology. Maximum credit six units. Social Science 580 may be used in fulfillment of major requirements but not in 15-unit area of concentration.

GRADUATE COURSES

601. Interdisciplinary Methods (3)
Introduction to graduate research methods and presentation of findings in the social sciences.

680. Seminar in the Social Sciences (3)
Intensive study and research on a topic in the social sciences.

Social Welfare

In the School of Social Work

Faculty

Professors: Griffin, Kelley (Acting Dean), Pantoja, Pilcher, A., Pilcher, D., Tebor
Associate Professors: Baily, Guidry, Pepper, Perry, Rubin
Assistant Professors: Cohen, Watson
Lecturers: Brewer, Dominguez, Evans, Fontana, Shelton, Weissman

Offered by the School of Social Work

Major in social welfare with the A.B. degree in liberal arts and sciences.
Major in social welfare with the A.B. degree in applied arts and sciences.
Minor in social welfare.

Social Welfare Major

With the A.B. Degree in Liberal Arts and Sciences or in Applied Arts and Sciences

All candidates for a degree in liberal arts and sciences or in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

The primary educational objective of this major is preparation for beginning social work practice. In addition, it serves broad educational purposes based on an understanding of contemporary social welfare programs and prepares for professional social work education at the graduate level. The major prepares for immediate employment in those social work positions which do not require professional social work education on a graduate level.

Preparation for the major. Anthropology 101; six units selected from economics; Political Science 110 and 120; Sociology 101; Psychology 101; Social Welfare 110 and 120. (27 units.) Recommended: Biology 100 and 100L.

Major (Undergraduate): A minimum of 39 upper division units, in a prescribed pattern to include Social Welfare 360A-360B, 370A-370B, 381, 482A-482B, 483A-483B, 489A-489B, 490A-490B, Sociology 440 or Psychology 340.

Recommended: Sociology 422, Psychology 330, Biology 462 and 462L and courses from anthropology, literature, history, philosophy, political science, economics, psychology and sociology. Students should consult with their adviser in social welfare for selection and arrangement of courses.

Social Welfare Minor

The minor in social welfare consists of a minimum of 15 units in social welfare, nine units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

110. Human Societies and Social Problems (3) I, II
Perspectives on problems of human societies and their relation to contemporary social problems and issues. Emphasis on distributive problems and forms of stratification. Not open to students with credit in Sociology 110 or Mexican-American Studies 110.

120. *(80.)* Explorations in Human Services (3) I, II
Two lectures and three hours of field work.
Orientation to the field of social welfare. Readings, class discussions and participation in social welfare activities on campus and in the community. Work as a volunteer in the agency is required in a variety of field settings. Scheduling is flexible.

130. *(30.)* Contemporary Courtship and Marriage (3) I, II
Developing understanding and ability to evaluate various concepts, attitudes and value systems as they relate to contemporary courtship, marital and family relationships. Assist students in coping with interpersonal relationships. Not open to students with credit in Family Studies and Consumer Sciences 135 or other lower division course in courtship and marriage or marriage and the family.

299. *(99.)* **Experimental Topics (2-4) Cr/NC**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.
May be repeated with new content. Maximum credit six units.

360A. *(100A.)* **Perspectives on Human Behavior (3) I, II**
Prerequisites: Psychology 101 and Sociology 101.
The nature of theories about human behavior and human societies and the utility and consequences of approaching human phenomena with various theoretical orientations and assumptions, for application to social work practice.

360B. *(100B.)* **Perspectives on Deviant Behavior (3) I, II**
Prerequisite: Social Welfare 360A.
Theoretical perspectives of deviancy, alienation, social problems and the institutionalization of impaired status in a cultural and subcultural context for application to social work practice.

370A. *(180A.)* **Social Policies and Social Issues (3) I, II**
Prerequisites: Social Welfare 110 or Sociology 110 or Mexican-American Studies 110; Social Welfare 120.
Major social forces and institutions as they relate to and determine social policy emphasizing social welfare services in an industrialized society.

370B. *(180B.)* **Social Provision and Program Evaluation (3) I, II**
Prerequisite: Social Welfare 370A.
Issues and dilemmas related to the provision of social services, and analysis of social programs. Evaluating effectiveness and efficiency of social service programs and social work services.

381. *(181.)* **Field Observation (2) I, II**
Prerequisites: Social Welfare 110 or Sociology 110 or Mexican-American Studies 110; Social Welfare 120.
Field observation assignments in the social welfare area.

482A-482B. *(182A-182B.)* **Social Work Practice (3-3) I, II**
Prerequisites: Social Welfare 360B, 370B, 381 and a 3.00 Grade Point Average in all junior level social welfare courses required in the major; concurrent registration in Social Welfare 483A and 489A for 482A; concurrent registration in Social Welfare 483B and 489B for 482B.
The professional base, principles and interventive techniques of social work practice with individuals, families, groups and communities.

483A-483B. *(183A-183B.)* **Integrating Seminar (2-2) I, II**
Prerequisites: Social Welfare 360B and 370B and a 3.00 Grade Point Average in all junior level social welfare courses required in the major; concurrent registration in Social Welfare 482A and 489A for 483A; concurrent registration in Social Welfare 482B and 489B for 483B.
The integration of social work theory, principles and practice techniques.

489A-489B. *(189A-189B.)* **Field Experience in Social Welfare (4-6, 4-6) I, II**
Prerequisites: Social Welfare 360B and 370B and a 3.00 Grade Point Average in all junior level courses required in the social welfare major; concurrent registration in Social Welfare 482A and 483A for 489A; concurrent registration in Social Welfare 482B and 483B for 489B.
A minimum of ten hours per week of laboratory field assignments in selected social welfare activities. Students are encouraged to take up to sixteen hours per week.

490A-490B. *(187.)* **Methods of Social Work Research (2-2) I, II**
Prerequisite: Social Welfare 489A.
Definition and purpose of research in social welfare and social work. Formulation of research problems, selecting a design and methodology; techniques of collecting, organizing, interpreting and analyzing data.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

497. *(197.)* **Investigation and Report (3) I, II**
Prerequisite: Consent of instructor.
Analysis of special topics in social welfare.

499. *(199.)* **Special Study (1-3) I, II Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

Social Work

In the School of Social Work

The graduate program of the School of Social Work is accredited by the Commission on Accreditation of the Council on Social Work Education.

Faculty

Emeritus: Witte

Professors: Griffin, Haworth, Horowitz, Ishikawa, Kahn, Kelley (Acting Dean), Kukkonen, Lee, Maxwell, Morgan, Ontell, Pilcher, A., Pilcher, D., Reichert, Stanford, Stumpf, Tebor

Associate Professors: Anderson, Baily, Clary, Guidry, Herman, Pantoja, Pepper, Perry, Rubin, Sardinas, Valle

Assistant Professors: Ajemian, Cohen, Raymer, Siman, Watson, Weissman, A.,

Lecturers: Benjamin, Brewer, Brooks, Childers, Fontana, Gasca, Kastelic, LeRoy, Logan, Ngubo, Norton, Shelton, Stanger, Sucato, Treske, Weissman, E.

Appointments Under Grants from Outside Funds

Lecturers: Hudson, Kenney, Lockery, Shenko

Offered by the School of Social Work

Master of Social Work (see Graduate Bulletin).

Master of Science in Social Work (see Graduate Bulletin).

GRADUATE COURSES

Prerequisite for enrollment in all graduate courses: admission to the School of Social Work.

600A. *(200.)* **Social Welfare Policy and Services I (3)**

Social welfare as a societal institution; philosophical, historical and comparative analysis of the welfare functions, issues and problems, with special focus on personal and social deprivation.

600B. *(201.)* **Social Welfare Policy and Services II (3)**

Prerequisite: Social Work 600A.

Conceptional analysis of social welfare programs related to income maintenance and other social service areas, including social insurance, child welfare and community development.

620A. *(220.)* **Human Behavior and Social Environment I (3)**

Theoretical perspectives on man in the changing world. View based on biological, psychological, interpersonal and social structure assumptions over the life-cycle, for application to social work practice.

620B. *(221.)* **Human Behavior and Social Environment II (3)**

Prerequisite: Social Work 620A.

Examination of deviant behavior from relative frameworks of a medical model and a career process model. Selected social problem areas are used as illustrations.

630A. *(230.)* **Social Work Practice I (3)**

Prerequisite: Concurrent registration in Social Work 650A.

Principles of social work practice with individuals, families, groups and communities. Attention is given to social work objectives, principles and skills.

630B. *(231.)* **Social Work Practice II (3)**

Prerequisites: Social Work 630A and concurrent registration in Social Work 650B.

Principles of social work practice with individuals, families, groups and communities with emphasis on refinement of skills of social study and social problem analysis. Attention to interactional and small group processes in determination of goals and change.

650A. *(250.)* **Field Instruction I (4)**

Prerequisite: Concurrent registration in Social Work 630A.

Field instruction in a public or voluntary social work setting. Experiences are drawn upon in relation to classroom learning to emphasize application of social work objectives, principles and skills to services to individuals, families, groups and communities.

650B. *(251.)* **Field Instruction II (4)**

Prerequisites: Social Work 650A completed in the preceding semester and concurrent registration in Social Work 630B.

Continuation of field instruction initiated in Social Work 650A. Opportunities are provided for the application of social study and social problem analysis to experience with interactional and small group processes.

690A-690B. *(290A-290B.)* **Social Work Research Methods and Analysis (2-2)**

Definition and purpose of research in social work. Techniques and methods used in collecting, organizing and interpreting social welfare and related data; steps involved in planning a research project and selecting a research design.

700A. *(202.)* **Social Welfare Policy and Services III (3)**

Prerequisite: Social Work 600B.

Problems and issues in emerging social welfare programs, including analysis of the structure of social services and of social work as a profession.

700B. *(203.)* **Social Welfare Policy and Services IV (3)**

Prerequisite: Social Work 600B.

Analysis of existing or projected social welfare programs or service.

710. *(291.)* **Seminar on Selected Topics (3)**

Selected topics such as alcoholism, drug abuse, human sexuality, legislative processes and violence against children and implications to social work. Topics announced in class schedule. Maximum credit nine units applicable on a master's degree.

720. *(222.)* **Human Behavior and Social Environment III (3)**

Prerequisite: Social Work 620B.

Theories of natural and induced change in human behavior which have utility for social work practice.

730A. *(232.)* **Social Work Practice III (3)**

Prerequisites: Social Work 630B and concurrent registration in Social Work 750A.

Social work intervention with families and groups toward personal, social, organizational and institutional change and problem solving. Emphasis on social, ethnic and economic interaction contexts.

730B. *(233.)* **Social Work Practice IV (3)**

Prerequisites: Social Work 730A, consent of instructor and concurrent requirement in field work.

Designed to offer opportunity for integration and application of the student's knowledge of an array of approaches to practice. Specific content relevant to selected models of social problems experienced by individuals, families and groups in interaction with their social environment.

734A. *(234.)* **Social Work Practice With Organizations and Communities (3)**

Prerequisites: Completion of first year courses and concurrent practicum.

Examines community problems, power and strategies in social planning and development under auspices of interorganizational systems, bureaucracies and informal associations. Applications of concepts and principles of planning social change in situational analysis, community organization, program development and evaluation.

734B. *(235.)* **Social Planning in Social Work (3)**

Prerequisites: Social Work 734A, consent of instructor and concurrent requirement in field.

Examines structures and processes of decision making in development of community and human services; relationships of social, physical and economic plannings in old cities and new towns; designing human care system; and supervision, consultation and administration in social planning.

740A-740B. *(205.)* **Management Knowledge and Technique (3-3)**

Prerequisite: Social Work 600B.

Examines problems and roles of administrators in social agencies; administrative and organizational theories; executive functions of planning, budgeting, directing, reporting and staffing; relationships and communications in ordinate, superordinate and subordinate levels.

741A-741B. Facilitative and Educational Roles in Social Agencies (3-3)

Prerequisites: Completion of first year courses.

Examines facilitative and educational roles of practitioner in social agencies emphasizing supervision, consultation, staff development and evaluative processes. Theories in adult learning and educational assessment to enhance performance of staff including paraprofessional, volunteers and consumers will be explored.

750A. *(252.)* **Field Instruction III: Individuals, Families and Groups (4-5)**

Prerequisites: Social Work 650B and concurrent registration in Social Work 730A.

Field instruction in a social work setting providing a concentration on social work practice aimed at achieving change in or on behalf of individuals, families and groups. Practice under educational direction at an advanced level.

750B. *(253.)* **Field Instruction IV: Individuals, Families and Groups (4-5)**
Prerequisites: Social Work 750A completed in the preceding semester and concurrent registration in Social Work 730B.
Continuation of Field Instruction III at an advanced level. Emphasis is placed on the use of diverse problem-solving strategies and resources in social work.

754A. *(255.)* **Field Instruction V: Organizations and Communities (4-5)**
Prerequisites: Social Work 650B and concurrent registration in Social Work 734A.
Field instruction in a social work setting providing a concentration on social work practice aimed at achieving changes in social policies, organizations and communities. Practice under educational direction at an advanced level.

754B. *(256.)* **Field Instruction VI: Organizations and Communities (4-5)**
Prerequisites: Social Work 754A completed in the preceding semester and concurrent registration in Social Work 734B.
Continuation of Field Instruction V at an advanced level. Emphasis is placed on the use of diverse social work strategies and resources in social planning or community development.

755. *(270.)* **Seminar: Social Work Analysis (1-4)**
Discussion of student experience in field instruction and its broader implications. Maximum credit four units applicable on a master's degree.

756A. *(236.)* **Social Work Practice VII (4)**
Prerequisite: Concurrent registration in Social Work 730A or 734A.
Laboratory field instruction enabling the student to integrate social work theory, knowledge and concepts in developing interventive skills with individuals, families, groups, organizations and communities. Enrollment limited to students admitted to the M.S.S.W. program.

756B. *(237.)* **Social Work Practice VIII (4)**
Prerequisites: Social Work 756A and concurrent registration in Social Work 730B or 734B.
Continuation of Social Work Practice VII with emphasis on refinements of skills in intervention with individuals, families, groups, organizations and communities.

758. *(238-S.)* **Social Work Practice IX (6-8) S**
Emphasis on the further development of skills with individuals, families, groups, organizations and communities. Enrollment limited to students admitted to M.S.S.W. program.

760. Social Work and Racial-Ethnic Groups (3)
Prerequisite: Completion of first year courses.
Nature of institutional racism and its effect on social provision and social policy. Examines overt and covert forms of racism in but not limited to areas such as housing, schools, corrections, organized labor, job training for the poor, and social statistical reporting for implications to social work practice.

761. Seminar on Racial-Ethnic Groups (3)
Prerequisite: Completion of first year courses.
Exploration of social survival techniques of ethnic minority groups, their similarities and differences and implications to development of social service delivery systems and practice.

765. Social Work and Aging (3)
Prerequisites: Completion of first year courses and concurrent practicum in aging.
Exploration of social work principles and techniques related to the impact of the aged population on our society. Focus on becoming sensitive to the implied and actual changes taking place in service delivery systems, living arrangements, etc., which affect social work practice.

766. Seminar on Aging (3)
Prerequisite: Completion of first year courses.
In-depth survey and analysis of selected areas in aging which depict the contemporary trends in the social aspects of aging. Special attention given to developing social policy and the relationship between social work practice modifications in the field of aging.

770. Social Work and Health (3)
Prerequisites: Completion of first year courses and concurrent practicum in health.
Examination of changing health definitions and health service delivery systems; their effects on consumers and providers of social services and implications for social work practice.

771. Seminar on Health (3)
Prerequisite: Completion of first year courses.
Examination of selected health-related topics: social and emotional aspects of health and disability; continuity of health care; relationship of social work to other health professions.

775. Social Work and Mental Health (3)
Prerequisites: Completion of first year course and concurrent practicum in mental health.
Analysis of selected areas of mental health service that critically examines social work responsibilities and roles in addressing a continuum of mental health needs in a changing society.

776. Seminar on Mental Health (3)
Prerequisite: Completion of first year courses.
Overview of mental health needs, problems and services with emphasis on philosophical, social, legal and therapeutic concerns, particularly as these relate to vulnerable population groups.

780. *(291.)* **Social Work and Selected Populations-at-Risk (3)**
Social work practice with selected populations-at-risk such as one-parent families, children in institutions, ethnic minority immigrants, Native-Americans in the urban scene, and foreign-born brides of U.S. servicemen. Topics to be announced in class schedule. Maximum credit six units applicable on a master's degree.

781. *(291.)* **Seminar on Selected Populations-at-Risk (3)**
Knowledge about and analysis of selected populations-at-risk, social work responsibilities in emerging service demands by diverse and needful, high risk segments of the population in a complex society, and implications for social work practice. Population-at-risk for study to be announced in class schedule. Maximum credit six units applicable on a master's degree.

797A-797B. *(297A-297B.)* **Research (3-3) Cr/NC**
Prerequisite: Social Work 690A-690B.
Research in the field of social work and completion of a research project. Individual or group project.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with Dean and instructor.
Individual study. Maximum credit six units.

Sociology

In the College of Arts and Letters

Faculty

Emeritus: Barnhart, Klapp

Professors: Daniels, DeLora, J.R., El-Assal, Gillette (Chairman), Johnson, Milne, Mouratides, Somerville, Sorensen, Wendling, Winslow

Associate Professors: Buck, Chandler, Cottrell, DeLora, J.S., Emerick, Kennedy, Scheck, Schulze, Werner

Assistant Professors: Halpern, Hohm, Ima, Kirkpatrick, Kolodij, Preston, Stephenson

Lecturers: Bloomberg, Hartman, Kirby, Labovitz, Thompson, Weeks

Offered by the Department

Master of Arts degree in sociology.

Major in sociology with the A.B. degree in liberal arts and sciences.

Minor in sociology.

Sociology Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Students majoring in sociology must complete a minor in another field.

Preparation for the major. Sociology 101, 110 and 160. (9 units.)

Major. A minimum of 24 upper division units in sociology to include three units in theory (400, 401 or 403); three units in research methods (460, 464 or 465); three units in Social Psychology 440; and three units in Social Organization (404, 422, 424 or 432).

Sociology Minor

The minor in sociology consists of 15 units in sociology, nine of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

101. *(1.)* **Introductory Sociology (3)**

This course is prerequisite to all upper division courses in sociology.

Development and use of the concepts applied to sociological analysis; the effects of isolation and social contacts, interaction, processes, forces, controls, collective behavior and social progress.

105. Sociological Laboratory I (1)

Three hours of laboratory.

Prerequisite: Must be taken in conjunction with a three-unit lower division course.

Application of experimental, quantitative and qualitative methods to sociological problems and the use of experimental, social simulation teaching techniques.

110. *(10.)* **Contemporary Social Problems (3)**

Prerequisite: Sociology 101.

Modern social problems recognizing the sociological factors involved. Emphasis on the scientific method of approach. An evaluation of various causes and solutions of problems. Not open to students with credit in Sociology 510 or Mexican-American Studies 115.

160. *(60.)* **Elementary Social Statistics (3)**

Prerequisites: Sociology 101 and Mathematics 103.

Analysis and presentation of elementary materials in the fields of sociology and social work. Tabular and graphic presentation, analysis of frequency distribution, trends, simple correlation, sampling and reliability techniques. Not open to students with credit or concurrent registration in another course in statistics.

164. *(64.)* **Sociological Analysis (3)**

Prerequisite: Sociology 101.

Development and use of fundamental procedures of sociological investigation.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3)**

Refer to Honors Program.

400. *(100.)* **History of Social Thought (3)**

Prerequisite: Sociology 101.

Development of social thought prior to the appearance of sociology as a distinct scientific discipline. Major emphasis on European contributions.

401. *(101.)* **Classical Sociological Theory (3)**

Prerequisite: Sociology 101.

Theories of the major early European and American sociologists, including Marx, Weber, Durkheim, Pareto, Cooley, Mead and others.

403. *(103.)* **Contemporary Sociology Theory (3)**

Prerequisite: Sociology 101.

Types and trends of contemporary sociological theory. Selected theoretical works.

404. *(104.)* **Social Change (3)**

Prerequisite: Sociology 101.

Social change at the interpersonal, institutional and societal levels in a comparative perspective. Detailed analysis of modernization.

405. Sociological Laboratory II (1)

Three hours of laboratory.

Prerequisite: Must be taken in conjunction with a three-unit upper division course.

The application of experimental, quantitative and qualitative methods to sociological problems and/or the use of experimental, social simulation teaching techniques.

422. *(122.)* **Social Organization (3)**

Prerequisite: Sociology 101.

Major forms of social organization such as institutions, associations, bureaucracy, primary groups and stratification. Study of underlying processes of development, social control and organizational change.

424. *(124.)* **Social Stratification (3)**

Prerequisite: Sociology 101.

Theories of stratification in society; studies in the American stratification system and its implications in the other areas of life. Introduction to the study of mobility. Comparison with other selected societies.

432. *(132.)* **Formal Organization (3)**

Prerequisite: Sociology 101.

The structure and dynamics of various types of complex formal organization. Their development, internal structure and processes, external relations and function in contemporary society.

440. *(140.)* **Social-Psychology: Sociological Approaches (3)**

Prerequisite: Sociology 101.

Survey of the major theoretical frameworks, problems and findings of sociology and social-psychology concerning group behavior and group membership, the socialization of the individual, and processes of social interaction. (Not open to students with credit in Psychology 340.)

460. *(160.)* **Quantitative Methods in Social Research (3)**

Prerequisite: Sociology 160.

The use of parametric and nonparametric techniques in the analysis of social research data; including analysis of variance; covariance; multiple and partial correlational techniques.

464. *(164.)* **Survey and Experimental Research Methods (3)**

Prerequisite: Sociology 160.

Examination of the research process from research design through data processing, analysis and interpretation. Emphasis on quantitative research techniques including sample surveys, questionnaire construction, scaling techniques and experimental designs.

465. Qualitative Research Methods (3)
Prerequisite: Sociology 160.
Examination of field research methods including interviewing, observation, participant observation and case studies. Problems in research design, gaining and maintaining rapport, and analysis and interpretation of data.

496. Experimental Topics (2-4)
Prerequisite: Consent of the instructor.
Refer to the catalog statement on experimental topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

499. *(199.)* Special Study (1-3)
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

506. Modernization of Traditional Societies (3)
Prerequisite: Sociology 101.
Examines theories of social change relative to industrialization and urbanization of preindustrial societies. Comparative study of institutional and social-psychological consequences of industrialization, utilizing historical and contemporary study of macrosocial change.

510. *(110.)* Sociology of Deviance (3)
Prerequisite: Sociology 101.
Survey of many alleged abnormal phenomena in society as seen in society today in various forms of individual, family, community and world disorganization, such as crime, prostitution, extreme alcoholism, migratory workers, divorce, revolution, war, etc.

511. *(111.)* Current Topics in Sociology (3)
Prerequisite: Sociology 101.
Selected specialized, controversial or currently relevant topics in sociology. Maximum opportunity provided for student initiative in determining course content and procedures. May be repeated with new content. Maximum credit six units.

512. *(112.)* Sociology of Conflict (3)
Prerequisite: Sociology 101.
Conflict as a social process: background, forms and consequences at the interpersonal, intergroup, class and international levels from a sociological frame of reference. Major theories of social conflict.

513. *(113.)* Criminology and Penology (3)
Prerequisite: Sociology 101.
The extent and characteristics of crime; consideration of physical, mental, economic and sociological causes of crime; study of methods of penal discipline, prison labor, parole and probation; programs of prevention.

514. *(114.)* Juvenile Delinquency (3)
Prerequisite: Sociology 101.
The nature and extent of delinquency; the causative factors involved; methods of control and prevention, with special attention to the protective and remedial measures offered by the school, home, juvenile court, correctional institutions and camps, probation and parole, and recreational agencies.

519. Topics in Comparative Societies (3)
Prerequisite: Sociology 101.
Analysis of contemporary social structure, the process of modernization and current social problems in selected areas of the world. May be repeated with new content. Maximum credit six units.

520. *(120.)* Industrial Sociology (3)
Prerequisite: Sociology 101.
Group relationships within economic organizations. Problems of leadership, morale and conflict. Some attention to the sociology of occupations and professions.

521. *(121.)* Sociology of Occupations and Professions (3)
Prerequisite: Sociology 101.
Division of labor, status ranking of occupations, authority structures, occupational and professional organization, occupational socialization, problems of identity and role conflict.

523. *(123.)* The Sociology of Mental Illness (3)
Prerequisite: Sociology 101.
The social definition, ecology and control of mental illness across various societies. The implications of social differentiation, stratification and urbanization upon the incidence, prevalence and control of mental illness and the use of these empirical problems for sociological research.

525. *(125.)* Minority Group Relations (3)
Prerequisite: Sociology 101.
Theories of ethnic prejudice. Analysis of racial and ethnic discrimination. Analytical inquiry into sources of friction and causes of conflict between majority and minority groups.

526. *(126.)* Medical Sociology (3)
Prerequisite: Sociology 101.
A sociological analysis of health and medical institutions. Cultural factors in conceptions of disease, health and healing. Social structure of medical facilities and the role of personnel in such institutions. Relation of illness to income, housing and other socioeconomic factors. Not open to students with credit in Health Science and Safety 561.

527. Sociology of Aging (3)
Prerequisite: Sociology 101.
Status and roles of men and women in the second half of the life cycle. Ethnic, sex and class variables in aging. Cross-cultural comparisons of occupational, educational, familial, recreational and political opportunities for the aging.

528. Sociology of Death (3)
Prerequisite: Sociology 101.
Examines sociological concepts and theories of the process of dying. Comparative study of death and dying with emphasis on social, psychological and social organization approaches. Consideration of contemporary social-ethical issues surrounding dying in our society.

533. Sex Roles in Contemporary Societies (3)
Prerequisite: Sociology 101.
Male-female relationships in occupational, educational and familial settings viewed historically and cross-culturally. Changing concepts of femininity and masculinity. Images of men and women in literature, in the mass media, and in laws and judicial decisions.

534. Sexuality in Modern Society (3)
Prerequisite: Sociology 101.
Analysis of landmark sex research and pornography in the United States and in selected other societies. Changing norms in premarital, marital and extramarital attitudes and behaviors. Implications for the individual, family and society.

535. *(135.)* The American Family and Its Alternatives (3)
Prerequisite: Sociology 101.
Analysis of contemporary dating, engagement, marriage, family, and other intimate relationships in the United States as they are affected by changes in the culture.

536. *(136.)* The Family in Cross-Cultural Perspective (3)
Prerequisite: Sociology 101. Recommended: Sociology 535.
Comparative study of selected family systems in the past and present. Family and parafamily forms in intentional communities of the 19th century compared with contemporary communal experiments. Ethnic and class differences in family organization. (Not open to students with credit in Family Studies and Consumer Sciences 536.)

537. *(137.)* Political Sociology (3)
Prerequisite: Sociology 422.
Social organization of political processes. Power and authority, social class, primary groups, collective behavior, social change and other sociological factors considered in their relationships to political processes.

538. *(138.)* Sociology of Religion (3)
Prerequisite: Sociology 101. Recommended: Sociology 401 and 546.
The role of religion in society as cult and institution, including primitive religion, modern sects and churches, ritual, secularization and religious movements.

539. *(139.)* **Sociology of Education (3)**
Prerequisite: Sociology 101.
Social organization of education, teaching as a profession. Class, ethnic and other social factors affecting the educational process. Educational institutions and the community.

