

CALIFORNIA STATE COLLEGES

# *San Diego State*

GENERAL CATALOG AND ANNOUNCEMENT OF COURSES

1970-71



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## General Catalog

and

## ANNOUNCEMENT OF COURSES

VOLUME 57

APRIL 1970

SAN DIEGO STATE

SAN DIEGO, CALIFORNIA



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## 1970-1971

## ACADEMIC CALENDAR

### SUMMER SESSIONS, 1970

June 15-26	Intercession (2 weeks).
June 29- August 7	Term I summer session (6 weeks).
August 10-28	Term II summer session (3 weeks).

### FALL SEMESTER, 1970

January 1	Applications for admission or readmission to San Diego State for the fall semester accepted until enrollment quotas are met.
July 18, August 15, 22 and September 14	Admissions tests for fall semester for transfer students: College aptitude test; and writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to the college.
August 31- September 11	Registration, payment of fees, advising, and enrollment in classes for continuing students.
September 10	Mathematics placement examinations 8:30 a.m.-12 noon, for students planning to enroll in Math. 3, 4, 12, 20, 21, 40, 50; or Economics 2.
September 11 and 12	Mechanical Drawing test, 8 a.m.-12 noon.
September 12	Fundamentals test for transfer students entering elementary or kindergarten-primary education 9:00 a.m.-11:00 a.m.
September 14	Opening date of the academic year.
September 14 and 15	Mathematics placement examinations 1-4:00 p.m., for students planning to enroll in Math. 3, 4, 12, 20, 21, 40, 50; or Economics 2.
September 14-18	Registration, payment of fees, advising, and enrollment in classes for new students.
September 21	First day of classes.
September 22	File applications for admission to elementary teacher education. Assembly, 11 a.m.
September 24	File applications for admission to secondary teacher education. Assembly, 11 a.m.
September 26	Fundamentals test, 9:00-11:00 a.m.
October 1	Applications for admission or readmission to San Diego State for the spring semester accepted until quotas are met.
October 5	Last day to apply for refunds.
October 9	Last day to withdraw from class without penalty for unsatisfactory work.
October 9	Last day to file application for the bachelor's degree for mid-year graduation.
October 24 and November 21	Comprehensive College Tests, general examinations for students entering secondary education.
November 11	Holiday—Veterans' Day.
November 20	Last day to withdraw from class or change program.
November 21	Mathematics placement examination for students planning to enroll in Math 3, 4, 12, 20, 21, 40, 50; or Economics 2 in the Spring Semester 1971.
November 26-28	Thanksgiving recess.
December 4	Last day to file application for the bachelor's degree for June or summer graduation.
December 19	Last day of classes before winter recess.
December 21- January 2	Winter recess.
January 4	Classes resume.
January 6	Last day for a complete withdrawal from college.



## Academic Calendar

### FALL SEMESTER, 1970—Continued

January 16	Last day of classes before final examinations.
January 18-19	Study and consultation.
January 20	First day of final examinations.
January 29	Last day of the fall semester.

### SPRING SEMESTER, 1971

October 1	Applications for admission or readmission to San Diego State for the spring semester accepted until enrollment quotas are met.
December 5, January 9 and February 1	