541. *(141.)* **Advanced Social Psychology: Sociological Approaches (3)**
Prerequisite: Sociology 440 or Psychology 340 Recommended for majors only.
Sociological theories and approaches to the study of group behavior and membership, socialization of the individual, and processes of social interaction.

545. *(145.)* **Sociology of Mass Communication (3)**
Prerequisite: Sociology 101. Recommended: Sociology 440 and 546.
Sociological analysis of the processes and effects of mass communications in different social systems, their functions and dysfunctions and their relationships to other social institutions.

546. *(146.)* **Collective Behavior (3)**
Prerequisite: Sociology 440.
The basic processes of social behavior in masses and groups, including crowd behavior, fads, fashions, crazes, panics, rumors; sects and cults; heroes and scapegoats; social movements; effects of mass communication.

547. *(147.)* **Sociology of Social Movements (3)**
Prerequisite: Sociology 101. Recommended: Sociology 422 and 545.
Revolutionary and reform movements in relationship to the larger society. Conditions leading to development of social movements, emergence of leadership, ideologies, strategies, recruitment of members and social consequences, case studies in depth.

548. *(148.)* **Small Groups (3)**
Prerequisite: Sociology 440.
Processes, morale and organization of small groups; their role in society and institutions such as industry, military, recreation and education; recent studies and methods of research.

550. *(150.)* **Population Problems (3)**
Prerequisite: Sociology 101.
Study of population variables including births, deaths and migration. Comparative analysis of theories, methods and techniques used in the study of population and ecological problems, processes and relationships.

557. *(157.)* **Urban Sociology (3)**
Prerequisite: Sociology 101.
The structure and function of the modern city; types of neighborhoods; forms of recreation; social forces in a metropolitan area; types of urban personalities and groups; rural-urban conflicts of culture. Practical field studies required.

563. The Logic of Sociological Inquiry (3)
Prerequisite: Sociology 160.
Systematic overview and analysis of explanation in the social sciences and history with emphasis on sociology. Problems of applying the natural scientific method to the social sciences, interpretation of meaning and objectivity.

597. *(197.)* **Investigation and Report (3) I, II**
Prerequisite: Fifteen units in sociology and consent of instructor.
Analysis of special topics in sociology. Maximum credit six units.

GRADUATE COURSES

601. Advanced Social Theory: Core Course (3)
Prerequisites: Unclassified graduate standing, Sociology 401.
Systematic treatment of the original European and American classic sociological writing and an overview of the major developments in contemporary social theory.

602. Advanced Research Methods: Core Course (3)
Prerequisites: Unclassified graduate standing, Sociology 464.
Problems and techniques in social research with stress on philosophy of science, theory building, research design, measurement, and data analysis including fundamental critiques and alternatives.

603. Advanced Social Psychology (Sociological Approaches): Core Course (3)
Prerequisite: Unclassified graduate standing, Sociology 440.
Investigation and analysis of original works in classical social psychological theory focusing on implications for research on topics such as socialization, motivation, perception, role, self, interaction and symbolic processes.

604. Social Organization: Core Course (3)
Prerequisites: Unclassified graduate standing, Sociology 422.
Concepts, theories and findings concerning structure and change in society, institutions, formal organizations, the community and small groups. Special attention given key concepts of culture, stratification, division of labor, power, bureaucracy, role relationships and interaction.

700. *(200.)* **Seminar in Social Theory (3)**
Prerequisites: Sociology 401 and 464.
Classics of sociology, American social theory, theory construction, application of theory to research, theoretical models, sociology of knowledge, special topics. See class schedule for specific content. Maximum credit six units applicable on a master's degree.

705. *(205.)* **Directed Readings in Social Theory (3)**
Prerequisites: Sociology 401 and 464.
Selected readings providing comprehensive coverage of the field of social theory.

710. *(210.)* **Seminar in Social Disorganization (3)**
Prerequisites: Sociology 464 and 510.
Theories of social disorganization, anomie and alienation, deviance, crime, delinquency, personal pathology, institutional malfunction, social conflict, disaster, special topics. See class schedule for specific content. Maximum credit six units applicable on a master's degree.

715. *(215.)* **Directed Readings in Social Disorganization (3)**
Prerequisites: Sociology 464 and 510.
Selected readings providing comprehensive coverage of the field of social disorganization.

720. *(220.)* **Seminar in Social Organization (3)**
Prerequisites: Sociology 422 and 464.
Social groups, formal organization, organizational change, authority and leadership, special topics. See class schedule for specific content. Maximum credit six units applicable on a master's degree.

725. *(225.)* **Directed Readings in Social Organization (3)**
Prerequisites: Sociology 422 and 464.
Selected readings providing comprehensive coverage of the field of social organization.

730. *(230.)* **Seminar in Social Institutions (3)**
Prerequisites: Sociology 422 and 464.
The family and kinship, political organization, economic organization, religion, education, industry, occupations and professions, social stratification, special topics. See class schedule for specific content. Maximum credit six units applicable on a master's degree.

735. *(235.)* **Directed Readings in Social Institutions (3)**
Prerequisites: Sociology 422 and 464.
Selected readings providing comprehensive coverage of the field of social institutions.

740. *(240.)* **Seminar in Social Psychology: Sociological Approaches (3)**
Prerequisites: Sociology 440 and 464.
Socialization, role theory, motivation, perception, self, social context of personality, attitude theory, interaction, language and symbolic process, social types, collective behavior, small groups, special topics. See class schedule for specific content. Maximum credit six units applicable on a master's degree.

745. *(245.)* **Directed Readings in Social Psychology: Sociological Approaches (3)**
Prerequisites: Sociology 440 and 464.
Selected readings providing comprehensive coverage of the field of social psychology.

750. *(250.)* **Seminar in the Community (3)**
Prerequisites: Sociology 464 and 557.
Ecological structure and process; community institutions and structure; community deterioration, planning and renewal; urbanization; suburbia; megalopolis; special topics. See class schedule for specific content. Maximum credit six units applicable on a master's degree.

755. *(255.)* **Directed Readings in the Community (3)**
Prerequisites: Sociology 464 and 557.
Selected readings providing comprehensive coverage of the sociological study of human communities.

760. *(260.)* **Seminar in Research Methods (3)**
Prerequisites: Sociology 401 and 464.
Analysis of methods used in current sociological research, including evaluation of reported findings. Discussion of research designs appropriate to particular types of projects. Evaluation of research in progress by members of the seminar. May be repeated with new content. Maximum credit six units applicable on a master's degree.

765. *(265.)* **Directed Readings in Research Methods (3)**
Prerequisite: Sociology 464.
Selected readings providing comprehensive coverage of sociological research methods.

770. *(270.)* **Seminar in Population and Demography (3)**
Prerequisites: Sociology 464 and 550.
Demographic theories, fertility, mortality, migration, construction and application of demographic indices, demographic prediction, world population trends, special topics. See class schedule for specific content. Maximum credit six units applicable on a master's degree.

775. *(275.)* **Directed Readings in Population and Demography (3)**
Prerequisites: Sociology 464 and 550.
Selected readings providing comprehensive coverage of the fields of population and demography.

797. *(297.)* **Research (3) Cr/NC**
Prerequisite: Sociology 464.
Independent investigation of special topics.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the stduent expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Spanish

In the College of Arts and Letters

Faculty

Emeritus: Brown, Sender
Professors: Baker, Case, Head (Chairman), Lemus, Walsh
Associate Professors: Barrera, Christensen, Jimenez-Vera, Santalo, Segade, Talamantes, Weeter
Assistant Professors: O'Brien, Windsor, Young
Lecturer: Pickslay

Offered by the Department of Spanish and Portuguese Languages and Literatures

Master of Arts degree in Spanish.
Major in Spanish with the A.B. degree in liberal arts and sciences.
Teaching major in Spanish for the single subject teaching credential in foreign languages.
Minor in Spanish.

Spanish Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

Students majoring in Spanish must complete a minor in another field approved by the departmental adviser in Spanish.

Preparation for the major. Spanish 101, 102, 203, 204, 210, and 211. (22 units.)

Major. A minimum of 24 upper division units in Spanish to include Spanish 301, 302, 311A-311B, and 12 units of upper division electives in Spanish, but not to exceed 3 units from Spanish 440, 441, and 442.

Spanish Minor

The minor in Spanish consists of a minimum of 15 units in Spanish, six units of which must be in upper division courses.

Courses in the minor may not be counted toward the major or general education.

Spanish Major

For the Single Subject Teaching Credential in Foreign Languages

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in teacher education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Preparation for the major. Spanish 101, 102, 203, 204, 210 and 211. (22 units.)

Major. A minimum of 30 upper division units to include Spanish 301, 302, 311A-311B, 490, 548; two courses from 440, 441, or 442; and six units of electives from any of the departmental offerings.

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Spanish may be counted as the equivalent of Spanish 101; three years the equivalent of Spanish 102; and four years the equivalent of Spanish 203. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work. Students entering San Diego State University with five or six years of high school Spanish may enroll in Spanish 204; the department recommends, however, that they take Spanish 223.

LOWER DIVISION COURSES

101. *(1.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on Spanish culture and civilization, minimum essentials of grammar. Not open to students who have completed three years of high school Spanish.

102. *(2.)* **Elementary (4) I, II**
Four lectures and one hour of laboratory.
Prerequisite: Spanish 101 or two years of high school Spanish.
Continuation of Spanish 101. Not open to students who have completed four years of high school Spanish.

203. *(3.)* **Intermediate (4) I, II**
Prerequisite: Spanish 102 or three years of high school Spanish.
A practical application of the fundamental principles of grammar. Reading in Spanish of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. Special sections available for the Spanish speaking.

204. *(4.)* **Intermediate (4) I, II**
Prerequisite: Spanish 203 or four years of high school Spanish.
Continuation of Spanish 203. Special sections available for the Spanish speaking.

210. *(10.)* **Conversation and Writing (3)**
Prerequisite: Spanish 102 or three years of high school Spanish.
Emphasis on the spoken language with a modicum of writing practice; practical vocabulary and useful phrases; conversation on assigned social, cultural or literary topics at an intermediate level; all class discussion conducted in Spanish. Not open to students with credit for Spanish 210-Y.

210-Y. Intermediate Conversation and Writing in Mexico (3)
Prerequisite: Spanish 102 or three years of high school Spanish.
Emphasis on the spoken language with a modicum of writing practice; practical vocabulary and useful phrases; conversation on assigned social, cultural or literary topics at an intermediate level; all class discussion conducted in Spanish; course arranged in tour fashion in Mexico during winter interim or pre-summer period. Not open to students with credit for Spanish 210.

211. *(11.)* **Writing and Conversation (3)**
Prerequisite: Spanish 203 and 210 or four years of high school Spanish.
Emphasis on the written language with supporting practice in the spoken language; directed written composition on social, cultural or literary topics with stress on clarity and thoroughness of thought; all class discussion conducted in Spanish.

223. *(23.)* **Introduction to Literature (3)**
Prerequisites: Spanish 204 and 211.
Selected readings from Peninsular and Latin American prose. Oral and written reports and class discussions. Course conducted in Spanish.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

301. *(101A.)* **Advanced Conversation and Writing (3)**
Prerequisite: Spanish 210 and 211, or five years of high school Spanish or near native-level proficiency.
Emphasis on the spoken language with supporting practice in the written language; conversation on assigned social, cultural or literary topics at an advanced level; all class discussion conducted in Spanish. Not open to students with credit for Spanish 310-Y.

301-Y. Advanced Conversation and Writing in Mexico (3)
Prerequisite: Spanish 210 or 210-Y and 211, or five years of high school Spanish or near native-level proficiency.
Emphasis on the spoken language with supporting practice in the written language; conversation on assigned social, cultural or literary topics at an advanced level; all class discussion conducted in Spanish; course arranged in tour fashion in Mexico during winter interim or pre-summer period. Not open to students with credit for Spanish 301.

302. *(101B.)* **Advanced Writing and Conversation (3)**
Prerequisite: Spanish 301 or near native-level proficiency.
Emphasis on creative writing with supporting practice in conversation; written composition on social, cultural or literary topics at an advanced level; all class discussion conducted in Spanish.

311A-311B. *(102A-102B.)* **Survey Course in Spanish Literature (3-3)**
Prerequisite: Spanish 204.
Important movements, authors and works in Spanish literature from the Middle Ages to the present.

440. *(140.)* **Spanish Civilization (3)**
Prerequisites: Spanish 204 and 211 (except at the Imperial Valley Campus).
Spanish culture of the past and present, with emphasis on literature, philosophy and the arts. Not open to students with credit in European Studies 350.

441. *(141.)* **Spanish-American Civilization (3)**
Prerequisites: Spanish 204 and 211 (except at the Imperial Valley Campus).
Spanish-American cultures, with emphasis on literature, philosophy and the arts. Not open to students with credit in Latin American Studies 341.

442. *(142.)* **Mexican Civilization (3)**
Prerequisites: Spanish 204 and 211.
The major currents and characteristics of Mexican culture, as expressed through the centuries in literature, philosophy and the arts. Not open to students with credit in Latin American Studies 346.

444. *(144.)* **Masterpieces of Spanish Literature (3)**
Reading selections from major Spanish authors. Taught in English.

490. *(190.)* **Advanced Grammar (3)**
Prerequisites: Spanish 301 and 302.
Significant systematic features of modern Spanish grammar with analysis of passages from literature. Recommended for credential applicants.

496. *(185.)* **Selected Studies in Spanish (3)**
Topics in Spanish or Spanish-American language, literature, culture and linguistics. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in Spanish available in any given semester.
Prerequisite: Consent of instructor.

504A-504B. *(104A-104B.)* **Spanish-American Literature (3-3)**
Prerequisites: Spanish 204 and 211.
Reading from representative Spanish-American authors during the colonial, revolutionary and modern periods. Lectures, class reading, collateral reading and reports.

510A-510B. *(105A-105B.)* **Modern Spanish Drama (3-3)**
Prerequisites: Spanish 204 and 211.
The development of the drama of Spain from the beginning of the nineteenth century to the present time.

515A-515B. *(106A-106B.)* **Mexican Literature (3-3)**
Prerequisites: Spanish 204 and 211.
Aspects of Mexican culture. Semester I: A rapid survey of Mexican literature from the colonial period to the twentieth century. Semester II: The twentieth century, with emphasis on the contemporary Mexican novel and theater.

520. *(107.)* **Caribbean Area Countries Literature (3)**
Prerequisites: Spanish 204 and 211.
Literature of Caribbean Islands, Central America, Colombia and Venezuela, from colonial period to present. Special emphasis on contemporary era.

522. *(108.)* **Andean Countries Literature (3)**
Prerequisite: Spanish 204 and 211.
Literature of Ecuador, Peru, Bolivia and Chile from the period immediately preceding the Spanish conquest to today.

524. *(109.)* **River Plate Literature (3)**
Prerequisites: Spanish 204 and 211.
Literature of Argentina, Paraguay and Uruguay from colonial period to present.

530. *(110.)* **Nineteenth Century Spanish Novel and Short Story (3)**
Prerequisites: Spanish 204 and 211.
The development of the novel and short story in Spain in the nineteenth century.

532. *(111.)* **Twentieth Century Spanish Novel and Short Story (3)**
Prerequisites: Spanish 204 and 211.
The development of the novel and short story in Spain to 1936, with emphasis on the novel of the generation of 1898.

533. *(112.)* **Contemporary Spanish Novel (3)**
Prerequisites: Spanish 204 and 211.
The development of the novel and short story in Spain since 1936.

548. *(149.)* **Spanish Linguistics (3)**
Prerequisites: Spanish 204 and 211.
Structural, historical and applied Spanish linguistics.

549. *(150.)* **Phonetics and Phonemics (3) II**
Prerequisites: Spanish 204 and 211 with a grade of C or better.
The sounds of Spanish and of the Spanish phonemic system, with special attention to the problems involved in the teaching of Spanish pronunciation to English-speaking students.

550. Golden Age Literature I (3)
Prerequisites: Spanish 204 and 211.
Major writers and works, concentrating on prose and lyric poetry.

560. Golden Age Literature II (3)
Prerequisites: Spanish 204 and 211.
Major writers and works, concentrating on drama.

570. *(170.)* **Spanish-American Poetry (3)**
Prerequisites: Spanish 204 and 211.
Spanish-American poetry of the 19th and 20th centuries.

571. *(171.)* **Spanish-American Short Story (3)**
Prerequisites: Spanish 204 and 211.
Principal Spanish-American short story writers.

572. *(172.)* **Spanish-American Theatre (3)**
Prerequisites: Spanish 204 and 211.
Principal Spanish-American dramatists and movements.

580. *(180.)* **Modern Spanish Poetry (3)**
Prerequisites: Spanish 204 and 211.
Spanish poetry of the 19th and 20th centuries.

GRADUATE COURSES

All graduate courses in the Department of Spanish and Portuguese have a prerequisite of 12 upper division units in Spanish, or consent of instructor.

601. *(290.)* **Research and Criticism (3)**
Purposes and methods of research in the fields of the language and literature, including bibliography, literary terms and textual criticism.

610. *(201.)* **History of the Spanish Language (3)**
Prerequisite: Credit or concurrent enrollment in Spanish 548 or 549.
The development of the Spanish language in Spain and Spanish America, with particular attention to the phonology, morphology and syntax of medieval Spanish.

620. *(202.)* **Cervantes (3)**
The principal prose works of Cervantes: The *Novelas ejemplares* and *Don Quixote.*

630. *(203.)* **Lope de Vega and Calderon (3)**
The works of Lope de Vega and Calderon.

640. *(204.)* **The Spanish-American Novel (3)**
The Spanish-American novel to 1935.

650. *(205.)* **The Gaucho Epic (3)**
The *Poesia gauchesca,* with particular emphasis on *Martin Fierro, Fausto,* and *Santos Vega.*

660. *(206.)* **Modernism (3)**
The *Modernista* movement in Spanish America, with special attention to representative poets.

670. *(207.)* **Medieval Spanish Literature (3)**
Prerequisite: Spanish 610.
The literature of Spain from the earliest extant works to the *Celestina.*

680. *(208.)* **The Modern Spanish Essay (3)**
The thinkers, essayists and philosophers of Spain from the generation of 1898 to the present.

690. *(209.)* **The Spanish-American Essay (3)**
Principal Spanish-American essayists of the 19th and 20th centuries.

695. *(210.)* **Contemporary Spanish-American Prose Fiction (3)**
The principal writers of prose fiction in Spanish America from the mid-thirties to today.

720. *(220.)* **Seminar in Spanish Golden Age Literature (3)**
A representative author, a genre or movement of the Spanish Golden Age. Maximum credit six units applicable on a master's degree.

730. *(230.)* **Seminar in 19th Century Spanish Literature (3)**
A representative author, a genre or movement of the 19th century in Spain. Maximum credit six units applicable on a master's degree.

740. *(240.)* **Seminar in 20th Century Spanish Literature (3)**
A representative author, a genre or movement of the 20th century in Spain. Maximum credit six units applicable on a master's degree.

750. *(250.)* **Seminar in Spanish-American Literature (3)**
A genre or movement of Spanish America. Maximum credit six units applicable on a master's degree.

755. *(255.)* **Seminar in Spanish-American Culture and Thought (3)**
Works of representative authors of Spanish America. Maximum credit six units applicable on a master's degree.

770. *(270.)* **Applied Spanish Linguistics for Teachers (3)**
Prerequisite: Spanish 548 or 549.
The application of linguistic theory to the teaching of Spanish at the secondary and college levels.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff, to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis is granted final approval.

Speech Communication

In the College of Professional Studies

Faculty

Emeritus: Ackley
Professors: Adams, Benjamin, Mills, Samovar
Associate Professors: Sanders (Chairman), King
Assistant Professors: Moore, Weitzel

Offered by the Department

Master of Arts degree in speech communication.

Major in speech communication with the A.B. degree in applied arts and sciences.

Teaching major in speech communication for the single subject teaching credential in English/Speech.

Minor in speech communication.

The Speech Communication Department conducts a number of activities such as the Forensics Program and the Readers Theater Program as performance laboratories. These activities are an extension of classroom instruction, and credit may be allowed upon approval by the instructor in charge.

Speech Communication Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Speech Communication 104, 105, 111A, 135 and 160. (15 units.)

Major. A minimum of 27 upper division units to include Speech Communication 350, 535 and 592. Twelve units selected from Speech Communication 300, 301, 309, 352, 354, 361, 362, 380, 400, 496, 499, 508, 540, 589; or twelve units selected from Speech Communication 300, 309, 391, 406, 496, 499, 530, 537, 575, 589; or twelve units selected from Speech Communication 300, 309, 361, 362, 392, 400, 508, 530, 540, 575, 589. In addition, six units of electives from departmental offerings.

Speech Communication Minor

The minor in speech communication consists of a minimum of 23 units in speech communication to include Speech Communication 103 or 104, 111A or 111B, 135, 160, and twelve units of upper division electives in speech communication.

Courses in the minor may not be counted toward the major or general education.

Speech Communication Major

For the Single Subject Teaching Credential in English/Speech

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by the students in teacher education as an undergraduate major for the A.B. degree in applied arts and sciences.

Preparation for the major. Speech Communication 104, 105, 111A, 135 and 160. (15 units.)

Major. A minimum of 24 upper division units in speech communication to include Speech Communication 309 (intercollegiate forensic experience, 1-3 units), 391, 392, 508, and 12 to 14 units of electives (Speech Communication 589 is recommended).

Credential requirements. Thirty units (of which at least 24 units must be taken outside the Speech Communication Department) including:

(A) Language: 9 units from Linguistics 100, 520, 524 or 550, 622 or Speech Communication 530.

(B) Literature: 9 to 12 units from English 250A-250B, 260A-260B, 533, 570, 571A-571B, 572; Speech Communication 508.

(C) Composition: 9 to 12 units from English 200 and 500; Speech Communication 160 or 392; Journalism 120 or 320.

LOWER DIVISION COURSES

103. *(3.)* **Oral Communication (2-3) I, II**

Training in fundamental processes of oral expression; method of obtaining and organizing material; outlining; principles of attention and delivery; practice in construction and delivery of various forms of speeches. Speech Communication 103 or 104 recommended in general education. Not open to students with credit for Mexican-American studies 111A.

104. *(4.)* **Public Speaking (3) I, II**

Practice in extemporaneous speaking on subjects of current interest, both national and local, with stress on organization and delivery. Speech Communication 103 or 104 recommended in general education. Not open to students with credit for Mexican-American studies 111A.

105. *(5.)* **Introduction to Speech Communication (3) I, II**

Investigation of the status of the discipline and analysis of interrelationships among varied specialties within the field. Intended for students who are either considering or who are committed to a speech communication major or minor.

111A. *(11A.)* **Fundamentals of Interpretation (3) I, II**

Literature and principles of its oral presentation by the interpreter.

111B. *(11B.)* **Intermediate Interpretation (3)**

Prerequisite: Speech Communication 111A.

Theory and practice of oral interpretation with emphasis on vocal performance, physical performance, and other aspects of delivery. Practice through recording and live presentation of readings, group speaking, and readers theater. Outside activity required.

135. *(35.)* **Principles of Communication (3) I, II**

Identification, description, and study of fundamental communication principles such as definitions and models, coding, meaning, organization. Emphasis on applying principles to personal, historical, literary and political human interactions.

160. *(60.)* **Argumentation and Debate (3)**

Obtaining and organizing of evidence and the construction and use of the brief; study and discussion of current issues; the presentation of formal and informal debates. Participation in intercollegiate debate optional.

161. *(61.)* **Intercollegiate Debate (1) I, II**

Two field trips required.

Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. Maximum credit four units for Speech Communication 161 and 361.

191. *(70.)* **Group Discussion (3) I, II**

Role of group discussion in a democratic society. Principles and methods of group discussion in problem-solving and learning situations. Practice in dealing with questions of policy and controversial issues. Development of skills in discussion preparation, participation and leadership.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**

Refer to Honors Program.

301. *(101.)* **Management of Speech Activities (1) I, II**

Two hours of activity.

Planning, preparation, management and supervision of speech tournaments and other interscholastic activities under the supervision of the speech communication staff. Maximum credit two units.

309. *(109.)* **Workshop in Speech (1-3)**

Study of some problems in speech communication. Maximum credit six units.

350. *(150.)* **Rhetorical Theory and Criticism to 400 A.D. (3) I, II**

An analysis of rhetorical theory and criticism with special attention to Plato, Aristotle, Isocrates, Quintillian, and Cicero. The development of theory and systems of criticism culminating in the application of principles to public address.

352. *(152.)* **Rhetorical Theory and Criticism 400 A.D. to 1900 (3) I, II**
Prerequisite: Speech Communication 350.
An analysis of rhetorical theory and criticism with special attention to Longinus, Vives, Ramus, Cox, Bacon, Campbell, Whately, Blair, and James. The development of theory and systems of criticism culminating in the application of principles to public discourse.

354. *(154.)* **Contemporary Rhetorical Theory and Criticism (3) I, II**
Prerequisite: Speech Communication 350.
An analysis of rhetorical theory and criticism in the twentieth century with special attention to Arnold, Bitzer, Burke, Hochmuth, and Winans. A unified body of principles for rhetorical theory and criticism will be derived and applied to contemporary discourse.

361. *(161.)* **Intercollegiate Debate (1) I, II**
Two field trips required.
Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. Maximum credit four units for Speech Communication 161 and 361.

362. *(162.)* **Advanced Argumentation (3) I**
The approaches to argument and the patterns and problems in argument. Consideration of implications for society. Written and oral reports.

380. *(180.)* **American Public Address (3) I, II**
Public discourse from the colonial period to the present.

391. *(191.)* **Group Communication (3) I, II**
Prerequisite: Speech Communication 191.
The theoretical processes of small group communication. Emphasis on the theory of group formation, interaction, procedures and leadership.

392. *(192A.)* **Advanced Public Speaking (3) I**
Prerequisite: Speech Communication 104.
The preparation and delivery of longer speeches. Study of classic models of public address.

394. *(194.)* **History of Public Address (3) II**
Prerequisite: Speech Communication 104.
Speakers and speaking from Ancient Greece to the present. Functions of public speaking in the growth and development of ideas, ideals and institutions.

400. *(100.)* **Contemporary Forensics Problems (1-3) I, II**
Prerequisite: Speech Communication 160.
Identification of significant arguments in political, economic and social problems confronting Twentieth Century United States. Use of case studies to emphasize research tools leading to comprehensive analysis. Oral performance stressed.

406. *(106.)* **Organizational Communication (3) I, II**
Prerequisites: Six units selected from Speech Communication 103, 104, 535 or 191.
The organization as a communication system; role of the organization in persuasive campaigns; communication strategies and problems within the organizational structure.

496. *(198.)* **Selected Topics in Speech Communication (1-3) I, II**
Prerequisite: Twelve units in speech communication.
A specialized study of selected topics from the areas of speech communication. May be repeated with new content. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

508. *(108.)* **Advanced Interpretation (3) I, II**
Three lecture-demonstrations per week and 32 hours of laboratory per semester.
Prerequisite: Speech Communication 111A.
Analysis of techniques of literary composition as guides to oral interpretation. Achievements of the creative artists as they affect the interpretive artist.

530. *(130.)* **Semantics (3) I, II**
Recognition of various types of linguistic meaning; logical distinctions in discourse; distinction between real and verbal disagreement; recognition and correction of semantic fallacies.

535. *(135.)* **Theories of Human Communication (3) I, II**
Prerequisite: Six units of speech communication.
Special emphasis on various communication theories and models; the relationship of mental variables such as perception, roles and status, behavior change, language and motivation to the entire communication process.

537. *(137.)* **Empirical Study in Speech Communication (3) I, II**
Prerequisite: Six units of speech communication. Recommended: Speech Communication 135.
Philosophy of social science and application to current research in speech communication. Theories and constructs related to communication: analysis of current research literature.

540. *(140.)* **Freedom and Responsibilities of Speech (3) I, II**
Prerequisite: Speech Communication 160.
In-depth study of the major legal, ethical and political issues concerning communication and free speech in a democratic society.

575. *(175.)* **Intercultural Communication (3) I, II**
Study of communication with emphasis on the influence of cultural background, perception, social organization, language and nonverbal messages in the cross-cultural communication experience.

589. *(189.)* **Ethics of Speech Communication (3)**
Prerequisite: Six upper division units in philosophy or speech communication.
Classical and modern ethical concepts applied to oral persuasion.

592. *(192B.)* **Persuasion (3) I, II**
Prerequisite: Speech Communication 104.
Persuasion with emphasis on psychological principles. Research project on a significant problem. Oral performance required.

GRADUATE COURSES

700. *(200.)* **Research and Bibliography (3)**
Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research as it relates to speech communication. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.

708. *(208.)* **Seminar in Oral Interpretation (3)**
Prerequisite: Speech Communication 508.
Aesthetic discipline applied to oral interpretation of various forms of literature. Analysis of thought and emotional content, and aesthetic form. Investigation of advanced problems of delivery. May be repeated with new content. Maximum credit six units.

730. *(230.)* **Seminar in the Analysis of Language (3)**
Prerequisite: Speech Communication 530.
Special problems in language theory which may be integrated into the larger bodies of rhetorical and communication theory.

735. *(235.)* **Seminar in Communication Theory (3)**
Prerequisite: Speech Communication 535.
Theories of communication; communication models, codes, perception and effects.

750. *(250.)* **Seminar in Rhetorical Theory (3)**
Leading figures in rhetorical theory from Plato to contemporary theorists. Special attention given to the application of theory to public address.

751. *(251.)* **Seminar in Rhetorical Criticism (3)**
Major systems of speech criticism. Special attention to measuring the effectiveness of a given piece of discourse in terms of actuality and potentiality.

762. *(262.)* **Seminar in Argumentation (3)**
Prerequisite: Speech Communication 362.
Significant topics in argumentation: the formulation of problems for argument; analysis; the brief with patterns of argument, traditional and recent; presumption; probability; laws of evidence; fallacies.

780. *(280.)* **Seminar in Public Address, 1600-1850 (3)**
Examination of the problems confronting American speakers and the solutions they offered. Special emphasis placed on the rhetorical means used to solve major crises in American history.

781. *(281.)* **Seminar in American Public Address, 1850 to Present (3)**
Examination of the problems confronting American speakers and the solutions they offered. Special emphasis placed on the rhetorical means used to solve major crises in American history.

782. *(282.)* **Seminar in Contemporary American Public Address (3)**
Prerequisite: Speech Communication 392 or 592.

790. *(290.)* **Experimental Procedures in Speech Communication (3)**
Prerequisites: Credit or concurrent registration in Speech Communication 592 and 700.
Examination and evaluation of appropriate experimental procedures and traditional methods; special problems in research design.

791. *(291.)* **Seminar in Group Discussion Theory (3)**
Prerequisite: Speech Communication 391.
A study of descriptive and experimental literature on group discussion covering such topics as interaction, leadership, and means of evaluation.

792. *(292.)* **Seminar in Persuasion (3) I, II**
Prerequisite: Speech Communication 592.
Contemporary theories and models of persuasion, methods of assessing persuasive effect, and analysis of research literature.

793. *(293.)* **Seminar in Greek and Roman Public Address (3)**
Prerequisites: Speech Communication 350, and 392 or 592.

794. *(294.)* **Seminar in 18th Century British Public Address (3)**
Prerequisite: Speech Communication 392 or 592.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.

Speech Pathology and Audiology

In the College of Professional Studies

The clinical services area is accredited by the American Speech and Hearing Association.

The preparation for clinical services is accredited by the American Speech and Hearing Association.

Faculty

Emeritus: Earnest, Pfaff
Professors: Kopp (Chairman), Nichols, Riedman
Associate Professors: Allen, Thile
Assistant Professors: Scott, Williams, Wood
Lecturer: Ellis, Sallee

Offered by the Department

Master of Arts degree in speech pathology and audiology.
Major in speech pathology and audiology with the A.B. degree in applied arts and Sciences.
Minor in speech pathology and audiology.
Restricted Credential, Speech and Hearing Specialist (Plan II).

Speech Pathology and Audiology Major

With the A.B. Degree in Applied Arts and Sciences.

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.
A minor is not required with the major.

Preparation for the major. Mathematics 103 (or qualification on the mathematics placement examination); Physics 107; Psychology 101, 260 and 270; Speech Communication 103 or 104; Speech Pathology and Audiology 104, 105 and 106. (26-27 units.)

Major. A minimum of 24 upper division units in speech pathology and audiology selected with the approval of the adviser. Those with an emphasis in the area of deaf education must include Special Education 475, 567 and 572 to complete their major.

Speech Pathology and Audiology Minor

The minor in speech pathology and audiology consists of a minimum of 18 units in speech pathology and audiology, ten units of which must be in upper division courses. The following are required: Speech Pathology and Audiology 104, 105, 106, 321, 340, 342; and three units selected from 320, 322, 324 or 551.
Courses in the minor may not be counted toward the major or general education.

Restricted Credential: Speech and Hearing Specialist

The Restricted Credential is available to students who completed credential requirements by September 14, 1974, or who were on a lock list as of December 1, 1973. The Restricted Credential is a five-year program leading to a credential which authorizes service in all grades in the area specified. It requires the same lower division courses as are required in the preparation for the major in speech pathology and audiology, a bachelor's degree, and completion of a specific pattern of courses. The following Speech Pathology and Audiology courses are required: 320, 321, 322, 323, 324, 326, 329, 340, 527, 528, 551; and 15 units chosen with approval of the adviser from Speech Pathology and Audiology 341, 342, 345, 346, 390, 496, 530, 531, 532, 543, 547, 550, 552, 553, 601, 602, 603, 604, 605, 606, 626, 628, and 654. Two courses may be selected from 356, 357, 640, 644, 645, 646, 649, 656, 657. Consult adviser for specific courses required outside of the department. A provisional credential is no longer offered, and there is no postponement of requirements prior to receiving the restricted credential.

LOWER DIVISION COURSES

104. *(4.)* **Voice and Articulation (3) I, II**
Vocal and articulatory dynamics as bases of standard and nonstandard oral language patterns. Practice in recognition and recall of such patterns.

105. *(5.)* **Survey of Audiology (2) I**
Audiology in diagnosis and rehabilitation of hearing impairment, medical practice, hearing conservation and research. Fifteen hours of observation required.

106. *(6.)* **Language, Speech and Hearing Disorders (3) I, II**
Normal growth and development and its relationship to language, speech and hearing development and disorders, covering all areas of exceptionality. Fifteen hours of observation or project required.

107. *(7.)* **Management of Clinical Activities (1) I, II**
Assisting in the operations of the speech and hearing clinic. Maximum credit two units.

108. *(8.)* **Oral Communication Laboratory (1) I, II Cr/NC**
Two hours of laboratory.
Individual laboratory training on specific speech problems. Student chosen through testing by Department of Speech Pathology and Audiology.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

305. *(105.)* **Language and Speech Development and Disorders (3) I, II**
Normal development of speech and language; prevention and remediation of communication disorders commonly found in the classroom. Five hours of observation required per semester. For students not majoring in speech pathology and audiology.

320. *(120.)* **Phonetics (3) I, II**
Auditory and kinesthetic analysis of the sounds of the English language. Problems of foreign and bilingual dialect.

321. *(121.)* **Anatomy, Physiology and Pathology of Speech (3) I, II**
Prerequisites: Speech Pathology and Audiology 106 and 323.
Anatomy, physiology and pathology of speech. Survey of aphasia, cerebral palsy, cleft palate, voice disorders, including study of multiply handicapped child. Twenty hours of observation required.

322. *(122.)* **Functional Communication Disorders (3) I**
Prerequisite: Speech Pathology and Audiology 321.
Speech disorders of emotional etiology, including stuttering. Genetic and cultural aspects of speech and language; phenomena of human communication, including theories of learning and behavior. Relation between disorders of personality and difficulties in communication.

323. *(123.)* **Mechanics of Speech Production (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Psychology 260 or Zoology 108.
Anatomy and physiology of the head, neck and thorax related to speech. Laboratory experiences. Demonstrations using charts, models, histological materials and cadavers.

324. *(124.)* **Methods of Speech Therapy (3) I**
Prerequisite: Speech Pathology and Audiology 321.
Application of theories of learning to techniques in treatment of specific speech and language disorders with emphasis on problems of articulation, voice, and foreign dialect. Demonstrations.

326. *(126.)* **Clinical Practice in Speech Pathology (1-3) I, II, S**
Two hours for each unit of credit.
Prerequisites: Speech Pathology and Audiology 320, 324, and three upper division units in speech pathology and audiology.
Supervised practice with representative speech problems. Maximum combined credit, eight units for Speech Pathology and Audiology 326, 345, 346 and 626. One unit represents 26 hours of direct clinical practice.

329. *(129.)* **Speech Therapy in the Public Schools (3) I**
Prerequisites: Speech Pathology and Audiology 324 and 527. Minimum of 50 hours of supervised clinical practicum.
Goals, materials and procedures for organizing and administering speech, language and hearing programs in the schools. Fifteen hours of observation and 15 hours of screening required. Should be taken the semester before Speech Pathology and Audiology 433.

340. *(140.)* **Audiometry: Principles (3) I, S**
Prerequisites: Speech Pathology and Audiology 105 and Psychology 260.
Anatomy and physiology of the human ear, theories of hearing, physics of sound, medical aspects, pathology and surgery of the ear, survey of current audiometric techniques.

341. *(141.)* **Audiometry: Application (3) II**
Two lectures and two hours of laboratory.
Prerequisite: Speech Pathology and Audiology 340.
Tuning fork assessment, speech testing, masking, tests for nonorganic and for sensorineural hearing loss, industrial audiometry and hearing aid evaluation.

342. *(142.)* **Techniques of Audiometry (1-3) I, II**
Three hours of laboratory per unit.
Prerequisite: Credit or concurrent registration in Speech Pathology and Audiology 340.
Provides the laboratory experience necessary for the California School Audiometrist Certificate when taken concurrently with 340. Duplicates classic auditory experiments when taken in conjunction with 543 or 644. Maximum credit three units.

345. *(145.)* **Clinical Practice in Audiologic Assessment (1-3) I, II, S**
Prerequisite: Speech Pathology and Audiology 341.
Supervised procedures with pure tone, speech, and special audiologic testing. Maximum combined credit eight units for 326, 345, and 346. One unit represents 26 hours of direct clinical practice.

346. *(146.)* **Clinical Practice with Hard of Hearing (1-3) I, II, S**
Prerequisite: Speech Pathology and Audiology 551.
Supervised practice with hard of hearing clients. Maximum credit eight units for 326, 345, and 346. One unit represents 26 hours of direct clinical practice.

356. *(156.)* **Field Work with the Deaf (1-3) I, II**
Two hours for each unit of credit.
Prerequisites: Speech Pathology and Audiology 552 and 553.
Supervised experience in auditory training, lipreading, speech therapy and language building, with individual cases. Maximum credit six units.

357. *(157.)* **Clinical Practice with the Deaf (1-2) I, II**
Prerequisites: Speech Pathology and Audiology 552 and 553.
Supervised therapy with representative deaf problems in the San Diego State University Speech and Hearing Clinic. Maximum combined credit six units for 356 and 357.

358. *(158.)* **Manual Communication for the Hearing Impaired (2) I, II Cr/NC**
Prerequisites: Demonstrated professional need and consent of instructor.
Structure, vocabulary and syntax of manual communication including the development of competencies in manual communication and in the use of manual communication as a method of teaching the hearing impaired.

390. *(190.)* **Workshop in Speech Pathology and Audiology (1-3) I, II**
Study of some problem in speech pathology or audiology. Maximum credit six units.

433. *(133.)* **Clinical Practice in Public Schools (4) I, II Cr/NC**
Prerequisites: Speech Pathology and Audiology 329 and four units of practica.
Clinical practice in elementary or secondary schools or community colleges in speech pathology. Applies only toward Restricted Credential, Speech and Hearing specialist.

496. *(198.)* **Selected Topics in Speech Pathology and Audiology (1-3) I, II**
Prerequisite: Twelve units in speech pathology and audiology.
Specialized study of selected topics from the area of speech pathology and audiology. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

527. *(127.)* **Diagnostic Methods in Speech Pathology (3) I, II**
Prerequisites: Speech Pathology and Audiology 320, 321, and 340, and credit or concurrent registration in Speech Pathology and Audiology 326.
Principles and procedures in the assessment and prognosis of communication disorders to include delayed speech and mental retardation. Case histories, testing, interviewing, and clinical reporting. Child, parent, and teacher counseling.

528. *(128.)* **Diagnostic Practicum in Speech Pathology (3)**
Prerequisite: Speech Pathology and Audiology 527.
Supervised clinical practice in diagnostic methods. Experience in multidisciplinary assessment. Practicum minimum of six hours.

530-S. *(130-S.)* **Family Communication Dynamics (3) S**
Prerequisites: Speech Pathology and Audiology 322 and 326.
The communication environment in the home. Parent-child interaction in relation to the origin and alleviation of functional and organic speech disorders.

531. *(131.)* **Language Structure (3)**
Prerequisite: Speech Pathology and Audiology 106.
Systematic study of the design features of language as they relate to communication behavior. The primary focus is the role of language structure in disordered communication.

532. *(132.)* **Assessment of Language Disorders (3) I, II**
Prerequisite: Speech Pathology and Audiology 531.
Identification of semantic and structural features of language.

543. *(143.)* **Hearing Amplification (1-3) II**
Prerequisites: Speech Pathology and Audiology 341.
Specific application of amplification for rehabilitation of the impaired hearing mechanism; devices, methods for their evaluation, historical perspective and practical considerations.

547. *(147.)* **Hearing Conservation (3) I**
Prerequisite: Speech Pathology and Audiology 341.
Noise measurement, analysis and reduction and its effects on hearing and communication. Damage risk criteria and methods of hearing protection.

550. *(150.)* **Education of Deaf Children (3) I**
Educational programs, services and resources for hearing impaired; historical background, philosophy, sociological and psychological problems.

551. *(151.)* **Speech Reading and Auditory Training (3) I, II**
Prerequisites: Speech Pathology and Audiology 320 and 340.
Theory and methods of speech reading; auditory training techniques including survey of amplification systems. Twenty-six hours observation in programs for deaf, severely hard of hearing.

552. *(152.)* **Speech for the Hearing Impaired (3) II**
Prerequisites: Speech Pathology and Audiology 323, 531, and 551.
Theory and practice of speech habilitation of hearing impaired. Includes evaluation of current research and application in developing cognitive and motor processing.

553. *(153.)* **Language for the Hearing Impaired (3) I**
Prerequisites: Speech Pathology and Audiology 531 and 551.
Significant theories and research in language development as applied to hearing impaired individuals.

GRADUATE COURSES

All transfer students planning a program to include clinical practica must enroll in the appropriate undergraduate practicums as specified for their field of interest (Speech Pathology and Audiology 326, 345, 346, 356, 357, 528) prior to enrollment in graduate practica.

600. *(200.)* **Research and Bibliography (3)**
Bibliographic techniques in methods and exposition of research in the fields of speech pathology and audiology. Recommended for the first semester of graduate work, and prerequisite to advancement to candidacy.

601. *(201.)* **Vocal Science (3)**
Prerequisite: Speech Pathology and Audiology 320.
Relationship of basic principles of sound to the speech mechanism. Analysis of speech sound production. Application of mechanical electronic equipment to speech.

602. *(202.)* **Problems of Aphasia (3)**
Prerequisite: Speech Pathology and Audiology 321.
Evaluation of aphasia, familiarity with diagnostic tools, theories of aphasia, and therapy for persons with disorders of symbolization (adult and congenital aphasia). It is recommended the student take one unit of Speech Pathology and Audiology 626 concurrently with this course.

603. *(203.)* **Problems of Cerebral Palsy (3)**
Prerequisities: Speech Pathology and Audiology 323 and 324.
Evaluation, theories of treatment and therapy for persons with speech disorders in cerebral palsy. It is recommended the student take one unit of Speech Pathology and Audiology 626 concurrently with this course.

604. *(204.)* **Problems in Cleft Palate and Orofacial Anomalies (3)**
Prerequisites: Speech Pathology and Audiology 323, 324, and 340. Minimum of 75 hours of supervised clinical practicum.
Etiological considerations, evaluation and remediation of individuals with orofacial anomalies and cleft palate. Concurrent registration in Speech Pathology and Audiology 626 is recommended.

605. *(205.)* **Problems of Stuttering (3)**
Prerequisite: Speech Pathology and Audiology 322.
Differential diagnosis of stuttering, individual and group therapy for children and adults with dysfluency problems. It is recommended the student take one unit of Speech Pathology and Audiology 626 concurrently with this course.

606. *(206.)* **Problems of Voice Pathology (3)**
Prerequisites: Speech Pathology and Audiology 323 and 324.
Structural medical and functional voice problems. Differential diagnosis of vocal anomalies, theories and therapy for vocal problems. It is recommended the student take one unit of Speech Pathology and Audiology 626 concurrently with this course.

626. *(226.)* **Advanced Clinical Practice in Speech Pathology (1-2)**
Two hours for each unit of credit plus one hour of staffing.
Prerequisite: Speech Pathology and Audiology 324.
Supervised work with representative advanced speech cases such as stuttering, aphasia, laryngectomies, etc. Maximum credit four units. Maximum credit four units of 626, 645, and/or 646 applicable on a master's degree.

628. *(228.)* **Advanced Diagnostic Methods in Speech Therapy (3)**
Prerequisite: Speech Pathology and Audiology 528.
Diagnosis of individuals with complicated speech problems as brain injury, congenital aphasia, adult aphasia, cerebral palsy, hearing loss, laryngectomy, mental retardation, stuttering and voice problems.

640. *(240.)* **Medical Audiology (3)**
Prerequisites: Speech Pathology and Audiology 345 and 644.
Problems of diagnosis, referral and report writing. Testing in a medical setting and medically significant hearing pathologies.

644. *(244.)* **Audiology (3)**
Prerequisite: Speech Pathology and Audiology 341.
Psychophysical concepts underlying clinical audiology. Relationship of audiologic test results to the conditions under which they were obtained.

645. *(245.)* **Advanced Clinical Practice in Audiologic Assessment (1-2)**
Two hours for each unit of credit.
Prerequisite: Speech Pathology and Audiology 644.
Advanced casework in hearing evaluation. Maximum credit four units. Maximum credit four units of Speech Pathology and Audiology 626 and 645 applicable on a master's degree.

646. *(246.)* **Advanced Clinical Practice with Hard of Hearing (1-2)**
Two hours for each unit of credit.
Prerequisite: Speech Pathology and Audiology 551.
Supervised practice with problem hearing cases. Maximum credit four units of Speech Pathology and Audiology 626, 645, and 646 applicable on a master's degree.

649. *(249.)* **Seminar in Audiology (3)**
Prerequisite: Speech Pathology and Audiology 644.
Major research in clinical audiology. Audiologic techniques used in differential diagnosis. Maximum credit six units applicable on a master's degree.

654. *(254.)* **Physiological Phonetics (3)**
Prerequisite: Speech Pathology and Audiology 552.
Physiology underlying the production of continuous speech, including transitional movements, based on a syllabic concept.

656. *(256.)* **Advanced Field Work with the Deaf (1-3)**
Two hours for each unit of credit plus one hour of staffing.
Prerequisites: Speech Pathology and Audiology 552 and 553.
Supervised clinic practicum at an advanced level with representative deaf cases. Maximum credit six units of Speech Pathology and Audiology 656 and 657 applicable on a master's degree.

657. *(257.)* **Differential Diagnosis of the Hearing Impaired (3)**
Prerequisite: Speech Pathology and Audiology 106, 527, 550, or 551.
Diagnosis of multiply-handicapped, hearing-impaired children, including clinical teaching; assessment methods; materials and equipment; prognosis; current philosophies and trends. Maximum credit six units of Speech Pathology and Audiology 656 and 657 applicable on a master's degree. Twenty-six hours of observation are included.

658. *(258.)* **Seminar in Deaf Education (3) II**
Prerequisites: Speech Pathology and Audiology 356, 550; Special Education 475.
Problems of deafness, evaluation of research, interdisciplinary approach to habilitation.

797. *(297.)* **Research (2) Cr/NC**
Prerequisite: Advancement to candidacy and consent of the graduate adviser.
Research in speech pathology, deaf education or audiology. Maximum credit two units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.

Study Skills

Administered by the Dean of The University College

Faculty

Assistant Professors: Crafts (Acting Chairman), Denman
Lecturers: Dirks, Hallahan, Johns, Kirkwood, McFall, Smith

Offered by the Study Skills Center

Courses in study skills.
Major or minor work in study skills is not offered.

LOWER DIVISION COURSES

100. English Fundamentals (3) I, II Cr/NC
Practical grammar — including usage, sentence structure, syntax, punctuation and rhetoric.

101. *(W.)* **Writing Development (3) I, II Cr/NC**
Instruction in basic writing skills, supervised practice, and frequent individual conferences. Open to students at any level of college work. May not be used to satisfy general education requirements.

102. *(S.)* **Spelling (0) I, II Cr/NC**
A semitutorial service for students wishing to improve their spelling through an intensive review of principles and practice. Open to students at any level of college work.

111. *(R.)* **Reading Development (3) I, II Cr/NC**
Two lectures and three hours of laboratory.
Improvement of individual reading effectiveness: speed and comprehension, reading for the main idea, skimming, scanning, and word power. May not be used to satisfy general education requirements.

131. Fundamentals of English for Foreign or Bilingual Students (3) I, II Cr/NC
A first course in English intended to develop speaking and listening abilities and elementary reading and writing skills. Satisfactory completion of this course qualifies a student to take Study Skills 132, or, at the discretion of the instructor, Study Skills 133. May not be used to satisfy general education requirements. (Formerly numbered English 1X.)

132. English for Foreign or Bilingual Students (3) I, II Cr/NC
Intermediate course in English with emphasis on the listening, reading, and writing skills necessary for academic study. Satisfactory completion of this course qualifies a student to take Study Skills 133. May not be used to satisfy general education requirements. (Formerly numbered English 1Y.)

133. English for Foreign or Bilingual Students (3) I, II Cr/NC
Advanced listening, reading, writing and research skills. Use of study materials from several academic disciplines; writing of a short research paper in the student's area of interest. May not be used to satisfy general education requirements. (Formerly numbered English 1Z.)

299. *(99.)* **Experimental Topics (1-4) Cr/NC**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

Telecommunications and Film

In the College of Professional Studies

Faculty

Professors: Jameson (Chairman), Jones, Lee, Madsen, Steen, Wylie
Associate Professors: Anderson, Heighton, Johnson, Martin
Assistant Professors: Meador, Misiorowski

Offered by the Department

Master of Arts degree in radio-television.
Major in radio-television, with the A.B. degree in applied arts and sciences.
Major in radio-television, with the B.S. degree in applied arts and sciences.
Major in drama, with emphasis in design for television. *See* Drama.
Minor in radio-television.

Radio-Television Major

With the A.B. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements on page 64 of this catalog.

The A.B. degree is designed for students interested in developing a more liberal education as they develop competency in, and understanding of, radio, television and film. The A.B. degree permits flexible programs utilizing courses in and out of the department which will prepare students in such broad areas as design for television and film, media communications theory, broadcast advertising, instructional radio and television, and the like.

A minor is required with this major.

Preparation for the major. Telecommunications and Film 100, 110, 120A-120B, 130, 160 and 280. (23 units.)

Major. A minimum of 24 upper division units in telecommunications and film to include Telecommunications and Film 460, 500 or 505, and 18 units of electives selected with the approval of the department. No more than 48 units in telecommunications and film may be counted toward the 124 units required for graduation.

Radio-Television Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

The B.S. degree is designed to prepare students for professions in radio, television and film or for occupations where extensive knowledge of these media is required.

A minor is not required with this major.

Preparation for the major. Telecommunications and Film 100, 110, 120A-120B, 130, 160 and 280. (23 units.)

Major. A minimum of 36 upper division units to include Telecommunications and Film 460, a core professional sequence, and a minimum of six units in an allied professional sequence; five to nine units of electives as required.

Core Professional Sequences.

TV Production: Telecommunications and Film 500 or 505, 510, 520, 550, 580, 581. (21 units.)
Management: Telecommunications and Film 310, 500, 505, 530, 540, and Psychology 342. (18 units.)
Film: Telecommunications and Film 450, 510, 520, 550, 560A-560B, 562 or 563. (22 units.)

Allied Professional Sequences. (Courses taken in Core Professional Sequences cannot be counted toward the Allied Professional Sequence.)

Advertising: Telecommunications and Film 540, 541, Business Administration 370, 373, Journalism 466, 480, 566, and Psychology 322.
Art: Art 341, 440, 441, 590, and Industrial Arts 315.
Communication: Speech Communication 535, Journalism 500, 503, 508.
Criticism: Comparative Literature 562, Music 351, Philosophy 542, and Speech Communication 354.

Education: Telecommunications and Film 570, Education 383, Educational Technology and Librarianship 540, 541, 544, and Elementary Education 362.
Industrial Arts: Industrial Arts 361, 462, 463.
Information Systems: Business Administration 380, 385, 480, 482.
International Media: Telecommunications and Film 363, 590, and Journalism 505.
Law and Government: Telecommunications and Film 505, Journalism 502, Political Science 335, 520, 546, 547A-547B.
Management: Telecommunications and Film 500, Business Administration 350, 351, 352, 453.
Mass Communication: Speech Communication 535, Sociology 545, 546, Journalism 500, 508, and Psychology 342.
News: Telecommunications and Film 310, 505, and Journalism 474, 475, 502.
Performance: Telecommunications and Film 390, 391, Drama 531, 532, and Speech Communication 508.
Playwriting: Telecommunications and Film 510, Drama 520, 522, English 516, 581.
Research Methods: Psychology 322, 342, 405, Journalism 509, Sociology 460, 464.
Scene Design: Telecommunications and Film 450, 550, Drama 540A, 548.

Radio-Television Minor

The minor in radio-television consists of a minimum of 15 units in telecommunications and film to include Telecommunications and Film 100, and at least six units in upper division courses.

Courses in the minor may not be counted toward the major or general education.

LOWER DIVISION COURSES

100. *(1.)* **Backgrounds in Broadcasting (3) I, II**
Theory and operation of the broadcasting industry to include the history and regulation of broadcasting in the U.S., the social and economic setting of American broadcasting and the organization of commercial and educational radio and television stations.

110. *(10.)* **Broadcast Writing (3) I, II**
Two lectures and more than three hours scheduled activities.
Theory and practice in writing materials for oral presentation. Problems of timing and pacing, conversational expression and word color.

120A-120B. *(2A-2B.)* **Telecommunications Production (4-4) I, II**
Two lectures and six hours of activity.
Prerequisite: Limited to telecommunications and film majors.
Technical practices and aesthetic considerations of visual and sound productions. Control room, studio and auxiliary equipment.

130. *(30.)* **Radio Production (3) I, II**
Two lectures and more than three hours of activity.
Prerequisite: Telecommunications and Film 120A-120B.
Theory of radio production augmented by practice in program planning and production for KPBS-FM.

160. *(67.)* **Cinema as Art and Communication (3) I, II**
Prerequisite: Sophomore standing.
An appreciative survey of cinema, with emphasis on the feature film and the documentary. Historical and stylistic influences on the aesthetic values and social implications of cinema. Illustrated by screen examples.

280. *(83.)* **Television Production and Directing (3) I, II**
Two lectures and more than three hours of activity.
Prerequisites: Telecommunications and Film 110 and 120A-120B, with average grade of 2.0 or better.
Theory and practice in the skills and knowledge of television production. Includes basic program types, responsibilities of director, and director's relationships to production staff.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

310. *(112.)* **Radio and Television News Writing and Editing (3) I, II**
(Same course as Journalism 470.)
Gathering, writing and editing news in special forms required by radio and television.

315. *(109.)* **Theory and Criticism of Broadcasting and Film (3) II**
Analysis of social, political, economic and aesthetic criticism of broadcasting and film. The function of radio, television and film in the mass communication process. Not open to telecommunications and film majors.

320-S. *(172-S.)* **Workshop in Educational Television (6) S**
(Same course as Educational Technology and Librarianship 553-S.)
Open to teachers and students interested in instruction by television.
The procedures and theories of television production as it pertains to closed-circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated.

360. *(161.)* **Film Applications in Super-8mm (3) I, II**
Explorations of visualized motion through production of super-8mm motion pictures and filmic materials. Cinema as creative expression, particularly as it applies to the student of art and education. Not acceptable for credit in the telecommunications and film major.

363. *(163.)* **International Cinema (3) I**
Prerequisite: Telecommunications and Film 160.
Foreign feature films as expressions of national attitudes.

370. *(171.)* **Broadcasting Practices (3) II**
Two lectures and three hours of activity.
Planning and production of radio, TV and film programs. Particularly designed for students who will be teaching high school and college speech and drama courses which will include broadcast activities. Not open to telecommunications and film majors.

390. *(140.)* **Broadcast and Film Performance (3) I**
Two lectures and more than three hours of activity.
Prerequisites: Drama 110 or Speech Communication 111A, and Drama 130.
Preparation and delivery of materials before the microphone and camera. Practical experience in University-sponsored productions.

391. *(181.)* **Acting for TV and Film (3) I, II**
Two lectures and three hours of activity.
Prerequisite: Drama 130.
Interrelationship between acting and the various media—radio, television, film. Experience in film and television productions. Practical experience in University-sponsored productions.

450. *(150.)* **Lighting for Television and Film (3) I, II**
Two lectures and three hours of laboratory.
Theory and application of such aspects as color, temperature, light sources and film emulsions, filters and design of values and colors, and factors of electronic transmission. Practical experience in University-sponsored productions.

460. *(162.)* **Film Techniques (3) I, II**
Two lectures and three hours of activity.
Prerequisite: Telecommunications and Film 120A-120B.
Principles of film theory, and practice in cinematography and editing; use of motion picture equipment. Technique and theory as they apply to the several filmic forms. Preparation of filmed materials.

495. *(195.)* **Workshop in Broadcasting (1-3) I, II**
Study of some problem in radio, television or film. Maximum credit six units.

496. *(198.)* **Selected Topics in Telecommunications and Film (1-3) I, II**
Prerequisite: Twelve units in Telecommunications and Film.
Specialized study of selected topics from the areas of telecommunications and film. May be repeated with new content. Maximum credit six units.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

500. *(101.)* **Broadcast Management (3) I, II**
Prerequisites: Telecommunications and Film 100, 130 and 280.
Administration and organization of radio and television, including radio and television as advertising media, broadcasting research, station organization, promotion and sales, and current developments in radio and television as mass media.

505. *(105.)* **Regulation of Broadcasting (3) I, II**
Prerequisite: Telecommunications and Film 100.
Responsibilities of broadcasters as prescribed by law, governmental policies and regulations, and significant court decisions.

510. *(110.)* **Script Writing for Broadcasting and Film (3) I, II**
Prerequisite: Telecommunications and Film 280.
Development of a single program and series ideas. Scripting of dramatic original and adaptation forms, and the documentary.

520. *(180.)* **Directing Television and Film Drama (3) I, II**
Two lectures and three hours of activity.
Planned for prospective directors of plays for television and film. The student will become acquainted with principles, procedures and methods. Practical experience in University-sponsored productions.

530. *(130.)* **Radio Programming (3) II**
Two lectures and more than three hours of scheduled activity.
Prerequisites: Telecommunications and Film 100 and 130.
Formats, policies, production practices and research in modern programming. Student work is broadcast on KPBS-FM.

540. *(103.)* **Broadcast Advertising (3) I**
Prerequisites: Two courses in broadcasting or journalism.
Theory, procedures, and the role of broadcast advertising, including marketing and media research, campaign planning, media strategy, time purchasing, and evaluation.

541. *(104.)* **Broadcast Commercial Practices (3) II**
Prerequisites: Telecommunications and Film 130, 280, 540, and permission of instructor.
Planning and execution of broadcast advertising and promotion campaigns; creative strategy and production techniques; use of research; campaign evaluation.

550. *(156.)* **Advanced Lighting and Staging for Television and Film (4) I, II**
One lecture and more than nine hours of activity.
Prerequisite: Telecommunications and Film 120A-120B.
Production elements of television and film, to include lighting and staging techniques, art and graphics, scene design and scene decoration. Practical experience in University-sponsored productions.

560A-560B. *(168A-168B.)* **Film Production (3-3) I, II**
One lecture and six hours of activity.
Prerequisite: Telecommunications and Film 460. Telecommunications and Film 560A is prerequisite to 560B.
Advanced practicum in film production. Studio and location work in the preparation of filmed materials, and complete nontheatrical films.

562. *(164.)* **Documentary and Propaganda Film (3) I**
Two lectures and three hours of activity.
Prerequisite: Telecommunications and Film 160.
Viewing and analysis of the major conceptual forms and cinematic techniques of these genres from 1922 to the present.

563. *(160.)* **Film Classics (3) I, II**
Two lectures and three hours of activity.
Prerequisite: Upper division standing.
Viewing and analysis of those American and foreign theatrical films, particularly of the sound era, which represent milestones in the development of the cinema. May be repeated with new content. Maximum credit six units.

565. *(165.)* **Animated Film Techniques (3) I, II**
Two lectures and three hours of activity.
Screening of representative examples and production of a filmograph or animated motion picture. Practical experience in University-sponsored productions.

570. *(170.)* **Educational Telecommunications (3) I**
Prerequisite: Telecommunications and Film 100.
The role of instructional and public broadcasting in the United States; utilization of telecommunications in the classroom and industrial training programs.

580. *(183.)* **Advanced Programing and Development for Television (4) I, II**
One lecture and more than nine hours of activity.
Prerequisites: Telecommunications and Film 460, 510, and consent of instructor.
The development of program ideas into formats for television productions of all types. Practical experience in developing and producing programs for University-sponsored productions.

581. *(184.)* **Advanced Television Directing (4) I, II**
One lecture and more than nine hours of activity.
Prerequisites: Telecommunications and Film 100, 280, 460, 520 and consent of instructor.
Presentational techniques and individual projects in the direction and production of television programs. Practical experience in University-sponsored productions.

590. *(108.)* **International Broadcasting (3) II**
Prerequisite: Telecommunications and Film 500 or 505.
Comparative study of broadcasting in various world areas; economic, social and political determinants of broadcasting patterns.

GRADUATE COURSES

600. *(200.)* **Research and Bibliography (3)**
Basic reference works, scholarly and critical journals; bibliographical techniques; exercises and problems in methods and exposition of research as it relates to the various areas of telecommunications and film. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.

601. *(205.)* **Mass Communications Research (3)**
Prerequisite: Telecommunications and Film 600.
Design and execution of a media research project; audience and message analysis; experimental design and survey research methodology.

602. *(272.)* **Seminar in Mass Communication Theory (3)**
Prerequisite: Speech Communication 535.
Analysis of theoretical models of mass communication. Application of operational models for the diffusion of information, and the adoption of innovation, to problems in the mass media.

603. *(273.)* **Mass Communications Message Design (3)**
Prerequisite: Speech Communication 535.
Selection and organization of message design elements in the mass communications media. Analysis of different effects of various types of mass communications formats, presentations, and systems on individuals and groups.

610. *(210.)* **Seminar in Writing for Broadcast and Film (3)**
Prerequisites: Telecommunications and Film 363, 460 and 510.
Dramatic structures as they apply to broadcasting and cinema. Writing a full-length script or scenario.

615. *(212.)* **Criticism of Broadcasting and Cinema (3)**
Prerequisite: The equivalent of an undergraduate major in telecommunications and film.
Standards for objective appraisal of the ethical and artistic aspects of radio, television and film programs.

620. *(203.)* **Seminar in History of Broadcasting (3)**
Prerequisite: The equivalent of an undergraduate major in telecommunications and film.
The development of broadcasting in its social, legislative and economic settings, with emphasis on broadcasting in the U.S.

640. *(202.)* **Seminar in Broadcast Advertising Problems (3)**
Prerequisite: The equivalent of an undergraduate major in telecommunications and film.
Analysis of social, economic and cultural context of advertising in commercial broadcasting; criticism and evaluation of the function of the advertiser; survey of broadcast advertising theory and research.

660. *(268.)* **Directing the Dramatic Film (3)**
Prerequisites: Telecommunications and Film 520, 560B, and consent of instructor.
Analysis of techniques and stylistic contributions of major directors as seen in their films. Production of a short dramatic film embodying concepts so learned.

670. *(270.)* **Seminar in Educational Telecommunications (3)**
Prerequisite: The equivalent of an undergraduate major in telecommunications and film or educational technology.
Educational uses of electronic media. Use of telecommunications in classrooms and school systems. Relationship of noncommercial radio and television (public broadcasting) to commercial broadcast media and education.

680. *(284.)* **Seminar in Programing and Production (3)**
Prerequisite: The equivalent of an undergraduate major in telecommunications and film.
Theory and analysis of programing and production of broadcasting.

700. *(201.)* **Seminar in Broadcast Management (3)**
Prerequisite: The equivalent of an undergraduate major in telecommunications and film.
The legal and regulatory milieu of broadcasting from the perspective of station management.

705. *(207.)* **Seminar in Broadcast Law and Regulations (3) I**
Prerequisite: Telecommunications and Film 505.
Analysis of legal concepts and issues as applied to commercial and noncommercial broadcasting; relationship of local, state and federal government to broadcast media.

770. *(275.)* **Teaching Broadcasting and Film (3)**
Broadcast and film curriculum development. Methods of teaching both theory and laboratory courses in broadcasting and film. Analysis of organizations for administering broadcast and film curricula in colleges and universities with public TV stations and/or on-campus instructional TV systems.

798. *(298.)* **Special Study (1-3) Cr/NC**
Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with as assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.

Women's Studies

Administered by the Dean of the College of Arts and Letters

Faculty

Lecturers: Boxer (Chairperson), Platt

Offered by Women's Studies

Courses in women's studies.

Major or minor work in women's studies is not offered.

LOWER DIVISION COURSES

110. *(10.)* **Introduction to Women's Studies (3)**

Effects of formal and informal social, economic and political institutions on women from infancy to old age.

299. *(99.)* **Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

310. *(100.)* **Women in Comparative Cultures (3) I, II**

Women's life styles (value systems, self-image, and world view) from least to most differentiated societies. Impact of women's autonomy and influence on different family models, kinship systems and economic patterns. Women's roles and behavior in cooperative versus individualistic societies.

320. *(120.)* **Self-actualization of Women (3) I, II**

Self-actualization psychology, emphasizing individual uniqueness and the maximization of human potential; theories of human behavior as they are applied to women; development of women's self-concept in American society.

325. *(125.)* **Psychological Aspects of Women (3) I, II**

Prerequisite: Women's Studies 320.

Prevalent theories of the psychological aspects of women in light of recent developments in the theory of sexuality, readings from Women's Liberation and experiences as women. Development of new methods of research and therapy which will aid women.

330A-330B. *(130A-130B.)* **Contemporary Issues in the Liberation of Women (3-3) I, II**

Prerequisite: One course in women's studies.

The movement to win greater political, social and economic equality for women. Semester I: The development and continuing of the Women's Movement evolution. Semester II: Racism and sexism—relationship to the Women's Movement.

340. *(140.)* **Women in History (3) I, II**

A survey of the social, cultural, economic and intellectual history of women; origins of women's roles.

341A-341B. *(141A-141B.)* **Women in American History (3-3)**

A survey of the social, cultural, economic, political and intellectual history of women in America. Semester I: To 1920. Semester II: Since 1920.

350A-350B. *(150A-150B.)* **Women in Literature (3-3) I, II**

Semester I: Images, roles and identities of women found in literature, their sociological and political implications. Semester II: Famous female writers; the treatment of women as literary artists.

351. *(151.)* **Women in the Arts (3) I**

Images of women in the arts. Discussion on how these images reinforce ideas such as male dominance, the nuclear family, monogamy, and female stereotypes.

360. *(160.)* **Human Sexuality (3) I, II**

Biological criteria in sex role determination; the relationship of sexual mores and customs to a person's self-concept of sexuality; the relevance of current scientific investigations of the psychophysiology of human sexual response.

370. *(170.)* **Women and the Law (3) I, II**

Prerequisite: One course in women's studies.

The legal status of women in employment, education, health and welfare, property ownership, criminal justice, abortion, rape and prostitution.

380. *(180.)* **Status of Women Under Various Economic and Political Systems (3) I, II**

Historical and contemporary institutional factors influencing the social and political status of women under various economic systems; economic implications of alternatives to expected patterns of women's behavior and institutional arrangements.

390. *(190.)* **Women and Education (3) I, II**

The educational process and female role socialization; research into personnel policies and curriculum. New learning methods and environments, e.g., women's studies programs, child care centers, and "free" schools.

496. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

498. *(198.)* **Field Experience (3) I, II**

Prerequisite: One course in women's studies.

Exploration and analysis of sex discrimination in public and private agencies in the San Diego area as they relate to women through supervised experience and observation; understanding principles and utilizing skills in organizing and effecting change. Maximum credit six units.

Zoology

In the College of Sciences

Faculty

Emeritus: Crouch, Harwood, Kaston

Professors: Atkins, Bohnsack, Carpenter (Chairman), Cohn, Dexter, Estes, Etheridge, Huffman, Hunsaker, Lillegraven, McLean, Monroe, Norland, Olson, Wilson

Associate Professors: Catlett, Chen, Collier, Cooper, Krekorian, Plymale

Assistant Professor: Avila

Offered by the Department

Master of Arts degree in biology with an emphasis in zoology.
Master of Science degree in biology with an emphasis in zoology.
Major in zoology with the A.B. degree in liberal arts and sciences.
Major in zoology with the B.S. degree in applied arts and sciences.
Single subject teaching credential in life sciences in the area of zoology.
Minor in zoology.

Zoology Major

With the A.B. Degree in Liberal Arts and Sciences

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 64 of this catalog. To satisfy the requirement in foreign languages, it is strongly recommended that students select French, German or Russian.

A minor is not required with this major.

Preparation for the major. Biology 100, 100L, 215; Zoology 150 and 160 or 506; Chemistry 200A-200B, and 230 or 231; Physics 115A-115B or 124A-124B; Mathematics 121 or 140. (38-42 units.) Recommended: Mathematics 122 or 150; and Physics 125A-125B if 124A-124B is taken.

Major. A minimum of 24 upper division units to include Biology 560 or Zoology 540; Biology 520 and 540; Botany 500 or 501 or 502 or 503; plus at least two upper division zoology courses with a laboratory.

Zoology Major

With the B.S. Degree in Applied Arts and Sciences

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 64 of this catalog.

A minor is not required with this major.

Preparation for the major. Biology 100, 100L, 215; Zoology 150 and 160 or 506; Chemistry 200A-200B and 230 or 231; Physics 115A-115B or 124A-124B; Mathematics 121 or 140. (38-42 units.) Recommended: Mathematics 122 or 150; and Physics 125A-125B if 124A-124B is taken.

Major. A minimum of 36 upper division units, 28 of which must be in biology, botany, microbiology and zoology, to include the following: Biology 560 or Zoology 540; Biology 520 and 540; Botany 500 or 501 or 502 or 503, plus at least two upper division zoology courses with a laboratory. Units to complete the major must be selected with the approval of the adviser; up to eight upper division units can be in chemistry, geology, mathematics, physics or other area relevant to the student's interests with the prior signed approval of an adviser in the department.

Students wanting to emphasize entomology should take Zoology 521, 524, 525, 526 or 528; and 522 or 529. Zoology 523 is also recommended.

Zoology Minor

The zoology minor is intended to provide recognition for a reasonable amount of study related to zoology by students majoring in other fields. The minor consists of 15 units in the biological sciences of which at least nine units must be in upper division courses and six units must be in zoology.

Students desiring a minor in zoology must obtain approval from the chairman of the Zoology Department prior to completion of nine of the required 15 units.

Courses in the minor may not be counted toward the major or general education.

Zoology

For the Single Subject Teaching Credential in Life Sciences

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

The requirements for the single subject teaching credential in life sciences in the area of zoology are being revised. For further information consult the adviser for biological sciences teaching programs.

LOWER DIVISION COURSES

108. *(8.)* **Human Anatomy (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: An introductory course in high school biology or zoology.
Gross and microscopic anatomy of the organ system of the human body.

150. *(50.)* **Invertebrate Zoology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L.
Structure, function, relationships and significance of invertebrate animals as shown through a study of selected invertebrate types.

160. *(60.)* **Vertebrate Zoology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L.
An introductory course in the biology of the vertebrates with emphasis on the vertebrate organism as a whole: anatomy, physiology, development and evolution.

299. *(99.)* **Experimental Topics (2-4)**
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

UPPER DIVISION COURSES

300. *(166.)* **Honors Course (1-3) I, II**
Refer to Honors Program.

314. *(114.)* **Natural History of the Vertebrates (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: One semester of college biology.
Natural history, distribution and classification of vertebrate animals; emphasis on local forms. Not open to zoology majors.

319-S. *(119-S.)* **Field Zoology (4) S**
Two lectures and six hours of laboratory.
Prerequisite: A course in college biological science.
Observational methods; collecting techniques; identification, ecology and behavior of southern California animals. Primarily for students not majoring in the biological sciences.

330. *(120.)* **Insects and Human Welfare (3-4) II**
Prerequisites: Biology 100 and 100L.
The role of insects in global ecosystems with emphasis on medical and economic aspects, adaptation of insects for these roles, and analysis of current problems and tactics in pest management. Four all-day field trips will be taken by students wishing the fourth unit of credit. Not open to zoology majors.

335. *(135.)* **Scientific Illustration (3)**
Two lectures and three hours of laboratory; field trips.
Preparation of illustrative materials, inked drawings, charts, lettering, models, still and movie photography, and photomicrography.

350. *(150.)* **Marine Biology (3) I, II**
Two lectures and three hours of laboratory.
Prerequisite: Biology 100.
An introduction to marine organisms and their environment. Not open to students with credit for Zoology 150 or Biology 520.

490. *(190.)* **Senior Investigation and Report in Invertebrate Zoology (2)**
Prerequisite: Consent of instructor.
Investigation and reports on the current literature of invertebrate zoology.

491. *(191.)* **Senior Investigation and Report in Vertebrate Zoology (2)**
Prerequisite: Consent of instructor.
Investigation and reports on the current literature of vertebrate zoology.

496. Experimental Topics (2-4)
Refer to the catalog statement on Experimental Topics on page 115. Limit of nine units applicable to a bachelor's degree in courses under this number of which no more than three units may be applicable to general education requirements.

498. *(198.)* **Methods of Investigation (2) I, II**
One discussion and three additional hours to be arranged.
Prerequisite: Consent of instructor.
Selection and design of individual research in zoology; oral and written reports. Maximum credit four units for Zoology 498 or a combination of this course with Biology or Microbiology 498.

499. *(199.)* **Special Study (1-3) I, II**
Individual study. Maximum credit six units.
Prerequisites: Fifteen units in biological sciences with a grade of A or B and consent of instructor.

502. *(102.)* **Invertebrate Embryology (3)**
Two lectures and three hours of laboratory.
Prerequisite: Zoology 150.
Description and experimental analysis of the development of invertebrates.

503. *(103.)* **Embryology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Zoology 150 and 160, or 506.
Studies in comparative gametogenesis, morphogenesis, and reproductive physiology.

506. *(106.)* **Comparative Anatomy of the Vertebrates (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L.
Dissection, study and comparison of organ systems of typical vertebrates.

508. *(108.)* **Histology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L. Recommended: Microbiology 310 or Zoology 508 or 560.
Descriptive microscopic anatomy of cells, tissues and organs of mammals with special emphasis on humans.

510. *(112.)* **Marine Invertebrate Zoology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 510 and Zoology 150.
Ecology, morphology, behavior and physiology of marine invertebrates. Frequent field trips to local marine environments.

515. *(115.)* **Ichthyology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Zoology 160 or 506.
Identification, systematics, evolution, structure, physiology, behavior and ecology of fishes.

516. *(116.)* **Herpetology (4) I**
Two lectures and six hours of laboratory.
Prerequisites: Consent of instructor.
The origin, evolution, distribution and systematics of amphibians and reptiles of the world.

517. *(117.)* **Ornithology (4) II**
Two lectures, six hours of laboratory or field excursions, and a field project.
Prerequisites: Biology 100 and 100L and consent of instructor.
The study and identification of birds, especially those of the Pacific Coast and the San Diego region.

518. *(118.)* **Mammalogy (4) I**
Two lectures and six hours of laboratory.
Prerequisite: Zoology 160 or 506.
The evolution, systematics, distribution and ecology of mammals of the world.

521. *(121.)* **General Entomology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 100 and 100L.
Structure, physiology, natural history and classification of insects.

522. *(122.)* **Special Topics in Entomology (3)**
Two lectures and three hours of laboratory.
Prerequisite: Zoology 521.
Treatment of some aspect of entomology, such as biological control, microbial control or forest entomology, not covered in regularly scheduled courses. Maximum credit nine units. Maximum credit six units applicable on a master's degree.

523. *(123.)* **Immature Insects (3) II**
Two lectures and three hours of laboratory.
Prerequisite: Zoology 521.
Collection, preservation, identification and biological study of the immature stages of the different insect orders. Course designed to meet the needs of students specializing in invertebrate zoology, agricultural and medical entomology, parasitology, and systematics.

524. *(124.)* **Insect Ecology (4) II**
Two lectures and six hours of laboratory.
Prerequisites: Biology 520, and Botany 500 or 503. Recommended: Zoology 150 or 521.
Ecological principles as applied to insects, including consideration of crop ecosystems in relation to insect and mite outbreaks.

525. *(125.)* **Economic Entomology (4) II**
Two lectures and six hours of laboratory.
Prerequisites: Zoology 150 or 521 (preferred), and Botany 503. Recommended: This course be followed by Zoology 527.
Course designed for students of agriculture and horticulture. Emphasis is placed on determination and control of insects affecting plants. Quarantine measures are also studied.

526. *(126.)* **Medical Entomology (3) I**
Two lectures and three hours of laboratory.
Prerequisite: Zoology 150, 160 or 521 (preferred), or Microbiology 310.
The role of insects and other arthropods in transmission and causation of human diseases.

527. *(127.)* **Insect Control (2) I**
Prerequisites: Zoology 521, Botany 500 or 503. Recommended: Zoology 525 or 526.
A review of methods of reducing insect populations, including chemical, cultural, biological and legislative control.

528. *(131.)* **Insect Physiology (4) I**
Prerequisites: Zoology 521; Chemistry 230 or 231. Students not specializing in entomology may have the Zoology 521 requirement waived by the instructor.
Description, theory and experimental analysis of all major physiological processes in insects.

529. *(129.)* **Principles of Pest Management (3) I**
Two lectures and three hours of laboratory.
Prerequisites: Botany 500 or 503 or 561; Zoology 521 and 524. Recommended: Zoology 525.
Systematic analysis and synthesis of all suitable techniques known to reduce and maintain pest populations at levels below economically important injury in forestry and agriculture, based on firm ecological principles.

530. *(130.)* **Advanced Invertebrate Zoology (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Zoology 150.
Selected topics in advanced invertebrate zoology. May be repeated with new content. Maximum credit six units.

535. *(128.)* **Parasitology (4) I, II**
Two lectures and six hours of laboratory.
Prerequisite: Zoology 150 or Microbiology 310.
Study of animal parasites with special reference to those of man. Laboratory including identification of important parasites of man, and collection and preservation of local forms.

540. *(140.)* **Physiological Zoology (4) I, II**
Three lectures and three hours of laboratory.
Prerequisites: Zoology 160 or 506, and Chemistry 231.
A comparative and evolutionary study of the functions of organ systems and their environmental significance.

545A-545B. *(145A-145B.)* **Experimental Animal Surgery (2-2) I, II**
One lecture and three hours of laboratory.
Prerequisites: A course in vertebrate anatomy, a course in animal physiology and consent of instructor. Zoology 545A is prerequisite to 545B.
Fundamental principles of animal care, disease prevention and aseptic surgery.

555. *(155.)* **Principles of Taxonomy, Systematics and Phylogeny (4) II**
Two lectures and six hours of laboratory.
Prerequisite: Any one of the following: Zoology 150, 160, 506, Botany 501, 502, 503.
Basis for the classification of organisms. Modern concepts and their application in zoology. Specific problems in laboratory and field.

560. *(160.)* **Lower Vertebrate Paleontology (4) II**
Two lectures and six hours of laboratory.
Prerequisite: Zoology 506.
Advanced studies in the evolution of nonmammalian vertebrates, including relations to earth history and topics in paleoecology and functional morphology. Field and laboratory techniques and exercises in identification are included.

561. *(161.)* **Mammalian Paleontology (4) II**
Two lectures and six hours of laboratory.
Prerequisite: Zoology 506.
Advanced studies in the evolution of mammals, including relations to earth history and topics in paleoecology and functional morphology. Field and laboratory techniques and exercises in identification are included. Zoology 561 need not follow in sequence with Zoology 560.

570. *(170.)* **Animal Behavior (4) I, II**
Two lectures and six hours of laboratory.
Prerequisites: Zoology 150 and 160 or Psychology 210, 260 and consent of instructor.
Biological bases of animal behavior with emphasis on the ethological approach, including the evolution and adaptive significance of behavior.

571. Hormonal Aspects of Behavior (3) II
Prerequisites: Biology 560 and Zoology 540.
Chemoregulatory mechanisms operating within multicellular organisms will be discussed; the structural and chemical components of regulatory systems will be examined in terms of their behavioral effects on the organism.

GRADUATE COURSES

600. *(200.)* **Seminar (2-3)**
An intensive study in advanced zoology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

610. *(201.)* **Seminar in Marine Zoology (2)**
Prerequisite: Biology 520.
Recent developments in marine zoology. Maximum credit four units applicable on a master's degree.

620. *(206.)* **Seminar in Vertebrate Morphology (2)**
Current problems in the descriptive, functional and evolutionary anatomy of vertebrates. Maximum credit four units applicable on a master's degree.

630. *(209.)* **Seminar in the Biology of Cold-blooded Vertebrates (2)**
Prerequisite: Zoology 160 or 506.
Biology of ectothermic animals. Maximum credit four units applicable on a master's degree.

640. *(210.)* **Seminar in the Biology of Warm-blooded Vertebrates (2)**
Prerequisite: Zoology 160 or 506.
Biology of endothermic animals. Maximum credit four units applicable on a master's degree.

650. *(211.)* **Animal Energetics (3)**
Prerequisite: An upper division course in physiology. Recommended: A course in calculus and one in biochemistry.
Energy transformation in animals to include the physiology of starvation, animal energetic efficiency, nutrition, and temperature regulation.

660. *(212.)* **Advanced Marine Invertebrate Zoology (3)**
One lecture and six hours of laboratory.
Prerequisite: Zoology 510.
Selected topics in advanced marine invertebrate zoology. Maximum credit six units applicable on a master's degree.

670. *(215.)* **Advanced Lower Vertebrate Zoology (2-4)**
See class schedule for lecture-laboratory format.
Prerequisites: Either Zoology 515 or 516, depending on specific topic announced in class schedule.
Advanced treatment of ichthyology or herpetology. May be taken twice with new content for maximum credit of eight units. Maximum credit eight units applicable on a master's degree.

675. Advanced High Vertebrate Zoology (2-4)
Prerequisites: Either Zoology 517 or 518, depending on specific topic announced in class schedule.
Advanced treatment of ornithology or mammalogy. May be taken twice with new content for a maximum of eight units. Maximum credit eight units applicable on a master's degree.

680. *(222.)* **Advanced Entomology (3)**
Two lectures and three hours of laboratory.
Prerequisite: Zoology 521, Biology 520, Botany 500 or 503.
Advanced treatment of some phase of entomology such as physiology, morphology, toxicology or systematics. Topic to be announced in the class schedule. May be repeated with new content. Maximum credit six units applicable on a master's degree.

690. *(290.)* **Bibliography (1)**
The use of basic reference books, journals, pertinent bibliographies preparatory to the writing of a master's thesis.

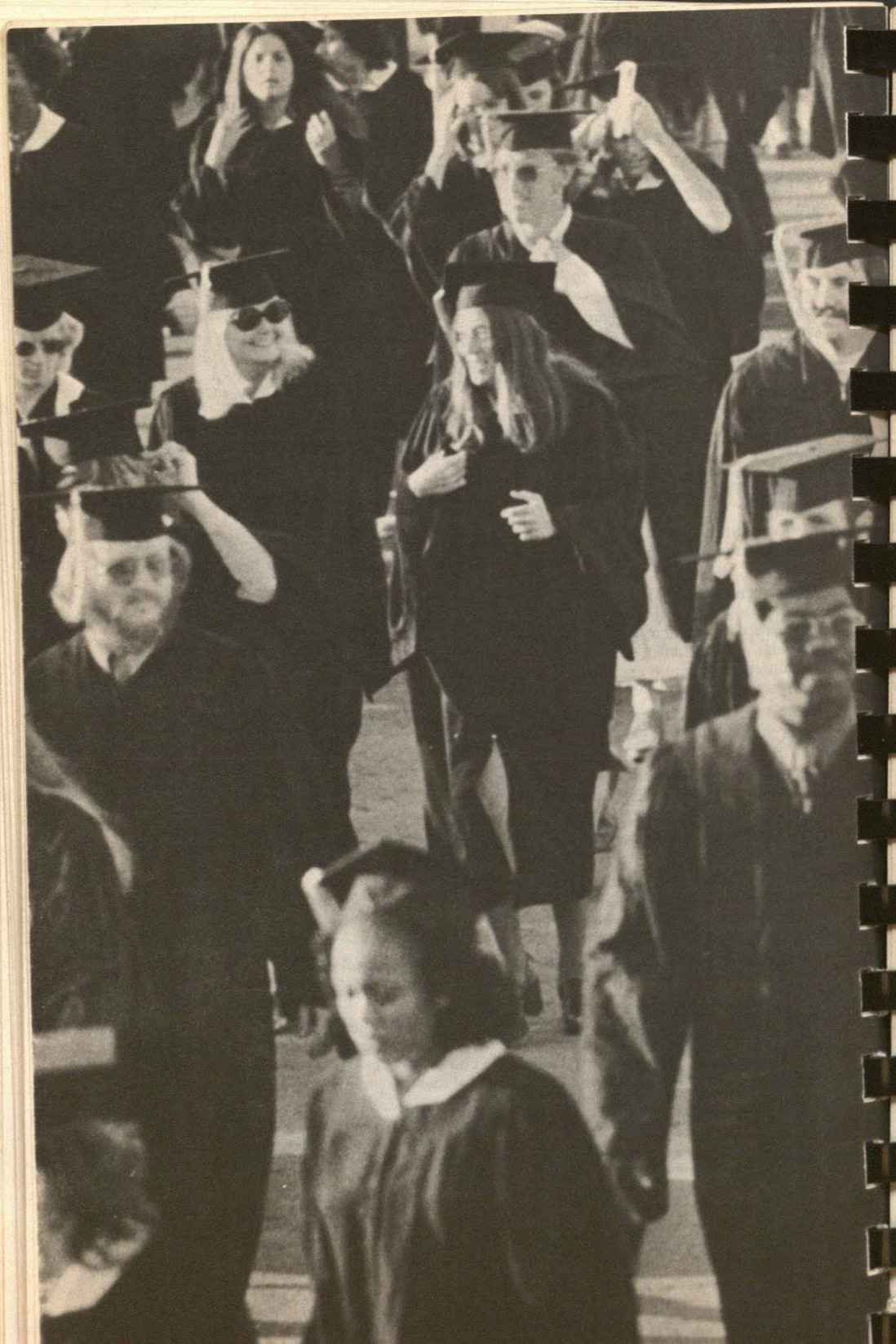
791. *(291.)* **Research Techniques (3)**
Prerequisite: Consent of graduate adviser.
Analysis of research techniques in zoology.

797. *(297.)* **Research (1-3) Cr/NC**
Research in one of the fields of zoology. Maximum credit six units applicable on a master's degree.

798. *(298.)* **Special Study (1-3) Cr/NC**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Maximum credit six units.

799A. *(299.)* **Thesis or Project (3) Cr/NC**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade symbol of SP.
Registration required in any semester or term following assignment of SP in Course 799A in which the student expects to use the facilities and resources of the university; also student must be registered in the course when the completed thesis or project is granted final approval.



ADDENDA

Faculty and Administration

Index

Faculty and Administration 1974 – 1975

GOLDING, BRAGE (1972) ..... President, Professor of Chemistry and Engineering
B.S., Ch.E., Ph.D., Purdue University.

ABBOTT, MITCHEL T. (1964) ..... Professor of Chemistry
B.Sc., Ph.D., University of California, Los Angeles.

ABBOTT, PATRICK L. (1973) ..... Associate Professor of Geology
B.S., San Diego State University; M.A., Ph.D., University of Texas.

ACKERLY, ROBERT S., JR. (1963) ..... Associate Dean of The University College
B.A., College of Wooster; A.M., Colgate University; Ed.D., Indiana University.

ADAMS, EILEEN (Mrs. H. L.) (1949) ..... Senior Assistant Librarian, Chairman of Education Resource Center
A.B., Williamette University; B.S.L.S., University of Denver.

ADAMS, ELSIE B. (1971) ..... Associate Professor of English
B.S., M.A., Ph.D., University of Oklahoma.

ADAMS, WILLIAM J. (1955) ..... Professor of Speech Communication
B.S., McMurry College; M.A., Northwestern University; Ph.D., Stanford University.

AJEMIAN, JAMES A. (1970) ..... Assistant Professor of Social Work
B.A., Harvard College; M.S., Columbia University; Ph.D., University of Michigan.

AKERS, FRED C. (1966) ..... Associate Professor of Marketing
B.S., University of Missouri; M.B.A. (Marketing), Northwestern University; M.B.A. (Economics), Ph.D., University of Chicago.

ALEXANDER, CYNTHIA L. (1974) ..... Scholarship Adviser
B.S., M.A., Ball State University.

ALEXANDER, JAMES V. (1967) ..... Associate Professor of Botany
A.B., San Diego State University; M.S., Ph.D., University of California.

ALF, EDWARD F., JR. (1963) ..... Professor of Psychology
A.B., San Diego State University; Ph.D., University of Washington.

ALLEN, ELIZABETH J. (1971) ..... Associate Professor of Speech, Pathology and Audiology
B.A., Seattle Pacific College; M.A., Ph.D., Louisiana State University.

ALMOND, FRANK W. (1968) ..... Associate Professor of Music
A.B., M.A., San Diego State University; Ph.D., Florida State University.

ALTAMURA, NICHOLAS C. (1967) ..... Assistant Professor of Secondary Education
B.S., Ithaca College; M.Ed., University of Arizona; Ph.D., Arizona State University.

AMBLE, KJELL (1962) ..... Professor of Drama
B.A., Denison University; M.A., Ph.D., Northwestern University.

ANDERES, EUGENE A. (1968) ..... Associate Professor of Microbiology
A.B., M.S., San Diego State University; Ph.D., Oregon State University.

ANDERSON, ALLAN W. (1962) ..... Professor of Religious Studies
B.A., Washington Missionary College; M.A., Trinity College; Ph.D., Columbia University.

ANDERSON, ARTHUR J. O. (1961) ..... Professor of Anthropology
A.B., San Diego State University; M.A., Claremont Colleges; Ph.D., University of Southern California.

ANDERSON, DWIGHT G. (1969) ..... Associate Professor of Political Science
B.A., University of Montana; M.A., Ph.D., University of California, Berkeley.

ANDERSON, ERNEST F. (1971) (Under contract 1969-70) ..... Associate Professor of Social Work
B.A., California State University, Los Angeles; M.S.W., San Diego State University.

ANDERSON, EVANS L. (1954) ..... Professor of Elementary Education
B.A., Gustavus Adolphus College; M.A., University of Minnesota; Ed.D., University of Denver.

ANDERSON, GRAYDON K. (1949) ..... Professor of Economics
A.B., Willamette University; Ph.D., University of Wisconsin.

ANDERSON, HAYES L. (1966) ..... Associate Professor of Telecommunications and Film
B.A., Oregon State University; M.A., Ph.D., Michigan State University.

ANDERSON, NANCY (1972) ..... Psychometrist
A.B., M.S., San Diego State University.

ANDERSON, PAUL V. (1954) ..... Professor of Music
B.M., North Texas State College; M.M., University of Wisconsin.

ANDERSON, W. CARLISLE (1955) ..... Professor of Industrial Studies
B.S., Nebraska State Teachers College; M.A., Ph.D., University of Minnesota.

ANDERSON, ZOE E. (1965) ..... Associate Professor of Family Studies and Consumer Sciences
B.S., Illinois Institute of Technology; M.S., Ph.D., University of Illinois.

ANDRAIN, CHARLES F. (1964) ..... Professor of Political Science
B.A., Whittier College; M.A., Ph.D., University of California.

ANDRUS, RUTH (1962) ..... Professor of Physical Education
B.S., Utah State University; M.S., University of Oregon; Ph.D., State University of Iowa.

ANGIONE, RONALD J. (1969) ..... Associate Professor of Astronomy
A.B., M.S., San Diego State University; Ph.D., University of Texas.

ANINGER, THOMAS (1967) ..... Assistant Professor of English
B.A., M.A., Ph.D., University of California, Los Angeles.

ANNAS, ALICIA M. (1970) ..... Assistant Professor of Drama
A.B., University of Detroit; M.F.A., University of Texas.

ANTHONY, SALLY M. (Mrs.) (1965) ..... Professor of Secondary Education
A.B., University of California, Los Angeles; Ed.M., Ed.D., Rutgers University.

APPLEBY, ANDREW B. (1973) ..... Assistant Professor of History
B.A., Ph.D., University of California, Los Angeles.

APPLEBY, JOYCE O. (1967) ..... Associate Dean, College of Arts and Letters; Professor of History
B.A., Stanford University; M.A., University of California, Santa Barbara; Ph.D., Claremont Graduate School.

ARCHER, ELLIS C. (1956) ..... Professor of Information Systems
B.S., Northwestern State College; M.S., University of Kansas; Ed.D., Stanford University.

ARCINIEGA, TOMAS A. (1973) ..... Dean, School of Education; Professor of Educational Administration
B.S., New Mexico State University; M.S., Ph.D., University of New Mexico.

ATCHISON, THOMAS J. (1965) ..... Professor of Management
A.B., Stanford University; M.B.A., University of California, Los Angeles; Ph.D., University of Washington.

ATKINS, MICHAEL D. (1970) ..... Professor of Zoology
B.A., M.Sc., University of British Columbia; Ph.D., Oregon State University.

AUSTIN, JOAN F. (1970) ..... Assistant Professor of Art
B.A., California State University, Long Beach; M.F.A., Cranbrook Academy of Art.

AVILA, VERNON L. (1973) ..... Lecturer in Zoology
B.S., University of New Mexico; M.A., North Arizona University; Ph.D., University of Colorado.

AWBREY, FRANK T. (1964) ..... Associate Professor of Biology
B.A., University of California, Riverside; M.A., Ph.D., University of Texas.

AYALA, REYNALDO (1969) ..... Associate Professor of Geography, Imperial Valley
B.A., University of Minnesota; M.A., Ph.D., Southern Illinois University.

BAASE, SARA (Mrs.) (1972) ..... Assistant Professor of Mathematics
B.A., New York University; M.A., Ph.D., University of California, Berkeley.

BABILOT, GEORGE (1956) ..... Professor of Economics
A.B., Hastings College; M.A., University of Nebraska; Ph.D., University of Oregon.

BAER, ADELA S. (1962) ..... Professor of Biology
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BAILEY, ALLAN R. (1968) ..... Associate Professor of Accounting
B.S., San Diego State University; M.B.A., Ph.D., University of California, Los Angeles.

BAILEY, GERALD D. (1964) ..... Professor of Industrial Studies
B.A., M.A., Central Washington State College; Ed.D., University of Missouri.

BAILY, KAMILLA U. (Mrs.) (1966) ..... Associate Professor of Social Work
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BAKER, CLIFFORD H. (1937) ..... Professor of Spanish
A.B., San Diego State University; M.A., University of California; Ph.D., University of Southern California.

BAKER, DOUGLAS L. (1954) ..... Professor of Elementary Education
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BAKER, JAMES R. (1956, except 1961-62) ..... Professor of English
B.A., M.A., Ph.D., University of Denver.

BAKER, KEEFE L. (1965) ..... Professor of Art
B.F.A., University of Colorado; M.F.A., State University of Iowa.

BAKER, WILLIAM S. (1973) ..... M.D., Health Services
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BAKHRU, KESHOOLAL (1972) ..... Assistant Professor of Electrical Engineering
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BALDWIN, ELMER D. (1963) ..... Associate Dean, Imperial Valley Campus; Professor of Education
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BALLANTINE, FRANCIS A. (1949) ..... Professor of Special Education
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BARBER, WILLIAM F. (1959) ..... Assistant Dean for Graduate Studies, School of Business Administration; Professor of Marketing
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BARCKLEY, ROBERT E. (1955) ..... Professor of Economics
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BARCLAY, A. BERNICE (Mrs.) (1962) ..... Associate Librarian
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BARNES, ALFRED C., JR. (1968) ..... Associate Professor of Health Science and Safety
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BARNETT, CAROL A. (1971) ..... Assistant Professor of Biology
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BARONE, JOAN F. (1960) ..... Associate Professor of Physical Education
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BARRERA, ERNESTO M. (1969) ..... Associate Professor of Spanish
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BARRY, JOHN J. (1969) ..... Assistant Professor of English
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BAUER, EDWARD G. (1956) ..... Professor of Mechanical Engineering
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BAXTER, ROBERT J. (1962) ..... Professor of Art
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BAXTER, WILLIAM L. (1963) ..... Professor of Microbiology
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BEASLEY, JOHN M. (1972) ..... Assistant Professor of Health Science and Safety
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BECKER, GEORGE J. (1969) ..... Associate Professor of Elementary Education
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BECKER, GERALD A. (1958) ..... Professor of Mathematics
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BECKLUND, LESTER A. (1967) ..... Professor of Secondary Education
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BEDORE, ROBERT L. (1959) ..... Professor of Mechanical Engineering
B.S.M.E., M.S.M.E., Purdue University. Registered Professional Mechanical Engineer.

BEE, CLIFFORD P. (1969) ..... Associate Professor of Secondary Education
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BEKKER, FREDERIK J. (1974) ..... Lecturer in Psychology
Doctoranous, Ph.D., State University Leident.

BELASCO, JAMES A. (1971) ..... Professor of Management
B.S., Cornell University; M.B.A., Hofstra University; Ph.D., Cornell University.

BELCHER, DAVID W. (1957) ..... Professor of Management
B.B.A., M.A., Ph.D., University of Minnesota.

BELLINGHIERE, JOSEPH J. (1973) ..... Lecturer in Drama
B.A., Creighton University; M.A., Humboldt State University; Ph.D., Florida State University.

BENDER, STEPHEN J. (1970) ..... Associate Professor of Health Science and Safety
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BENJAMIN, ALBERT E., JR. (1974) ..... Lecturer in Social Work
A.B., Duke University; M.S.W., University of Michigan.

BENJAMIN, ROBERT L. (1953) ..... Professor of Speech Communication
A.B., University of California; M.S., Ph.D., University of Wisconsin.

BENNETT, LARRY E. (1970) ..... Professor of Chemistry
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BENSON, GARY L. (1974) ..... Lecturer in Management
B.S., M.P.A., D.B.A., Brigham Young University.

BENSON, JACKSON J. (1966) ..... Professor of English
A.B., Stanford University; M.A., San Francisco State University; Ph.D., University of Southern California.

BENTON, CARL W. (1948) ..... Professor of Physical Education
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BERG, MARLOW J. (1970) ..... Associate Professor of Elementary Education
B.S., M.A., Ph.D., University of Minnesota.

BERG, ROBERT V. (1963) ..... Professor of Art
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BERGE, DENNIS E. (1963) ..... Professor of History
A.B., M.A., San Diego State University; Ph.D., University of California.

BERRY, RICHARD W. (1961) ..... Professor of Geology
B.S.E.M., Lafayette College; M.A., Ph.D., Washington University.

BERTINE, KATHE (1973) ..... Assistant Professor of Geology
B.A., Vassar College; M.A., M.Ph., Ph.D., Yale University.

BIGELOW, MARYBELLE S. (Mrs. K. G.) (1956) ..... Professor of Art
A.B., M.A., University of California, Los Angeles; additional graduate study, Teachers College, Columbia University, and University of California.

BIGGER, W. RICHARD (1952) ..... Professor of Public Administration and Urban Studies
B.A., M.A., University of Wisconsin; Ph.D., University of California, Los Angeles.

BIGGS, MILLARD R. (1958) ..... Associate Dean, College of Professional Studies; Professor of Music
B.M., Youngstown University; M.F.A., Ohio University; Ph.D., University of Iowa.

BIHL, DONALD E. (1973) ..... Lecturer in Physics
B.S., M.S., San Diego State University.

BILTERMAN, HENRY L. (1956) ..... Assistant Professor of Mechanical Engineering
B.S.E.E., University of Iowa; M.A., San Diego State University.

BINION, GAYLE N. (1974) ..... Lecturer in Political Science
B.A., City University of New York; M.A., University of California, Los Angeles.

BIRCH, AILEEN J. (Mrs. C. E.) (1949) ..... Assistant Professor of Elementary Education
A.B., M.A., San Diego State University.

BLACK, BARBARA B. (1970) ..... Professor of Nursing
R.N., E. W. Sparrow Hospital School of Nursing; B.S., University of Minnesota; M.S., Indiana University.

BLACKMUN, RUPERT B. (1970) ..... Assistant Professor of Industrial Studies
B.A., M.A., San Jose State University.

BLAKE, JAMES W. (1974) ..... Lecturer in Afro-American Studies
B.A., San Francisco State University; M.A., Stanford University.

BLANC, SAM S. (1966) ..... Assistant Dean, School of Education; Professor of Elementary Education
A.B., Colorado State College; M.A., Ed.D., University of Denver.

BLICK, JAMES D. (1966) ..... Associate Professor of Geography
A.B., M.A., Ph.D., University of California, Los Angeles.

BLOCK, RUSSELL L. (1969) ..... Associate Professor of Finance
A.B., San Diego State University; J.D., University of California.

BLOOMBERG, WARNER (1973) ..... Lecturer in Sociology
B.A., M.A., Ph.D., University of Chicago.

BLYTH, JOHN D. (1957) ..... Professor of Music
B.M., M.M., Illinois Wesleyan University; Ed.D., Teachers College, Columbia University.

BOE, ALFRED F. (1968) ..... Assistant Professor of English
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BOGGS, WILMA T. (Mrs. A. H.) (1971) ..... Assistant Professor of Family Studies and Consumer Sciences
B.S., Kansas State University; M.S., San Diego State University.

BOHNSACK, KURT K. (1956) ..... Professor of Zoology
B.S., Ohio University; M.S., Ph.D., University of Michigan.

BOLTON, CRAIG J. (1974) ..... Lecturer in Economics
B.A., University of Arizona.

BONEY, ELAINE E. (1963) ..... Professor of German
A.B., University of Kansas; M.A., University of Wisconsin; Ph.D., University of Texas.

BOOSTROM, RONALD L. (1971) ..... Assistant Professor of Public Administration and Urban Studies
B.A., California State University, Long Beach; Master of Criminology, University of California, Berkeley; Doctor of Criminology, University of California, Berkeley.

BORGES, MARILYN A. (1974) ..... Lecturer in Psychology
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BORKAT, ROBERTA F. (Mrs. F.) (1969) ..... Assistant Professor of English
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BOSCHKEN, HERMAN LUTHER (1973) ..... Assistant Professor of Management
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BOSKIN, WARREN D. (1965) ..... Associate Professor of Health Science and Safety
B.S., Brooklyn College; M.S., University of Illinois; Ed.D., West Virginia University.

BOTKIN, PATRICIA T. (Mrs.) (1969) ..... Associate Professor of Elementary Education
B.S., M.S., Brockport State Teachers College; Ed.D., University of Rochester.

BOWNE, WILLIAM F. (1959) ..... Associate Professor of Art
B.Ed., M.A., University of California, Los Angeles.

BOXER, MARILYN (1974) ..... Lecturer in Women's Studies
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BRANAN, ALVORD G. (1969) ..... Assistant Dean for Student Affairs, College of Arts and Letters; Associate Professor of French
B.A., University of Florida; M.A., Middlebury College; Ph.D., Tulane University.

BRANDT, CHARLES L. (1957) ..... Professor of Biology
B.A., Ph.D., Stanford University.

BRANSTETTER, R. DEANE (1955) ..... Professor of Mathematics
B.S., B.A., Northeast Missouri State Teachers College; M.S., University of Iowa; Ph.D., Iowa State College.

BRASHERS, HOWARD C. (1968) ..... Professor of English
B.A., University of California; M.A., San Francisco State University; Ph.D., University of Denver.

BRAY, HENRY G. (1962) ..... Professor of Mathematics
A.B., San Diego State University; M.S., Ph.D., Iowa State University.

BRIDENSTINE, DON C. (1956) ..... Professor of Economics
B.S., University of Oregon; A.M., Ph.D., University of Southern California.

BRIGGS, ROBERT M. (1957) ..... Professor of Secondary Education
A.B., Colorado State College of Education; M.A., Stanford University; Ed.D., Colorado State College of Education.

BRILL, EDWARD A. (1974) ..... Lecturer in Management
A.B., University of California, Los Angeles; M.S., Ph.D., Stanford University.

BROADBENT, HARRY H. (1949) ..... Associate Professor of Physical Education
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BRODSHATZER, ARTHUR (1956) ..... Professor of Accounting
B.B.A., City College of New York; M.B.A., New York University; D.B.A., University of Southern California; Certified Public Accountant.

BROOKS, VIRGINIA R. (1974) ..... Lecturer in Social Work
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BROWN, HAROLD K. (1971) ..... Director, Campus Information Systems
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BROWN, RUTH M. C. (Mrs. C.) (1971) ..... Assistant Professor of English
B.A., Montana State University; M.A., Texas Western College; Ph.D., Arizona State University.

BROWN, WILLIAM L. (1962) ..... Assistant Professor of Electrical Engineering
B.S.E.E., Professional Degree in Electrical Engineering, Mississippi State University.

BRUCE, PAUL (1957) ..... Professor of Counselor Education
A.B., Antioch College; M.A., Claremont Graduate School; Ph.D., University of Iowa.

BRUDERER, CONRAD (1963) ..... Professor of Music
B.M., Oberlin Conservatory; M.M., D.M., Indiana University.

BRUNSON, THEODORE R. (1966) ..... Professor of Music
B.S., University of Minnesota; M.M., University of Nebraska; D.M.A., University of Arizona.

BRYANT, STEVEN J. (1964) ..... Associate Professor of Mathematics
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BRYDEGAARD, MARGUERITE A., (Mrs. H.) (1936) ..... Professor of Elementary Education
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BRYSON, JEFF B. (1970) ..... Associate Professor of Psychology
B.A., University of Texas; M.S., Ph.D., Purdue University.

BRYSON, REBECCA (1972) ..... Test Officer
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BUCHANAN, JAMES P. (1973) ..... Lecturer in Psychology
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BUCK, ROBERT E. (1969) ..... Associate Professor of Sociology
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BUCKALEW, JAMES K. (1967) ..... Professor of Journalism
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BEASLEY, JOHN M. (1972) ..... Assistant Professor of Health Science and Safety
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BEATTY, JAMES R. (1973) ..... Assistant Professor of Management
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BECKER, GEORGE J. (1969) ..... Associate Professor of Elementary Education
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BECKER, GERALD A. (1958) ..... Professor of Mathematics
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BECKLUND, LESTER A. (1967) ..... Professor of Secondary Education
B.S., M.Ed., Ph.D., University of Minnesota.

BEDORE, ROBERT L. (1959) ..... Professor of Mechanical Engineering
B.S.M.E., M.S.M.E., Purdue University. Registered Professional Mechanical Engineer.

BEE, CLIFFORD P. (1969) ..... Associate Professor of Secondary Education
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BEKKER, FREDERIK J. (1974) ..... Lecturer in Psychology
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BELLINGHIERE, JOSEPH J. (1973) ..... Lecturer in Drama
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BENDER, STEPHEN J. (1970) ..... Associate Professor of Health Science and Safety
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BENJAMIN, ALBERT E., JR. (1974) ..... Lecturer in Social Work
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BENJAMIN, ROBERT L. (1953) ..... Professor of Speech Communication
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BENNETT, LARRY E. (1970) ..... Professor of Chemistry
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BENSON, GARY L. (1974) ..... Lecturer in Management
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BENSON, JACKSON J. (1966) ..... Professor of English
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BENTON, CARL W. (1948) ..... Professor of Physical Education
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BERG, MARLOW J. (1970) ..... Associate Professor of Elementary Education
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BERG, ROBERT V. (1963) ..... Professor of Art
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BERGE, DENNIS E. (1963) ..... Professor of History
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BERRY, RICHARD W. (1961) ..... Professor of Geology
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BERTINE, KATHE (1973) ..... Assistant Professor of Geology
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BIGELOW, MARYBELLE S. (Mrs. K. G.) (1956) ..... Professor of Art
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BIGGER, W. RICHARD (1952) ..... Professor of Public Administration and Urban Studies
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BIHL, DONALD E. (1973) ..... Lecturer in Physics
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BILTERMAN, HENRY L. (1956) ..... Assistant Professor of Mechanical Engineering
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BINION, GAYLE N. (1974) ..... Lecturer in Political Science
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BIRCH, AILEEN J. (Mrs. C. E.) (1949) ..... Assistant Professor of Elementary Education
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BLACK, BARBARA B. (1970) ..... Professor of Nursing
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BLACKMUN, RUPERT B. (1970) ..... Assistant Professor of Industrial Studies
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BLAKE, JAMES W. (1974) ..... Lecturer in Afro-American Studies
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BLANC, SAM S. (1966) ..... Assistant Dean, School of Education; Professor of Elementary Education
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BLICK, JAMES D. (1966) ..... Associate Professor of Geography
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BLOOMBERG, WARNER (1973) ..... Lecturer in Sociology
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BLYTH, JOHN D. (1957) ..... Professor of Music
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BOE, ALFRED F. (1968) ..... Assistant Professor of English
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BOGGS, WILMA T. (Mrs. A. H.) (1971) ..... Assistant Professor of Family Studies and Consumer Sciences
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BOHNSACK, KURT K. (1956) ..... Professor of Zoology
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BOLTON, CRAIG J. (1974) ..... Lecturer in Economics
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BONEY, ELAINE E. (1963) ..... Professor of German
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BOOSTROM, RONALD L. (1971) ..... Assistant Professor of Public Administration and Urban Studies
B.A., California State University, Long Beach; Master of Criminology, University of California, Berkeley; Doctor of Criminology, University of California, Berkeley.

BORGES, MARILYN A. (1974) ..... Lecturer in Psychology
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BORKAT, ROBERTA F. (Mrs. F.) (1969) ..... Assistant Professor of English
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BOSCHKEN, HERMAN LUTHER (1973) ..... Assistant Professor of Management
B.S., M.B.A., University of California, Berkeley; Ph.D., University of Washington.

BOSKIN, WARREN D. (1965) ..... Associate Professor of Health Science and Safety
B.S., Brooklyn College; M.S., University of Illinois; Ed.D., West Virginia University.

BOTKIN, PATRICIA T. (Mrs.) (1969) ..... Associate Professor of Elementary Education
B.S., M.S., Brockport State Teachers College; Ed.D., University of Rochester.

BOWNE, WILLIAM F. (1959) ..... Associate Professor of Art
B.Ed., M.A., University of California, Los Angeles.

BOXER, MARILYN (1974) ..... Lecturer in Women's Studies
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BRANAN, ALVORD G. (1969) ..... Assistant Dean for Student Affairs, College of Arts and Letters; Associate Professor of French
B.A., University of Florida; M.A., Middlebury College; Ph.D., Tulane University.

BRANDT, CHARLES L. (1957) ..... Professor of Biology
B.A., Ph.D., Stanford University.

BRANSTETTER, R. DEANE (1955) ..... Professor of Mathematics
B.S., B.A., Northeast Missouri State Teachers College; M.S., University of Iowa; Ph.D., Iowa State College.

BRASHERS, HOWARD C. (1968) ..... Professor of English
B.A., University of California; M.A., San Francisco State University; Ph.D., University of Denver.

BRAY, HENRY G. (1962) ..... Professor of Mathematics
A.B., San Diego State University; M.S., Ph.D., Iowa State University.

BRIDENSTINE, DON C. (1956) ..... Professor of Economics
B.S., University of Oregon; A.M., Ph.D., University of Southern California.

BRIGGS, ROBERT M. (1957) ..... Professor of Secondary Education
A.B., Colorado State College of Education; M.A., Stanford University; Ed.D., Colorado State College of Education.

BRILL, EDWARD A. (1974) ..... Lecturer in Management
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BROADBENT, HARRY H. (1949) ..... Associate Professor of Physical Education
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BRODSHATZER, ARTHUR (1956) ..... Professor of Accounting
B.B.A., City College of New York; M.B.A., New York University; D.B.A., University of Southern California; Certified Public Accountant.

BROOKS, VIRGINIA R. (1974) ..... Lecturer in Social Work
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BROWN, HAROLD K. (1971) ..... Director, Campus Information Systems
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BROWN, RUTH M. C. (Mrs. C.) (1971) ..... Assistant Professor of English
B.A., Montana State University; M.A., Texas Western College; Ph.D., Arizona State University.

BROWN, WILLIAM L. (1962) ..... Assistant Professor of Electrical Engineering
B.S.E.E., Professional Degree in Electrical Engineering, Mississippi State University.

BRUCE, PAUL (1957) ..... Professor of Counselor Education
A.B., Antioch College; M.A., Claremont Graduate School; Ph.D., University of Iowa.

BRUDERER, CONRAD (1963) ..... Professor of Music
B.M., Oberlin Conservatory; M.M., D.M., Indiana University.

BRUNSON, THEODORE R. (1966) ..... Professor of Music
B.S., University of Minnesota; M.M., University of Nebraska; D.M.A., University of Arizona.

BRYANT, STEVEN J. (1964) ..... Associate Professor of Mathematics
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BRYDEGAARD, MARGUERITE A., (Mrs. H.) (1936) ..... Professor of Elementary Education
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BRYSON, JEFF B. (1970) ..... Associate Professor of Psychology
B.A., University of Texas; M.S., Ph.D., Purdue University.

BRYSON, REBECCA (1972) ..... Test Officer
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BUCHANAN, JAMES P. (1973) ..... Lecturer in Psychology
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BUCK, ROBERT E. (1969) ..... Associate Professor of Sociology
B.S., M.S., Trinity University; Ph.D., University of Texas.

BUCKALEW, JAMES K. (1967) ..... Professor of Journalism
A.B., M.A., Indiana State College; Ph.D., University of Iowa.

BUMPUS, JERRY D. (1971) ..... Associate Professor of English
B.A., University of Missouri; M.F.A., University of Iowa.

BURDICK, DAVID L. (1968) ..... Associate Professor of Mathematics
A.B., University of California; M.A., Ph.D., University of New Mexico.

BURGESS, WILLIAM C. (1961) ..... Professor of Health Science and Safety
A.B., M.A., University of North Carolina; Ed.D., Teachers College, Columbia University.

BURNETT, LOWELL J. (1972) ..... Assistant Professor of Physics
B.S., Portland State University; M.S., Ph.D., University of Wyoming.

BURNSIDE, HOUSTON M. (1968) ..... Professor of Elementary Education
B.S., Kent State University; M.A., Ph.D., Claremont Graduate School.

BURTON, CHARLES R. (1959) ..... Professor of Mathematics
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BUSSARD, WILLIAM H. (1974) ..... Lecturer in Industrial Studies
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BUSOOL, ASSAD N. (1974) ..... Lecturer in Classical Languages
B.A., M.A., Hebrew University; M.L.S., Ph.D., University of California, Berkeley.

BUTLER, GERALD J. (1968) ..... Assistant Professor of English
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BUTLER, RAY R. (1967) ..... Professor of Recreation Administration
B.A., M.Ed., University of Minnesota.

CANNON, NONA H. (Mrs. R. C.) (1959) ..... Professor of Family Studies and Consumer Sciences
B.S., Harding College; M.S., University of California; Ed.D., Teachers College, Columbia University.

CAPP, MARTIN P. (1953) ..... Dean, School of Engineering; Professor of Civil Engineering
B.S., M.S., University of Colorado. Registered Professional Engineer and Land Surveyor.

CARELLA, MICHAEL J. (1967) ..... Associate Professor of Philosophy
B.S., St. Patrick's College, California; M.A., St. Louis University; Ph.L., Ph.D., University of Louvain, Belgium.

CARMICHAEL, NANCY M. (1968) ..... Assistant Professor of Botany
B.A., Barnard College, Columbia University; M.A., Ph.D., Columbia University.

CARNEVALE, JAMES P. (1967) ..... Professor of Counselor Education
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CARPENTER, ROGER E. (1963) ..... Professor of Zoology
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CARPENTER, THOMAS P. (1973) ..... Assistant Professor of Mathematics
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CARRUTHERS, JAMES B. (1969) ..... Coordinator, Aztec Center
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CARTER, J. E. LINDSAY (1962) ..... Professor of Physical Education
Diploma in Physical Education, University of Otago, New Zealand; Teaching Certificate, Auckland Teachers College, New Zealand; M.A., Ph.D., University of Iowa.

CASE, THOMAS E. (1961) ..... Professor of Spanish
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CATLETT, ROBERT H. (1964) ..... Associate Professor of Zoology
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CAVE, MARY F. (1946) ..... Associate Professor of Physical Education
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CHAMLEY, JOHN D. (1969) ..... Associate Professor of Counselor Education
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CHAN, LILLIAN L. (Mrs. S. Y.) (1969) ..... Senior Assistant Librarian
B.S., M.A.L.S., University of Michigan.

CHAN, SHU-YUN (1965) ..... Professor of Electrical Engineering
B.S., Susquehanna University; B.S.E.E., Columbia University; M.S.E.E., Ph.D., University of Michigan.

CHANDLER, SHELLY E. (Mrs. D.) (1966) ..... Associate Professor of Sociology
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CHANG, HOWARD H. (1967) ..... Professor of Civil Engineering
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CHARLES, CAROL M. (1961) ..... Professor of Elementary Education
B.A., M.A., Eastern New Mexico University; Ph.D., University of New Mexico.

CHASE, LAURA L. (1973) ..... Lecturer in Psychology
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CHAVEZ, AUGUSTINE S. (1974) ..... Director of Educational Opportunity Programs
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CHEEK, WILLIAM F. (1968) ..... Associate Professor of History
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CHEN, LO-CHAI (1969) ..... Associate Professor of Zoology
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CHILDRESS, WILLIAM A. (1968) ..... Assistant Professor of Art
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CHOU, FANG-HUI (1969) ..... Associate Professor of Civil Engineering
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CHRISTENSEN, CLAY B. (Ben) (1968) ..... Associate Professor of Spanish
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CHRYSLER, EARL (1970) ..... Assistant Professor of Information Systems
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CHU, PAOCHIN (1967) ..... Associate Professor of History
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CLAPP, JAMES A. (1968) ..... Associate Professor of Public Administration and Urban Studies
B.S., LeMoyne College; M.R.P., Ph.D., Syracuse University.

CLARK, MARGARET A. (1966) ..... Associate Professor of Elementary Education
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CLARK, MARY E. (1969) ..... Professor of Biology
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CLEMENT, NORRIS C. (1968) ..... Associate Professor of Economics
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CLERKIN, MARGARET T. (1973) ..... Lecturer in Nursing
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CLEVELAND, JOHN L. (1972) ..... Associate Professor of Elementary Education
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CLINGER, LAWRENCE A. (1969) ..... Director, External Academic Programs, Office of Continuing Education
B.S., M.P.A. Candidate, San Diego State University.

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COBBLE, JAMES W. (1973) ..... Dean of Graduate Division and Research; Professor of Chemistry
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COCHRAN, ALICE J. (Mrs. H.) (1965) ..... Assistant Professor of Counselor Education
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COHN, THEODORE J. (1964) ..... Professor of Zoology
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COLBOURN, TREVOR (1973) ..... Vice President for Academic Affairs; Professor of History
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COLEMAN, KATHLEEN L. (Mrs. P. L.) (1973) ..... Assistant Librarian
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COLLIER, BOYD D. (1966) ..... Professor of Biology
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COLLIER, GERALD (1961) ..... Associate Professor of Zoology
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COLM, C. LELAND (1938) ..... M.D., Health Services
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COLOMBO, ALBERT A. (1967) ..... Assistant Professor of Geography
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CONLY, JOHN F. (1962) ..... Professor of Aerospace Engineering
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CONNER, LELAND W.C., Captain, USAF (1972) ..... Assistant Professor of Aerospace Studies
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CONNIFF, JAMES J. (1968) ..... Associate Professor of Political Science
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CONSIDINE, THALIA K. (1974) ..... Lecturer in Family Studies and Consumer Sciences
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COOPER, CHARLES F. (1971) ..... Professor of Biology
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COOPER, GWEN O. (Mrs.) (1966) ..... Counselor
B.S., University of Miami; M.A., Ed.D., Colorado State College.

COOPER, ROBERT W. (1973) ..... Associate Professor of Zoology
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COOX, ALVIN D. (1964) ..... Professor of History
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CORSO, ANTHONY W. (1973) ..... Lecturer in Public Administration and Urban Studies
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COTA, RAYMOND A. (1971) ..... Counselor
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COTTRELL, ANN B. (Mrs. D.) (1967) ..... Associate Professor of Sociology
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COTTRELL, DON M. (1967) ..... Associate Professor of Physics
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CRAIN, MELVIN (1959) ..... Professor of Political Science
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FORREY, ROBERT J. (1968) ..... Assistant Professor of English
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GRAWUNDER, RALPH M. (1955) ..... Professor of Health Science and Safety
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GREENE, JOANNE H. (1967) ..... Senior Assistant Librarian
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GREENFELD, PHILIP J. (1969) ..... Associate Professor of Anthropology
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GREENWOOD, NED H. (1964) ..... Professor of Geography
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GRIFFIN, ERNST C. (1972) ..... Assistant Professor of Geography
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GRIFFIN, RONALD W. (1967) ..... Professor of Social Work
B.A., Texas Technological College; B.D., Golden Gate Baptist Seminary; M.S.S.W., University of Texas; Ph.D., Florida State University.

GRIPP, RICHARD C. (1958) ..... Professor of Political Science
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GROSSBERG, JOHN M. (1962) ..... Professor of Psychology
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GRUBBS, EDWARD J. (1961) ..... Professor of Chemistry
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GUENTZLER, WILLIAM D. (1968) ..... Associate Professor of Industrial Studies
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GUTOWSKI, JULIUS P., JR. (1967) ..... Assistant Professor of Physical Education
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HABERSTROH, JACK (1969) ..... Associate Professor of Journalism
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HAGER, RICHARD A. (1970) ..... Associate Professor of Mathematics
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HAINES, RICHARD B. (1969) ..... Coordinator of Judiciary Procedures
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HALFAKER, PHILIP (1962) ..... Professor of Secondary Education
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HAMILTON, CHARLES D. (1974) ..... Associate Professor in History
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HARMON, JAMES E. (1964) ..... Associate Professor of Political Science, Imperial Valley
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HARNED, W. WALLACE (1962) ..... Professor of Accounting
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HIMES, RONALD S. (1969) ..... Associate Professor of Anthropology
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HUNTER, LAWRENCE B. (1963) ..... Associate Professor of Art
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HUTCHINS, ROBERT C. (1968) ..... Associate Professor of Finance
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B.S., Lehigh University; M.S.W., Catholic University of America; D.S.W., Columbia University.

KELLY, BEATRICE L. (1967) ..... Professor of Microbiology
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KELLY, JAMES F. (1970) ..... Career Counselor
B.A., B.S., M.P.A., San Diego State University.

KENDALL, W. LLOYD (1961) ..... Coordinator, Brazilian Project; Professor of Elementary Education
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KENNEDY, WILL C. (1967) ..... Associate Professor of Sociology
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KENNEY, LOUIS A. (1961) ..... Director of Library Services
A.B., Nebraska State Teachers College; B.S. in L.S., M.S. in L.S., University of Illinois; graduate study, University of Zurich; Ph.D., University of Maryland.

KERN, JOHN P. (1968) ..... Associate Professor of Geology
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KESSLER, CAROLYN E. (1949) ..... Assistant Director of Business Affairs, Operations

KESSLER, LOIS P. (Mrs. A.) (1969) ..... Associate Professor of Health Science and Safety
R.N., Hospital of the Good Samaritan, Los Angeles; B.S., University of Rochester; M.A., San Diego State University.

KHALIL, ISSA J. (1969) ..... Associate Professor of Religious Studies
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KIEWIET DE JONGE, ENGBERT J. C. (1963) ..... Professor of Geography
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KING, BONNIE B. (Mrs. I. C.) (1970) ..... Assistant Professor of English, Imperial Valley
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KING, RALPH M. (1972) ..... M.D., Health Services
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KING, STEPHEN W. (1971) ..... Associate Professor of Speech Communication
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KINNON, WILLIAM D. (1956) ..... Professor of Psychology
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KIRBY, DOUGLAS B. (1974) ..... Lecturer in Sociology
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KIRKPATRICK, R. GEORGE (1972) ..... Assistant Professor of Sociology
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KITCHEN, JAMES D. (1957) ..... Professor of Public Administration and Urban Studies
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KLANN, CORINNE F. (1962) ..... Assistant Professor of Elementary Education
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KLEE, GARY A. (1974) ..... Lecturer in Geography
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KOCHANSKI, ADRIAN J. (1969) ..... Dean of Academic Planning; Professor of Public Administration
A.B., M.A., (Classics), M.A. (Theology), St. Louis University; Ph.D., University of Chicago.

KOFLER, OTTO F. (1973) ..... Coach, Football
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KOHLER, RICHARD C. (1969) ..... Associate Professor of English
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KOLLER, ANDREW J. (1974) ..... Assistant Professor of Educational Technology and Librarianship
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KOLODIJ, BOHDAN (1972) ..... Assistant Professor of Sociology
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KOPP, HARRIET B. (Mrs.) (1970) ..... Professor of Speech Pathology and Audiology
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KOPP, ROBERT P. (1966) ..... Associate Professor of Mathematics
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KOPPELMAN, WALTER H. (1965, except 1967-68) ..... Professor of Philosophy
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KOPPMAN, JERRY W. (1963) ..... Professor of Psychology
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KOREVAAR, PIA R. (Mrs. J.) (1971) ..... Assistant Professor of Mathematics
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KOZLIK, LUDEK A. (1965) ..... Professor of Russian
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KREKORIAN, CHARLES O. (1970) ..... Associate Professor of Zoology
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KREPSHAW, LEONARD J. (1974) ..... Lecturer in Accounting
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KRISANS, SKAIDRITE (Mrs.) (1969) ..... Associate Professor of Biology
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KRISHNAMOORTHY, GOVINDARAJALU (1968) ..... Professor of Civil Engineering
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KRUMMENACHER, DANIEL (1968) ..... Professor of Geology
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KUKKONEN, RUTH M. (1973) ..... Professor of Social Work
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KUMMEROW, JOCHEN (1973) ..... Professor of Botany
Diploma, University of Mainz; Dr., rer., Ph.D., nat., University of Tuebingen.

KWALLEK, NANCY B. (Mrs. V. F.) (1969) ..... Assistant Professor of Family Studies and Consumer Sciences
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LABOVITZ, EUGENE M. (1974) ..... Lecturer in Sociology
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LAMBERT, ARTHUR A. (1960) ..... Professor of Music
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LAMKE, GENE G. (1973) ..... Assistant Professor of Physical Education
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LA MONICA, GRACE (Mrs. J.) (1966) ..... Assistant Professor of Nursing
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LANCASTER, DALTON O. (1974) ..... Lecturer in Journalism
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LANDIS, JEAN (1968) ..... Assistant Professor of Physical Education
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LANDIS, VINCENT J. (1954) ..... Professor of Chemistry
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LANGLEY, NANCEE B. (1969) ..... Financial Aids Counselor
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LA PRAY, MARGARET H. (1959) ..... Professor of Elementary Education
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LAWS, M. ELIZABETH (Mrs.) (1965) ..... Assistant Professor of Nursing
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LAWSON, RICHARD H. (1957) ..... Professor of German
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LEACH, LARRY L. (1968) ..... Professor of Anthropology
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LEARNED, VINCENT R. (1968) ..... Professor of Electrical Engineering
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LEERHOFF, RUTH E. (1964) ..... Librarian
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LEUKEL, FRANCIS P. (1956) ..... Professor of Psychology
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LEVINE, JOSEPH R. (1965) ..... Professor of Psychology
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LEWIN, HARLAN J. (1967) ..... Associate Professor of Political Science
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LIENERT, CHARLES (1954) ..... Professor of Educational Administration
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LIGHTNER, KEVIN M. (1968) ..... Professor of Accounting
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LILLEGRAVEN, JASON A. (1969) ..... Professor of Zoology
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LILLEY, KATHLEEN (1972) ..... M.D., Health Services
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LILLY, ROGER A. (1968) ..... Associate Professor of Physics
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LIN, MAO-SHIU (1966) ..... Professor of Electrical Engineering
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LINDER, WILLIAM (1973) ..... Career Counselor
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LINDGREN, DONALD A. (1965) ..... Professor of Marketing
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LINGREN, PAUL A. (1957) ..... Professor of Art
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LINTHICUM, JOHN C. (1974) ..... Lecturer in Native-American Studies
B.A., M.A., Johns Hopkins University.

LINTON, MARIGOLD L. (1964) ..... Professor of Psychology
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LIPPOLD, LOIS K. (1968) ..... Associate Professor of Anthropology
B.S., M.S., Ph.D., University of Wisconsin.

LITROWNIK, ALAN J. (1971) ..... Assistant Professor of Psychology
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LITTLE, D. RICHARD (1974) ..... Dean of The University College; Associate Professor of Political Science
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LOCKE, WILLIAM P. (1974) ..... Dean of Continuing Education
B.A., Westminster College; M.Ed., Ph.D., St. Louis University.

LOCKMAN, EVELYN (1948) ..... Professor of Physical Education
B.A., Vanderbilt University; M.A., George Peabody College; graduate study at New York University and University of Wisconsin; additional special study in dance.

LODGE, CHESTER R. (1954) ..... Professor of Electrical Engineering
B.S.E.E., M.S., Ph.D., University of Iowa.

LOGAN, HOPE (1974) ..... Lecturer in Social Work
B.S., University of California, Los Angeles; M.S.W., University of California, Berkeley.

LOGAN, JACK D. (1969) ..... Assistant Professor of Music
B.M., M.M., Southern Methodist University; Ph.D. candidate, University of California, San Diego.

LONGENECKER, MARTHA W. (Mrs. J. I.) (1955) ..... Professor of Art
B.A., University of California, Los Angeles; M.F.A., Claremont Graduate School.

LOOMIS, DAVID M. (1961) ..... Associate Professor of Music
B.M., Westminster Choir College; M.M. and additional graduate study, Indiana University.

LOPEZ, GENOVEVO C. (1961) ..... Associate Professor of Mathematics
B.A., Ph.D., University of California, Los Angeles.

LOVEMAN, BRIAN E. (1973) ..... Assistant Professor of Political Science
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LUECHT, W. J. (1963) ..... Business Services Officer

LYBARGER, ALVIN E. (1970) ..... Assistant Professor of Industrial Studies
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LYNN, ELIZABETH (1963) ..... Associate Professor of Psychology
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MACKY, DAVID W. (1969) ..... Associate Professor of Mathematics
B.Sc., Allegheny College; M.Sc., Ph.D., Michigan State University.

MADHAVAN, MURUGAPPA C. (1968) ..... Professor of Economics
B.A., M.A., Annamalai University, India; M.Sc., Ph.D., University of Wisconsin.

MADSEN, ROY P. (1966) ..... Professor of Telecommunications and Film
B.F.A., University of Illinois; M.A., Ph.D., University of Southern California.

MAHONEY, PATRICK (1970) ..... Assistant Professor of Information Systems
B.A., B.S.E.E., Rice University; M.B.A., University of California.

MALCOLM, DAVID D. (1953) ..... Professor of Counselor Education
A.B., Harvard College; Ed.M., Boston University; Ph.D., Northwestern University.

MALIK, JIM G. (1957) ..... Professor of Chemistry
A.B., Wabash College; Ph.D., Michigan State University.

MALLEY, MICHAEL M. (1970) ..... Associate Professor of Chemistry
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MALMSHEIMER, LONNA M. (1973) ..... Assistant Professor of English
B.A., M.A., Pennsylvania State University; Ph.D., University of Minnesota.

MANHEIMER, RONALD J. (1974) ..... Lecturer in Philosophy
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MANJOS, THELMA D. (Mrs. P.) (1969) ..... Associate Professor of Counselor Education
B.A., University of California, Los Angeles; M.A., San Francisco State University Ph.D., New York University.

MANN, RICHARD L. (1968) ..... Associate Professor of Electrical Engineering
B.S.E.E., Ohio University; M.S.E.E., University of New Mexico. Registered Professional Electrical Engineer.

MANSFIELD, GEORGE A., JR. (1968) ..... Associate Professor of Mechanical Engineering
B.M.E., University of Detroit; M.S.M.E., San Diego State University. Registered Mechanical Engineer.

MARCUS, BERNARD (1966) ..... Associate Professor of Mathematics
B.S., M.S., Ph.D., University of Arizona.

MARINI, FRANK (1973) ..... Dean, College of Arts and Letters; Professor of Public Administration and Urban Studies
B.A., M.A., Arizona State University; Ph.D., University of California, Berkeley.

MARINO, LEONARD R. (1973) ..... Assistant Professor of Electrical Engineering
B.S., Carnegie Mellon University; M.S., Ph.D., Case Western Reserve University.

MAROSZ, WANDA A. (Mrs. H.) (1967) ..... Associate Professor of Mathematics
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MARRIOTT, LOIS I. (Mrs. F. D.) (1966) ..... Associate Librarian
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MARSHAK, CELIA L. (1973) ..... Assistant Dean for Student Affairs, College of Sciences; Lecturer in Biology
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MARSTERS, HAROLD L. (1962) ..... Associate Professor of Industrial Studies
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MARTIN, DONALD R. (1969) ..... Instructional Television Coordinator; Associate Professor of Telecommunications and Film
B.A., Otterbein College; M.S., Syracuse University; Ph.D., Ohio State University.

MARTIN, KATHLEEN J. (Mrs. V. A.) (1970) ..... Assistant Professor of Family Studies and Consumer Sciences
B.A., Iowa State Teachers College; M.S., Arizona State University.

MARTIN, KENNETH R. (1972) ..... Associate Professor of Native American Studies
B.A., Brandeis University; M.A., Montana State University.

MARTIN, MARY F. (1958) ..... Assistant Professor of Family Studies and Consumer Sciences
B.S., University of Idaho; M.S., Oregon State College.

MARTINEZ, JULIO A. (1973) ..... Assistant Librarian
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MATHEWSON, JAMES H. (1964) ..... Professor of Chemistry
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MATSON, OLLIE G. (1973) ..... Coach, Football
B.S., University of San Francisco.

MAURIELLO, DAVID A. (1974) ..... Assistant Professor of Biology
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MAX, STEFAN L. (1964) ..... Professor of French
B.A., Sir George Williams University, Canada; M.A., McGill University, Montreal; Ph.D., University of California, Los Angeles.

MAXWELL, JEAN M. (1963) ..... Professor of Social Work
B.A., University of Minnesota; M.S.S., Western Reserve University.

MAY, THOMAS L. (1971) ..... Assistant Professor of Physical Science
B.A., M.A., Texas Christian University; M.S., Ph.D., University of Illinois.

MAZON, M. REYES (1973) ..... Associate Professor of Elementary Education
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McADAMS, HENRY E. (1966) ..... Counselor
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McALLISTER, T. WAYNE (1966) ..... Assistant Professor of Educational Technology and Librarianship
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McARTHUR, DAVID (1973) ..... Assistant Professor of Geography
B.Sc., University of New Zealand; M.Sc. (Hons.), University of Canterbury; Ph.D., Louisiana State University; Dip. Tchg., Christchurch Teachers' College.

McBLAIR, WILLIAM (1948) ..... Professor of Biology
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McCABE, ROBERT E. (1968) ..... Associate Professor of Secondary Education
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A.B., M.A., San Diego State University; Ph.D., University of Minnesota.

McCLURG, JACK (1962) ..... Professor of Philosophy
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McCORDICK, SHARON M. (1969) ..... Assistant Professor of Psychology
B.A., M.A., Ph.D., University of Colorado.

McCORNACK, ROBERT L. (1968) ..... Associate Director of Campus Information Systems, Institutional Research
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McCOY, C. ROBERT (1960) ..... Executive Assistant to the President; Associate Professor of English
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McCOY, LEONE D. (Mrs. W.) (1967) ..... Professor of Secondary Education
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McDEAN, HARRY C. (1971) ..... Assistant Professor of History
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McDONALD, ROY D. (1963) ..... Professor of Psychology
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McELMURY, SCOTT S. (1970) ..... Assistant Professor of Mechanical Engineering
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McEOWEN, ROBERT H. (1967) ..... Associate Professor of Industrial Studies
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McEUEN, ROBERT B. (1969) ..... Professor of Geology
B.A., M.A., University of California; Ph.D., University of Utah.

McFALL, JOHN (1966) ..... Professor of Marketing
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McFARLANE, FRED R. (1972) ..... Assistant Professor of Counselor Education
B.S., M.S., Stout State University; Ph.D., University of Georgia.

McGHIE, ROBERT D. (1967) ..... Professor of Aerospace Engineering
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McKERROW, MARGARET (1971) ..... Assistant Professor of Drama
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McLEAN, NORMAN, JR. (1965) ..... Professor of Zoology
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McLEOD, DOUGLAS B. (1972) ..... Assistant Professor of Mathematics
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McLEVIE, JOHN G. (1970) ..... Associate Professor of Secondary Education
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McMULLEN, JAMES D. (1958) ..... Professor of Industrial Studies
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McTAGGART, AUBREY C. (1962) ..... Professor of Health Science and Safety
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MEIER, ROBERT A. (1972) ..... C.P.A., Professor of Accounting
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MELTON, JOSEPH (1967) ..... Associate Professor of Elementary Education
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MERZBACHER, CLAUDE FELL (1947) ..... Professor of Physical Science
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MIKITKA, KATHLEEN F. (1974) ..... Lecturer in Family Studies and Consumer Sciences
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MILLER, ALLAN W. (1963) ..... Associate Professor of Art
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MITCHELL, DANLEE G. (1964) ..... Associate Professor of Music
B.S., M.S., University of Illinois.

MITTON, DARYL G. (1966) ..... Professor of Management
B.C.E., M.B.A., Ph.D., University of Minnesota.

MOANEY, ERIC R. (1968) ..... Assistant Professor of Art
B.F.A., Rhode Island School of Design; M.F.A., Syracuse University.

MOE, JEAN T. (1966) ..... Associate Professor of Music
B.A., University of Santa Barbara; M.A., San Diego State University.

MOFFETT, MYRNA J. (Mrs. F. L.) (1968) ..... Assistant Professor of Nursing
R.N., Los Angeles County General Hospital; B.S., M.S., University of California, Los Angeles.

MOLLENAUER, SANDRA O. (Mrs.) (1970) ..... Associate Professor of Psychology
B.A., Chatham College; Ph.D., State University of New York at Buffalo.

MONROE, RONALD E. (1973) ..... Professor of Zoology
B.A., Fresno State College; M.S., Oregon State University; Ph.D., Kansas State University.

MONTEVERDE, JOHN P. (1954) ..... Professor of English
B.A., M.A., Ph.D., University of California, Los Angeles.

MOOERS, JACK D. (1968) ..... Associate Professor of Elementary Education
A.B., San Jose State University; M.A., San Diego State University; Ed.D., University of California, Los Angeles.

MOORE, HAROLD B. (1960) ..... Professor of Microbiology
A.B., San Diego State University; M.A., Ph.D., University of California, Los Angeles.

MOORE, MARY JANE (1972) ..... Assistant Professor of Anthropology
B.A., Agnes Scott College; B.S., University of Tennessee; Ph.D., University of Wisconsin, Madison.

MOORE, MEREDITH A. (1972) ..... Assistant Professor of Speech Communication
B.S., M.A., Kansas State University; Ph.D., Purdue University.

MOORE, PATRICIA J. (1964) ..... Senior Assistant Librarian
B.A., M.A.L.S., Immaculate Heart College.

MOORE, ROBERT J., JR. (1968) ..... Associate Professor of Physical Education
B.S., M.S., University of Illinois; Ph.D., University of Oregon.

MORAMARCO, FRED S. (1969) ..... Associate Professor of English
B.A., Long Island University; M.A., Ph.D., University of Utah.

MORENO, STEVE G. (1969) ..... Associate Professor of Elementary Education
B.A., M.A., Ed.D., Colorado State College.

MORGAN, CHARLES (1949) ..... Professor of Mechanical Engineering
M.E., Stevens Institute of Technology; M.S., University of California. Registered Professional Mechanical Engineer.

MORGAN, RUTH H. (1968) ..... Professor of Social Work
B.S., Ohio University; M.S.W., University of Southern California; D.S.W., Columbia University.

MORRIS, JOYCE (Mrs.) (1969) ..... Associate Professor of Elementary Education
B.A., San Jose State University; M.A., Ph.D., University of New Mexico.

MORRIS, RICHARD H. (1957) ..... Professor of Physics
A.B., Ph.D., University of California.

MORRIS, WILLIAM P. (1970) ..... Associate Professor of Secondary Education
B.A., Antioch College; Ed.M., Tufts University; Ph.D., Indiana University.

MOSER, JOSEPH M. (1959) ..... Professor of Mathematics
B.A., St. John's University, Minnesota; M.A., Ph.D., St. Louis University.

MOSES, DOROTHY V. (1958) ..... Professor of Nursing
R.N., St. Luke's Hospital, N.Y.; B.S., P.H.N., M.S., University of California, Los Angeles.

MOURATIDES, NICOS N. (1960) ..... Professor of Sociology
B.A., Cornell College; M.A., Ph.D., University of Minnesota.

MRACEK, JAROSLAV J. S. (1965) ..... Professor of Music
M.B., University of Toronto; M.A., Ph.D., Indiana University.

MUNTER, ROBERT L. (1964) ..... Professor of History
B.A., M.A., University of Washington; Ph.D., University of Cambridge, England.

MURPHY, JAMES R. (1970) ..... Career Counselor
A.B., M.P.A., San Diego State University.

MURPHY, MARGARET M. (Mrs. S. U.) (1955) ..... Professor of Physical Education
B.A., University of California; M.S., Ed.D., University of Oregon.

MURPHY, MONICA A. (1969) ..... Associate Professor of Elementary Education
B.A., Colorado State College; M.A., Ph.D., University of Iowa.

MURPHY, OPHELIA L. (Mrs.) (1972) ..... Assistant Professor of Music
B.M., University of Colorado; M.M., University of Wisconsin.

MURPHY, ROBERT J. (1964) ..... Professor of Mechanical Engineering
B.S.M.E., M.S.M.E., Ph.D., Carnegie Institute of Technology.

NAGEL, THOMAS S. (1969) ..... Associate Professor of Elementary Education
B.S., University of Idaho; Ph.D., Michigan State University.

NAM, WOO HYUN (1968) ..... Associate Professor of Economics
B.A., Yonsei University, Korea; M.A., University of Oregon; Ph.D., University of Washington.

NAMBA, RICHARD K. (1972) ..... Assistant Professor of Recreation
B.S., California State University, Humboldt; M.S., California State University, San Francisco.

NARANG, BALBIR S. (1968) ..... Associate Professor of Aerospace Engineering
B.S., M.S., Ph.D., University of Illinois.

NARDELLI, ROBERT R. (1953) ..... Associate Dean, School of Education; Director of International Projects; Professor of Elementary Education
B.A., M.A., Arizona State University; Ph.D., University of California.

NEEL, JAMES W. (1963) ..... Professor of Biology
B.S., University of California; Ph.D., University of California, Los Angeles.

NELSON, BURT (1957) ..... Professor of Astronomy
B.S., M.S., (Astronomy), M.S., (Philosophy), Ph.D., University of Wisconsin.

NELSON, HILDA B. (Mrs. B.) (1965) ..... Professor of French
M.A., Ph.D., University of Wisconsin.

NELSON, SHERWOOD M. (1956) ..... Professor of Philosophy
A.B., Phillips University; M.A., Ph.D., University of California.

NELSON, THOMAS A. (1968) ..... Associate Professor of English
B.A., Oklahoma University; M.A., Wichita State University; Ph.D., Tulane University.

NESVIG, DAVID T. (1967) ..... Counselor
B.A., Pacific Lutheran University; M.S., Ed.D. candidate, Indiana University.

NESVOLD, BETTY A. (Mrs. A.) (1967) ..... Professor of Political Science
A.B., M.A., San Diego State University; Ph.D., University of Minnesota.

NEUBERGER, BRIAN M. (1969) ..... Professor of Finance
B.S., Utah State University; M.B.A., Northwestern University; D.B.A., Indiana University.

NEUMAN, DONALD R. (1967) ..... Counselor
B.S., North Central College, Illinois; M.S., Illinois State University; Ph.D., Michigan State University.

NEUNER, EDWARD J., JR. (1957) ..... Professor of Economics
A.B., Brooklyn College; A.M., University of Wisconsin; Ph.D., Columbia University.

NEYNDORFF, HANS (1962) ..... Senior Assistant Librarian
B.S., LL.B., University of Indonesia; Doctorandus, University of Leiden; Library Diploma, Netherlands Institute for Documentation and Research.

NICHOLS, ALAN C. (1964) ..... Professor of Speech Pathology and Audiology
B.S., Bowling Green State University; M.A., Ph.D., Ohio State University.

NICHOLS, PAUL F. (1965) ..... Professor of Physics
B.S., College of William and Mary; Ph.D., Duke University.

NICHOLS, PRESCOTT S. (1966) ..... Associate Professor of English
A.B., M.A., Stanford University; Ph.D., University of Redlands.

NIELSEN, GRANT L. (1965) ..... Controller
B.A., San Diego State University.

NOORANY, IRAJ (1963) ..... Professor of Civil Engineering
B.S.C.E., University of Tehran; M.S.C.E., Ph.D., University of California.

NORLAND, CALVERT E. (1947) ..... Professor of Zoology
A.B., Pomona College; M.S., University of California; additional graduate study, Claremont College.

NORMAN, NELSON F. (1960) ..... Professor of History
B.A., Stanford University; M.A., Harvard University; M.A., California State University, Fresno; Ph.D., University of Illinois.

NOTO, JAMES V. (1969) ..... Associate Professor of Health Science and Safety
B.S., Slippery Rock State College; M.S., H.S.D., Indiana University.

NOWAK, DANIEL B. (1973) ..... Dean of Student Affairs
B.S., M.A., East Michigan University; Ed.D., University of California, Los Angeles.

NOWER, LEON (1963) ..... Associate Professor of Mathematics
B.S., City College of New York; M.S., Ph.D., Stanford University.

NYE, WILLIAM A. (1962) ..... Professor of Finance
B.S., Ph.D., University of Pennsylvania.

OADES, RIZALINO A. (1969) ..... Assistant Professor of History
B.A., Far Eastern University, Philippines; M.A., University of Hong Kong; Ph.D., University of Hawaii.

O'BRIEN, ALBERT C. (1965) ..... Associate Professor of History
A.B., Providence College; A.M.T., Harvard University; Ph.D., University of Notre Dame.

O'BRIEN, BOB R. (1966) ..... Professor of Geography
B.S., M.A., University of Texas; Ph.D., University of Washington.

O'BRIEN, MARY M. (Mrs. A.) (1966) ..... Assistant Professor of Spanish
B.S., North Dakota State University; M.A., Ph.D., University of Colorado.

O'BYRNE, ERNEST B. (1954) ..... Vice President for Planning and External Affairs
A.B., A.M., Colorado State College of Education; Ph.D., Stanford University.

O'DAY, EDWARD F., JR. (1957) ..... Professor of Psychology
B.S., M.A., Ph.D., University of Florida.

ODENDAHL, ERIC M. (1964) ..... Professor of Journalism
B.A., University of New Mexico; M.A., University of Iowa; Ph.D., University of Missouri.

ODMARK, VERN E. (1952) ..... Professor of Accounting
B.S., St. Cloud State Teachers College; M.A., University of Minnesota; Ph.D., University of Missouri.

OGAWA, KUNIHIKO (1974) ..... Lecturer in Classics
B.A., Tokyo University of Liberal Arts; M.A., International Christian University; M.A., University of Utah.

OHNYSTY, BASIL (1967) ..... Professor of Mechanical Engineering
B.S., M.S., University of Illinois. Registered Professional Metallurgical Engineer.

OLAFIOYE, PETER E. (1974) ..... Lecturer in Literature
B.A., University of Lagos; M.A., University of San Diego.

OLSEN, ALBERT W. (1957) ..... Professor of Physical Education
A.B., M.A., San Diego State University; Ed.D., University of Oregon.

OLSEN, LYLE I. (1961) ..... Professor of Physical Education
A.B., M.A., California State University, Chico; Ed.D., Teachers College, Columbia University.

OLSON, ANDREW C., JR. (1946) ..... Professor of Zoology
A.B., San Diego State University; M.S., University of Idaho; Ph.D., Oregon State University.

O'NEAL, H. EDWARD (1961) ..... Professor of Chemistry
B.A., Harvard College; Ph.D., University of Washington.

ONTELL, ROBERT (1965) ..... Professor of Social Work
A.B., M.S.W., University of California; D.S.W., Columbia University.

O'REILLY, NATHALIA CRANE (1958) ..... Assistant Professor of English
Special study at Barnard College, University of Madrid, and Sorbonne.

O'REILLY, PETER (1968) ..... Professor of Philosophy
B.A., M.A., S.T.B., S.T.L., St. Mary of the Lake Seminary; L.M.S., Pontifical Institute of Mediaeval Studies, Toronto; Ph.D., University of Toronto.

ORTH, FREDERICK J. (1965) ..... Associate Professor of Art
B.A., M.F.A., University of Washington.

OWEN, MACK (1969) ..... Associate Professor of Drama
B.A., Mercer University; M.A., San Francisco State University; Ph.D., University of Michigan.

PADELFORD, BETTY L. (1973) ..... Lecturer in Information Systems
B.A., M.A., San Diego State University; Ph.D., United States International University.

PADGETT, L. VINCENT (1956) ..... Professor of Political Science
B.S., Ph.D., Northwestern University.

PALACIOS, EZEQUIEL F. (1972) ..... Lecturer in Mexican-American Studies
B.Th., Spanish-American Bible Seminary; B.A., California Bible College; M.A., United States International University.

PALMER, DENNIS (1965) ..... Assistant Professor of French
A.B., Southern Methodist University; graduate study, Yale University and University of California, Berkeley.

PANOS, NICHOLAS (1968) ..... Associate Professor of Electrical Engineering
B.S.E.E., Columbia University; M.S.E.E., San Diego State University. Registered Professional Electrical Engineer.

PANTOJA, ANTONIA (1973) ..... Associate Professor of Social Work
B.A., Hunter College; M.S.W., Columbia University; Ph.D. candidate, Union Graduate School.

PAOLINI, PAUL J., JR. (1970) ..... Associate Professor of Biology
B.S., M.S., Rensselaer Polytechnic Institute; Ph.D., University of California, Davis.

PAPWORTH, FRANK R. (1967) ..... Associate Professor of Art
A.B., San Diego State University; M.A., University of California, Los Angeles; Doctoral candidate, Columbia University.

PARK, CHONG JIN (1972) ..... Assistant Professor of Mathematics
B.A., B.S., University of Washington; M.S., Kansas State University; Ph.D., University of Wisconsin.

PARKER, CHRISTOPHER E. (1966) ..... Professor of Psychology
A.B., M.A., San Diego State University; Ph.D., University of California, Los Angeles.

PARSONS, JOHN A. (1965) ..... Professor of Biology
A.B., Washington and Jefferson College; M.S., Pennsylvania State University; Ph.D., Florida State University.

PARTI, MICHAEL (1974) ..... Lecturer in Economics
B.A., Roosevelt University; Ph.D., Northwestern University.

PATTERSON, EMILY H. (Mrs.) (1967) ..... Associate Professor of English
B.S., Bowling Green State University; M.A., Ph.D., University of Utah.

PAULIN, HARRY W. (1962) ..... Professor of German
B.A., North Central College, Illinois; A.M., Ph.D., University of Illinois.

PEARSON, THOMAS R. (1968) ..... Director of Financial Aid
B.S., U.S. Naval Academy; M.S., Purdue University.

PEASE, WILLIAM J. (1973) ..... Associate Librarian
B.A., Pomona College; M.A., Fordham University; M.L.S., University of California, Berkeley.

PEHRSON, ROBERT B. (1969) ..... Associate Professor of Secondary Education
B.A., M.A., Ph.D., University of Utah.

PEISNER, EARL F. (1961) ..... Counselor
B.A., Grinnell College; M.A., University of Iowa; Ed.D., Oregon State University.

PENDLETON, WADE C. (1969) ..... Associate Professor of Anthropology
B.A., Ph.D., University of California.

PENN, ROBERT (1960) ..... Professor of Psychology
A.B., M.A., San Diego State University; Ph.D., Carnegie Institute of Technology.

PEPPER, GERALD W. (1973) ..... Associate Professor of Social Work
B.A., University of Alberta; B.S.W., M.S.W., University of British Columbia; D.S.W., University of Southern California.

PERCZEL, CSILLA F. (Mrs. J.) (1970) ..... Assistant Professor of Art
Ph.D., Francis Joseph University, Hungary.

PERKINS, WILLIAM A. (1955) ..... Professor of English
A.B., Ph.D., Stanford University.

PERROTT, DAVID R. (1974) ..... Associate Professor of Psychology
Exchange Professor from California State University, Los Angeles; A.B., Ohio University; M.A., Ph.D., Kent State University.

PERRY, WILHELMINA (Mrs. T.) (1972) ..... Associate Professor of Social Work
B.A., Brooklyn College; M.S.W., University of Pennsylvania; Ph.D. candidate, United States International University.

PERSON, GERALD A. (1957) ..... Professor of Secondary Education
B.A., Augsburg College; M.Ed., Ph.D., University of Minnesota.

PETERS, LYNN H. (1959) ..... Professor of Management
B.A., LL.B., M.B.A., Ph.D., University of Wisconsin.

PETERSON, DONALD W. (1974) ..... Associate Professor of Recreation
B.S., University of South Dakota; M.S., Springfield College; Ph.D., University of Oregon.

PETERSON, GARY L. (1963) ..... Professor of Geology
B.A., University of Colorado; M.S., Ph.D., University of Washington.

PETERSON, TENOLD A. (1966) ..... Associate Professor of Art
B.A., M.A., California State University, Long Beach.

PETTEYS, MANVILLE R. (1957) ..... Director of Community Services; Professor of Education
B.A., Willamette University; M.A., Ed.D., Stanford University.

PHELPS, LEROY N. (1966) ..... Associate Professor of Microbiology
B.Sc., Ohio State University; Ph.D., University of Southern California.

PHILLIPS, JOHNNIE L. (1965) ..... Senior Assistant Librarian
B.A., Loyola University, New Orleans; M.A.L.S., University of Illinois.

PHILLIPS, WILLIAM D. (1970) ..... Assistant Professor of History
B.A., University of Mississippi; M.A., University of Tennessee; Ph.D., New York University.

PHILLIPS, WILLIAM H. (1963) ..... Professor of Physical Education
A.B., M.A., Ed.D., University of California.

PHLEGER, CHARLES F. (1971) ..... Assistant Professor of Physical Science
B.A., Stanford University; M.A., San Diego State University; Ph.D., University of California, San Diego.

PICKSLAY, ALBA A. (1973) ..... Lecturer in Spanish and Portuguese Languages and Literatures
M.A., Instituto Superior en Lenguas Vivas Buenos Aires.

PIERSON, ALBERT C. (1954) ..... Professor of Management
B.L.A.S., University of Illinois; M.B.A., Harvard University; Ph.D., Columbia University. Public Accountant.

PIFFARD, GUERARD (1956) ..... Professor of French
B.A., M.A., Colorado College; Ph.D., Stanford University; post-doctoral study, University of Strasbourg, France.

PILCHER, ANN JACKSON (Mrs. D. M.) (1965) ..... Professor of Social Work
B.A., M.A., University of Wisconsin; M.S.W., Smith College.

PILCHER, DONALD M. (1966) ..... Professor of Social Work
B.S., Kansas State University; M.S.W., University of Kansas; C.Phil., University of California.

PILLSBURY, BARBARA L. K. (1973) ..... Assistant Professor of Anthropology
B.S., University of Minnesota; M.A., Columbia University Teachers College; Ph.D., Columbia University.

PINCETL, STANLEY J., JR. (1955) ..... Professor of History
B.A., M.A., Ph.D., University of California; Doctor of University, University of Paris (Sorbonne); Officier de l'Ordre des Palmes Academiques.

PISERCHIO, ROBERT J. (1966) ..... Professor of Physics
B.S., M.S., Ph.D., University of Arizona.

PLATT, CAROLYN (1974) ..... Lecturer in Women's Studies
B.A., Carleton College; M.A., Ph.D., University of Illinois.

PLATZ, MARVIN H. (1955) ..... Professor of Secondary Education
B.S., Northeast Missouri State Teachers College; M.Ed., Ed.D., University of Missouri.

PLOTNIK, ROD (1970) ..... Associate Professor of Psychology
B.A., St. John's College; M.S., University of Miami; Ph.D., University of Florida.

PLYMALE, HARRY H. (1962) ..... Associate Professor of Zoology
B.S., D.V.M., Michigan State University.

POLICH, JOHN L. (1969) ..... Associate Professor of History, Imperial Valley
B.S., Loyola University; M.S., M.A., University of Southern California; Ph.D., University of New Mexico.

POLICH, KATHERINE R. (1969) ..... Librarian, Imperial Valley Campus
B.A., University of California, Berkeley; M.S.L.S., University of Southern California; M.A., University of New Mexico.

POLLOCK, CHRISTINE W. (1974) ..... Lecturer in Family Studies and Consumer Sciences
B.S., University of California, Berkeley; M.S., Cornell University.

POPP, DEAN O. (1969) ..... Associate Professor of Economics
B.A., Willamette University; M.S., Ph.D., Purdue University.

POROY, IBRAHIM I. (1967) ..... Professor of Economics
Licence in Economics, Istanbul University; M.A., Ph.D., University of California.

POSNER, WALTER H. (1962) ..... Senior Assistant Librarian
B.S., Utah State Agricultural College; M.A., Western State College, Colorado; M.A. in L.S., University of Denver.

POTTER, CAROL A. (1971) ..... Assistant Professor of Finance
B.A., University of Iowa; M.A., University of California, Berkeley; J.D., Boalt Hall School of Law, Berkeley.

POWELL, DON W. (1953) ..... Professor of Drama
B.S., Kirksville State Teachers College; M.F.A., State University of Iowa.

PRALLE, JAMES R., Colonel, USAF (1973) ..... Professor of Aerospace Studies
B.A., Ohio Wesleyan University; M.A., Ph.D. candidate, University of Denver.

PRANTE, LOUISE (1973) ..... Coordinator of Disabled Student Services
B.A., California State University, Los Angeles; M.S., San Diego State University.

PRESTON, DAVID L. (1971) ..... Assistant Professor of Sociology
B.A., Stanford University; M.A., Ph.D., University of Illinois.

PRESTON, DUDLEY A. (1948) ..... Associate Professor of Botany
B.S., Washington State College; M.S., Ph.D., University of Minnesota.

PRICE, JUDY M. (1972) ..... Assistant Professor of Psychology
A.B., M.A., Ph.D., Columbia University.

PRICE, QUENTON L. E. (1966) ..... Associate Professor of Family Studies and Consumer Sciences
B.A., La Sierra College; M.A., California Western University; Ph.D., United States International University.

PROUTY, HELEN L. (1950) ..... Professor of Secondary Education
B.S., University of Nebraska; M.A., Ph.D., University of California.

PRYDE, PHILIP R. (1969) ..... Associate Professor of Geography
B.A., Amherst College; M.A., Ph.D., University of Washington.

PSOMAS, THEMISTOCLES (1957) ..... Associate Professor of Psychology
B.A., University of Southern California; Ph.D., University of California.

PTACEK, ANTON D. (1965) ..... Associate Professor of Geology
B.S., University of Wisconsin; M.S., Ph.D., University of Washington.

QUASTLER, IMRE E. (1967) ..... Associate Professor of Geography
B.A., Wayne State University; M.A., Northwestern University; Ph.D., University of Kansas.

QUIETT, FREDERICK T. (1957) ..... Associate Dean, School of Engineering; Professor of Civil Engineering
Geol.E., M.S., Colorado School of Mines. Registered Professional Engineer (Mining). Registered Geologist.

QUINN, REBECCA A. (1971) ..... Assistant Professor of Physical Education
B.S.E., M.S., Central Missouri State College.

RADER, DANIEL L. (1954) ..... Professor of History
A.B., M.A., Ph.D., University of California.

RADLOW, ROBERT (1968) ..... Professor of Psychology
B.S., City University of New York; M.S., Ph.D., Pennsylvania State University.

RAGHU, DORAI R. (1974) ..... Lecturer in Civil Engineering
B.E., Annamalai University, India; M.Sc., Madra University; M.S., University of Kentucky.

RAO, M. V. RAMA (1957) ..... Professor of Mechanical Engineering
B.S.M.E., University of Madras, India; M.S.M.E., Ph.D., University of Illinois.

RASMUSSEN, AARON P. (1971) ..... Assistant Professor of Industrial Studies
B.S., Illinois State University; M.A., San Jose State University; Ph.D., Arizona State University.

RATTY, FRANK J. (1954) ..... Professor of Biology
A.B., San Diego State University; M.S., Ph.D., University of Utah.

RAY, EUGENE (1969) ..... Assistant Professor of Art
M.F.A., Tulane University.

RAYLE, DAVID L. (1970) ..... Associate Professor of Botany
B.A., Ph.D., University of California, Santa Barbara.

RAYMER, PAUL H. (1970) (Under contract 1969-70) ..... Assistant Professor of Social Work
A.B., M.S.W., doctoral candidate, University of California.

REDDING, MARY E. (Mrs. R. W.) (1967) ..... Associate Professor of English
B.A., Wisconsin State University; M.A., Ph.D., University of Wisconsin.

REDDING, ROBERT W. (1966) ..... Associate Professor of English
A.B., California State University, Los Angeles; M.A., University of California; Ph.D., University of New Mexico.

REDINBAUGH, LARRY D. (1973) ..... Lecturer in Marketing
B.S., San Diego State University; M.A., Ph.D., University of Nebraska.

REEL, JANE E. (Mrs.) (1958) ..... Associate Professor of Elementary Education
A.B., M.A., San Diego State University; Ph.D., United States International University.

REHFUSS, DONALD E. (1962) ..... Professor of Physics
B.A., Reed College; M.A., Ph.D., University of Oregon.

REHMAN, JEAN E. (1973) ..... Assistant Professor of Nursing
B.S., Michigan State University; M.S., Hunter College.

REICHERT, KURT (1970) ..... Professor of Social Work
B.A., Carleton College; M.A., University of Chicago; Ph.D., University of Minnesota.

REIDENBACH, GEORGE (1974) ..... Career Planning and Placement
B.A., Valparaiso University; M.A., United States International University.

REINTS, WILLIAM W. (1966) ..... Professor of Finance
B.S., M.B.A., Oklahoma State University; Ph.D., University of Washington.

RETSON, JAMES N. (1968) ..... Professor of Elementary Education
B.S., Lawrence College; M.A., University of Chicago; Ed.D., Arizona State University.

REZNIKOFF, SIMON (1956) ..... Professor of Finance
B.A., University of Missouri; J.D., Columbia University.

RICE, ERIC D. (1969) ..... Lecturer in Education, Imperial Valley
B.S., St. Mary's College; M.A., San Diego State University; Ed.D. candidate, University of California, Los Angeles.

RICHARDS, TERI L. (1970) ..... Assistant Professor of Nursing
B.S., University of Colorado, School of Nursing, Denver; M.S., University of California, San Francisco.

RICHARDSON, WILLIAM H. (1963) ..... Professor of Chemistry
B.S., University of California, Los Angeles; Ph.D., University of Illinois.

RICHMAN, PAUL T. (1969) ..... Associate Professor of Secondary Education
B.S., Allegheny College; M.Ed., Temple University; Ed.D., Stanford University.

RIDOUT, LIONEL U. (1946, except 1949-50) ..... Professor of History
A.B., San Diego State University; M.A., University of California; Ph.D., University of Southern California.

RIEDMAN, RICHARD M. (1962) ..... Professor of Speech Pathology and Audiology
B.A., M.A., University of Redlands; Ph.D., University of Pittsburgh.

RIGGS, LESTER G. (1950, except 1951-52) ..... Professor of Mathematics
B.S., University of Illinois; M.S., Syracuse University; Ph.D., Northwestern University.

RINEHART, ROBERT R. (1964) ..... Professor of Biology
A.B., San Diego State University; Ph.D., University of Texas.

RING, MOREY A. (1962) ..... Professor of Chemistry
B.S., University of California, Los Angeles; Ph.D., University of Washington.

RIXMAN, EUNICE E. (1960) ..... Professor of Elementary Education
B.M., Illinois Wesleyan University; M.M., University of Michigan; D.M.A., University of Southern California.

ROBERTS, ELLIS E. (1949) ..... Professor of Geology
B.S., Michigan College of Mining and Technology; M.S., California Institute of Technology; Ph.D., Stanford University.

ROBINSON, CYNTHIA (1972) ..... Career Counselor
B.A., San Diego State University.

ROBINSON, LESLIE (1974) ..... Lecturer in Afro-American Studies
B.S., Morgan State University; M.A., Pennsylvania State University.

RODIN, MIRIAM J. (Mrs. B.) (1966) ..... Associate Professor of Psychology
B.A., M.A., Ph.D., University of California, Los Angeles.

RODNEY, JOSEPH A. (1957) ..... Dean, Imperial Valley Campus; Professor of Education
A.B., M.A., San Diego State University; Ed.M., Ed.D., University of Southern California.

ROEDER, STEPHEN B. W. (1968) ..... Professor of Physics
B.A., Dartmouth College; Ph.D., University of Wisconsin.

ROELOFSZ, WILLIA D. (1966) ..... Purchasing and Contract Officer

ROEMMICH, HERMAN (1958) ..... Director of Testing
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ROGERS, JOHN J. (1963) ..... Professor of Art
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ROHRL, VIVIAN J. (Mrs. H.) (1965) ..... Assistant Professor of Anthropology
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ROMANO, ALBERT (1963) ..... Associate Professor of Mathematics
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ROSENSTEIN, LEON (1969) ..... Associate Professor of Philosophy
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ROSS, HELEN W. (1973) ..... Lecturer in Family Studies and Consumer Sciences
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ROST, NORMAN (1951) ..... Associate Dean, College of Professional Studies; Professor of Music
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ROTHER, CAROLE A. (1969) ..... Lecturer in Literature; Director of Coordinated Freshman Studies
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SAMUELS, JOSEPH M. (1973) ..... Coordinator of Affirmative Action; Professor of Secondary Education
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SAVVAS, MINAS (1968) ..... Associate Professor of English
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SCHECK, DENNIS C. (1968) ..... Associate Professor of Sociology
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SHULL, CHARLES M., JR. (1969) ..... Professor of Physical Science
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SHUTTS, WILLIAM H. (1958) ..... Professor of Aerospace Engineering
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SIMAN, ALAN E. (1974) ..... Assistant Professor of Social Work
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SISSON, LOIS W. (1954) ..... Assistant Director of Business Affairs, Personnel

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SMITH, ALAN C. (1963) ..... Professor of Education, Imperial Valley
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SMITH, BEVERLY A. (1968) ..... Assistant Professor of Physical Education
B.S., West Virginia Wesleyan College; M.S., Ohio University.

SMITH, CHARLES D., JR. (1967) ..... Associate Professor of History
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SMITH, CHARLES R. (1969) ..... Associate Professor of Insurance
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A.B., B.M., St. Olaf College; M.M., University of Nebraska; additional graduate study at Florida State University.

SMITH, JOHN R. (1957) ..... Associate Professor of Psychology
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SMITH, LOUIS E., JR. (1946) ..... Professor of Physics
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SMITH, NEWTON B. (1954) ..... Professor of Mathematics
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SNODGRASS, HERSCHEL R. (1967) ..... Professor of Physics
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B.S., Northwestern University; M.B.A., D.B.A., University of Southern California. Certified Public Accountant.

SNYDER, WILLIAM S. (1960) ..... Professor of Philosophy
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SONEK, ALEXANDER, JR. (1968) ..... Assistant Professor of Anthropology
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SOULE, JOHN W. (1970) ..... Assistant Professor of Political Science
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STEELE, RICHARD W. (1967) ..... Professor of History
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STRONG, DOUGLAS H. (1964) ..... Professor of History
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TEASDALE, JOHN G. (1956) ..... Professor of Physics
A.B., Ph.D., University of California, Los Angeles.

TEAGUE, R. DONALD (1974) ..... Lecturer in Industrial Studies
B.S., M.S., Oklahoma State University.

TEBOR, IRVING B. (1957) ..... Professor of Social Work
B.S., Northern Illinois State University; M.A., University of Chicago; Ph.D., Oregon State University.

TEMPLETON, GENE A. (1970) ..... Head Coach, Tennis; Assistant Professor of Athletics
B.S., University of Texas; M.S., Ph.D., University of New Mexico.

TEMPLIN, JACQUES D. (1962) ..... Professor of Physics
A.B., University of California; M.A., Ph.D., University of California, Los Angeles.

TERRELL, HUGH (1973) ..... Assistant Director of Housing
B.A., Westmont College; M.S., Indiana State University; Ph.D. candidate, United States International University.

TERRELL, LOUIS M. (1969) ..... Associate Professor of Political Science
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THIEL, DONALD W. (1957) ..... Professor of Industrial Studies
B.S., University of Nebraska; M.S., Stout State College; Ph.D., Ohio State University.

THILE, EDMUND L. (1967) ..... Associate Professor of Speech Pathology and Audiology
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THOMAS, BEATRICE (Mrs. J.) (1954) ..... Professor of Nursing
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THOMAS, BLAKEMORE E. (1956) ..... Professor of Geology
A.B., University of California; M.S., Ph.D., California Institute of Technology.

THOMAS, SHIRLEY W. (Mrs. C. W.) (1972) ..... Assistant Professor of Afro-American Studies
B.A., West Virginia State College; M.A., University of California, Los Angeles.

THOMPSON, GORDON M. (1969) ..... Associate Professor of Counselor Education
B.A., Muskingum College; M.Div., Pittsburgh Theological Seminary; M.A., San Diego State University; Ph.D., Arizona State University.

THOMPSON, LORENZO (1972) ..... Assistant Professor of Public Administration and Urban Studies
B.A., M.S., San Diego State University; Ph.D., University of Southern California.

THOMPSON, PATRICIA G. (1974) ..... Lecturer in Sociology
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THOMPSON, WILLIS H., JR. (1967) ..... Assistant Professor of Physical Science
B.S., B.A., Stanford University; M.A., San Jose State University.

THRANE, JAMES R. (1966) ..... Associate Professor of English
A.B., M.A., University of California, Los Angeles; Ph.D., Columbia University.

THREET, RICHARD L. (1961) ..... Professor of Geology
B.S., B.A., M.A., University of Illinois; Ph.D., University of Washington.

THWAITES, WILLIAM M. (1965) ..... Associate Professor of Biology
B.S., University of Wisconsin; M.S., Ph.D., University of Michigan.

TIDWELL, JAMES N. (1947) ..... Professor of Linguistics
A.B., Simmons University; M.A., University of Oklahoma; Ph.D., Ohio State University.

TILARO, MARIO (1968) ..... Assistant Professor of Information Systems
B.S., University of Akron; M.S., San Diego State University.

TOLLNER, ALFRED TED (1973) ..... Coach, Football
B.S., M.A., California State Polytechnic University, San Luis Obispo.

TONG, JOHN S. (1974) ..... Lecturer in Classical and Oriental Languages and Literatures
B.A., Sacred Heart College; M.A., University of Montreal; Ph.D., Georgetown University.

TOOLE, HOWARD R. (1972) ..... Assistant Professor of Accounting
B.S., M.B.A., University of California, Berkeley; Ph.D. candidate, University of Iowa.

TOSSAS de IRIZARRY, LEILA V. (1961) ..... Professor of Elementary Education
B.S., M.A., Ed.D., Teachers College, Columbia University.

TOZER, LOWELL (1954) ..... Professor of English
A.B., University of Chicago; M.A., De Paul University; Ph.D., University of Minnesota.

TREADWAY, GERALD H., JR. (1970) ..... Associate Professor of Elementary Education
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TRIMMER, RUSSELL L. (1955) ..... Professor of Special Education
A.B., Stanford University; M.A., Ph.D., Claremont Graduate School.

TRIPPI, ROBERT R. (1972) ..... Assistant Professor of Management
B.A., Queens College, City University of New York; S.M., Ph.D., Massachusetts Institute of Technology.

TROXELL, EUGENE A. (1966) ..... Associate Professor of Philosophy
A.B., Gonzaga University; M.A., Ph.D., University of Chicago.

TRUEMAN, RICHARD E. (1974) ..... Professor of Management
B.S.E.E., Northwestern University; M.S.E.E., Stanford University; Ph.D., University of Southern California.

TRUJILLO, GUY W. (1974) ..... Assistant Dean, School of Education; Lecturer in Counselor Education
B.S., Arizona State University; M.A., Northern Arizona University.

TUNBERG, JACQUELINE D. (Mrs. W. A.) (1966) ..... Associate Professor of English
B.A., M.A., Ph.D., University of Southern California.

TURNER, MARJORIE S. (Mrs. M. B.) (1954) ..... Professor of Economics
B.A., M.A., Ph.D., University of Texas.

UNDERHILL, ROBERT (1972) ..... Assistant Professor of English
B.A., Harvard College; Ph.D., Harvard University.

VAILS-WEBER, DOROTHY V. (1970) ..... Director of Program Development
A.B., Talladega College; M.S., University of Alabama.

VALLE, JUAN R. (1974) ..... Associate Professor of Social Work
B.A., Loyola University; M.S.W., Ph.D., University of Southern California.

VANDENBERG, PIETER A. (1969) ..... Associate Professor of Finance
B.S., California State Polytechnic University, Pomona; M.B.A., D.B.A., University of Southern California.

VANDERBILT, KERMIT (1962) ..... Professor of English
B.A., Luther College, Iowa; M.A., Ph.D., University of Minnesota.

VANDERWOOD, PAUL J. (1969) ..... Associate Professor of History
B.A., Bethany College; M.A., Memphis State University; Ph.D., University of Texas.

VAN de WETERING, R. LEE (1960) ..... Professor of Mathematics
B.S., University of Washington; Ed.M., Western Washington College of Education; Ph.D., Stanford University.

VANIER, DINOO T. (Mrs. D. K.) (1970) ..... Associate Professor of Marketing
B.Com., Sydenham College of Commerce & Economics, Bombay; M.B.A., M.A., Ph.D., University of California.

VARTANIAN, PERSHING (1968) ..... Associate Professor of History
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VENIERIS, JOHN P. (1967) ..... Professor of Economics
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VERDERBER, ANNE (1971) ..... Assistant Professor of Nursing
B.S., Saint John College; M.Ed. Nurs. Ed., University of Minnesota.

VERGANI, GIANANGELO (1963) ..... Professor of Italian
Dottorato in Lettere, University of Pavia, Italy; additional graduate study, University of California.

VERGANI, LUISA (Mrs. G.) (1969) ..... Associate Professor of Italian
Dottorato in Lettere, University of Milan.

VEZIE, TIM T. (1970) ..... Coaching Specialist, Basketball
B.A., University of Nevada.

VIDALI, JOSEPH J., JR. (1973) ..... Assistant Professor of Marketing
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VILLARINO, JOE R. (1969) ..... Assistant Professor of Mexican-American Studies
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VILLONE, ARNOLD L. (1968) ..... Associate Professor of Mathematics
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VINGE, VERNOR S. (1972) ..... Assistant Professor of Mathematics
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VINTON, ROBERT C. (1969) ..... M.D., Health Services
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VOGT, WALTER H. (1974) ..... Lecturer in Economics
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VOLZ, ELAINE C. (Mrs.) (1951) ..... Evaluations Officer
B.S., University of Wisconsin.

WADSWORTH, EARL P., JR. (1956) ..... Professor of Chemistry
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WAGNER, RICHARD V. (1969) ..... Assistant Professor of Anthropology
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WALAWENDER, MICHAEL J. (1972) ..... Assistant Professor of Geology
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WALBA, HAROLD (1949) ..... Professor of Chemistry
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WALCH, HENRY A., JR. (1955) ..... Professor of Microbiology
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WALL, CAREY G. (1971) ..... Assistant Professor of English
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WALLACE, ROBERT D. (1957) ..... Professor of Art
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WALLACE, WILLIAM J., JR. (1969) ..... Associate Professor of Physical Science
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WALSH, JAMES L. (1962) ..... Professor of Spanish
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WALSH, M. AGNES (Mrs. W. E.) (1955) ..... Associate Professor of Elementary Education
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WALSHOK, MARCO G. (1969) ..... Assistant Professor of Public Administration and Urban Studies
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WARBURTON, JOHN T. (1968) ..... Associate Professor of Educational Administration
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WARD-STEINMAN, DAVID (1961) ..... Professor of Music
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WARNOCK, FLORENCE N. (Mrs. B. B.) (1971) ..... Assistant Professor of Nursing
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WARREN, EDWARD W. (1963) ..... Professor of Philosophy
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WARREN, E. JUNE (Mrs.) (1951) ..... Dean of Admissions and Records
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WARREN, LEROY J. (1955) ..... Professor of Mathematics
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WEBER, DAVID J. (1967) ..... Professor of History
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WEDBERG, HALE L. (1959) ..... Professor of Botany
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WEETER, RAYMOND D. (1966) ..... Associate Professor of Spanish
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WEIR, MARY JEAN (1970) ..... Assistant Professor of Educational Technology and Librarianship
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WEISSMAN, ELINOR M. (1974) ..... Lecturer in Social Work
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WEISSMAN, STANLEY N. (1962) ..... Professor of Philosophy
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WELLS, RICHARD W. (1961) ..... Associate Professor of Physical Education
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WENDLING, AUBREY (1954) ..... Professor of Sociology
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WERNER, JOAN T. (Mrs. R.) (1965) ..... Associate Professor of Sociology
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WESOLOWSKI, MELINDA M. (1974) ..... Lecturer in Family Studies and Consumer Sciences
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WESTERVELT, WILLIAM O. (1964) ..... Professor of German
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WESTON, THOMAS S. (1974) ..... Assistant Professor of Philosophy
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WETHERILL, WILLIAM H. (1957) ..... Professor of Educational Administration
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WHEELER, JAMES L. (1968) ..... Assistant Professor of English
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WIDMER, KINGSLEY (1956) ..... Professor of English
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WIJNHOLDS, HEIKO W. J. (1967) ..... Professor of Finance
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WILBUR, ROBERT W. (1974) ..... Assistant Professor of Finance
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WILLERDING, MARGARET F. (1956) ..... Professor of Mathematics
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WILLIAMSON, JAMES E. (1968) ..... Professor of Accounting
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WILLIAMSON, NANCEE B. (1969) ..... Financial Aids Counselor
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WILSON, GALEN (1969) ..... Associate Professor of Music, Imperial Valley
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WILSON, WILFRED J. (1963) ..... Professor of Zoology
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WINDSOR, HENRY H., III (1968) ..... Assistant Professor of Spanish and Portuguese
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WINSLOW, ROBERT W. (1965) ..... Professor of Sociology
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WOLF, ERNEST M. (1947) ..... Professor of German
Study at the Universities of Berlin, Paris, Muenster, Cambridge and Bonn. Ph.D., University of Bonn.

WOLF, FRED A. (1964) ..... Professor of Physics
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WOLTER, GERHARD H. (1957) ..... Professor of Physics
B.S., M.S. equivalent, University of Berlin.

WONG, ALYCE J. (1973) ..... Lecturer in Nursing
R.N., Saint Thomas Hospital; B.S.N., Case Western Reserve University; M.S.N., University of Colorado Medical Center.

WOO, CATHERINE C. (Mrs. P. C.) (1970) ..... Assistant Professor of Chinese
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WOOD, JOHN K. (1973) ..... Counselor
B.S., California State University, Long Beach; Ph.D., Union for Experimental Colleges and Universities.

WOOD, SALLY A. (1972) ..... Assistant Professor of Speech Pathology and Audiology
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WOODLE, GARY L. (1966) ..... Assistant Professor of French
B.A., M.A., University of South Dakota; Ph.D., University of Colorado.

WOODSON, JOHN H. (1961) ..... Professor of Chemistry
B.A., Wesleyan University, Connecticut; Ph.D., Northwestern University.

WOTRUBA, THOMAS R. (1962) ..... Professor of Marketing
B.B.A., M.B.A., Ph.D., University of Wisconsin.

WRIGHT, PENNY L. (1972) ..... Assistant Dean for Student Affairs, School of Business Administration
B.A., M.B.A., San Diego State University.

WRIGHT, RICHARD D. (1964) ..... Professor of Geography
A.B., A.M., Indiana University; Ph.D., University of Kansas.

WULBERN, JULIAN H. (1966) ..... Professor of German
A.B., University of California; M.A., University of Colorado; Ph.D., Northwestern University.

WYLIE, DONALD G. (1966) ..... Professor of Telecommunications and Film
B.A., University of Michigan; M.A., Ph.D., Michigan State University.

YAHR, CHARLES C. (1955) ..... Professor of Geography
B.S., M.S., Illinois State Normal University; Ph.D., University of Illinois.

YANIZYN, JAMES E. (1962) ..... News Bureau Coordinator
B.A., Boston University School of Public Communication; M.S., San Diego State University.

YAREMKO, ROBERT M. (1969) ..... Associate Professor of Psychology
B.A., University of Florida; M.A., Ph.D., Ohio University.

YATES, CHARLES D. (1970) ..... Associate Professor of Music
A.B., San Diego State University; M.A., California State University, Long Beach; additional graduate study, University of Southern California.

YEE, WINNIE (1973) ..... Counselor of International Students
B.A., M.S., University of Wisconsin.

YESSELMAN, CHARLOTTE B. (Mrs. M.) (1967) ..... Associate Professor of Secondary Education
B.A., Hunter College; M.S., New York University; Ph.D., University of New Mexico.

YOUNG, ARTHUR (1967) ..... Professor of Astronomy
B.S., Allegheny College; M.A., Ph.D., Indiana University.

YOUNG, RONALD R. (1971) ..... Assistant Professor of Spanish
A.B., Wisconsin State University; A.M., Ph.D., University of Illinois.

ZAK, R. BETTY (1969) ..... M.D., Health Services
B.A., Immaculate Heart College; M.D., Woman's Medical College of Pennsylvania.

ZAMPESE, ERNEST E. (1967) ..... Coach, Football; Assistant Professor of Athletics
B.S., M.A., California State Polytechnic University, San Luis Obispo.

ZEDLER, JOY B. (Mrs. P. H.) (1972) ..... Assistant Professor of Biology
B.S., Augustana College; M.S., Ph.D., University of Wisconsin.

ZEDLER, PAUL H. (1969) ..... Associate Professor of Biology
B.S., University of Wisconsin, Milwaukee; M.S., Ph.D., University of Wisconsin, Madison.

ZIEGENFUSS, GEORGE (1948) ..... Professor of Physical Education
B.A., University of Washington; M.A., Ed.D., Teachers College, Columbia University.

San Diego State Foundation—Appointments Under Grants From Outside Funds

KENNY, KATHLEEN (1974) ..... Lecturer
B.A., Whittier College; M.S.W., San Diego State University.

HUDSON, GARL (1971) ..... Lecturer
B.A., M.S.W., San Diego State University.

LOCKERY, SHIRLEY ANN (1974) ..... Lecturer
B.A., California State University, Los Angeles; M.S.W., M.P.A., University of Southern California.

SHENKO, BARBARA E. (Mrs.) (1966) ..... Lecturer in Social Work
B.A., University of Chicago; M.S.S., Smith College, Mass.

Emeritus Faculty

MALCOLM A. LOVE, Ph.D., President; Professor of Public Administration and Urban Studies 1952-1971
WALTER R. HEPNER, Ed.D., President 1935-1952
JOHN W. ACKLEY, Ph.D., Professor of Speech Communication 1947-1971
JOHN R. ADAMS, Ph.D., Chairman, Division of Humanities; Professor of English 1928-1968
MARVIN D. ALCORN, Ed.D., Professor of Secondary Education 1941-1969
JULIA G. ANDREWS, M.A., Associate Professor of Art 1947-1957
JOE A. APPLE, Ed.D., Professor of Secondary Education 1947-1972
GUINIVERE K. BACON, M.A., Associate Professor of Elementary Education 1928-1969
KENNETH E. BARNHART, Ph.D., Professor of Sociology 1939-1964
WALLACE W. BRADLEY, M.A., Assistant Professor of Secondary Education 1961-1973
BAYLOR BROOKS, B.A., Professor of Geology 1931-1966
ELIZABETH M. BROWN, Ph.D., Professor of French 1926-1968
EUGENE P. BROWN, M.A., Professor of Accounting 1947-1966
LESLIE P. BROWN, Ph.D., Professor of Spanish and French 1922-1959
GAIL A. BURNETT, Ph.D., Professor of English and Classics 1947-1968
HILDING B. CARLSON, Ph.D., Professor of Psychology 1948-1969
L. BERYL CAMPBELL, M.A., Associate Professor of Elementary Education 1947-1973
LEONARD E. CHADWICK, B.S., Associate Professor of Economics 1949-1973
JAMES L. CHAPMAN, J.D., Professor of Business Law ..... 1957-1973 (except 1962-1972)
HELEN S. CLARK, B.A., Assistant Professor of Mathematics 1952-1967
ORRIN H. CLARK, Ph.D., Professor of Physics 1960-1974

NORITA N. COMIN, M.A., Associate Professor of Family Studies and Consumer Sciences 1949-1963
KATHERINE E. CORBETT, M.A., Associate Professor of Education 1921-1956
ROBERT L. CRAIG, M.S., Assistant Professor of Physics 1960-1973
JAMES E. CROUCH, Ph.D., Professor of Zoology 1932-1973
JOHN EAGLE, Ed.D., Professor of Mathematics 1946-1974
SUE W. EARNEST, Ph.D., Professor of Speech Pathology and Audiology 1947-1973
ARTHUR T. EMERSON, B.S., Assistant Professor of Mathematics 1952-1964
WALTER B. FORD, B.E., Assistant Professor of Industrial Studies 1953-1963
LULA E. GERMANN, B.S., Supervising Librarian 1925-1956
E. DANA GIBSON, Ph.D., Professor of Information Systems 1947-1971
SIDNEY L. GULICK, Ph.D., Dean of Arts and Sciences; Professor of English 1945-1969
ISABELLA S. HAMMACK, M.A., Associate Professor of Education 1936-1957
DOROTHY R. HARVEY, M.A., Assistant Professor of Botany 1924-1961
ROBERT D. HARWOOD, Ph.D., Professor of Zoology 1928-1969
HARRIET HASKELL, Ph.D., Professor of English ..... 1940-1971 (except 1943-1945)
GERALDINE K. HAYNES, B.S.L.S., Supervising Librarian 1931-1961
CHARLES M. HUFFER, Ph.D., Professor of Astronomy 1961-1968
JAMES J. HUNTER, JR., Ph.D., Professor of Secondary Education 1946-1971
EVERETT GEE JACKSON, M.A., Professor of Art 1930-1963
LIONEL JOSEPH, Ph.D., Professor of Chemistry 1947-1971
DAVID C. KALBFELL, Ph.D., Lecturer in Physics 1948-1972
BENJAMIN J. KASTON, Ph.D., Professor of Zoology 1964-1973
CHESTER B. KENNEDY, Ph.D., Professor of English 1937-1969
WILLIAM M. KIDWELL, Ed.D., Director of Placement and Financial Aid; Professor of Psychology 1949-1970
JAMES S. KINDER, Ph.D., Professor of Education 1953-1966
MARGARET E. KINSEY, M.A., Circulation Librarian 1961-1972
ANGELA M. KITZINGER, Ph.D., Professor of Health Science and Safety 1945-1969
ORRIN E. KLAPP, Ph.D., Professor of Sociology 1948-1973
DONALD B. LEIFFER, Ph.D., Professor of Political Science 1948-1971
MAURICE M. LEMME, Ph.D., Dean of Graduate Studies; Professor of Mathematics 1948-1972
JAMES M. LINLEY, Ph.D., Professor of Secondary Education 1945-1970
LAWRENCE W. LUCE, Ed.D., Professor of Industrial Studies 1949-1969
ORLANDO J. LuPONE, Ph.D., Professor of Elementary Education 1964-1974
RICHARD MADDEN, Ph.D., Professor of Education ..... 1939-1966 (except 1961-1964)
ERNEST L. MARCHAND, Ph.D., Professor of English 1946-1968
LESSLEY C. McAMIS, B.A., Documents Librarian 1959-1971
IVAN N. McCOLLOM, Ed.D., Professor of Psychology 1946-1970
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CHESNEY R. MOE, Ph.D., Professor of Physics 1931-1972
VINNIE C. MOLITOR, A.B., Associate Professor of Geography 1914-1938
DORIS G. MURDOCK, B.S.L.S., Catalog Librarian 1960-1972
MABEL A. MYERS, Ph.D., Professor of Microbiology 1946-1970
ABRAHAM NASATIR, Ph.D., Professor of History 1928-1974
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HERBERT C. PEIFFER, Ph.D., Dean of Students; Professor of Psychology 1937-1972
PAUL L. PFAFF, Ph.D., Professor of Speech Pathology and Audiology 1931-1971
GEORGE L. PHILLIPS, Ph.D., Professor of English 1947-1973
LAUREN C. POST, Ph.D., Professor of Geography 1937-1969
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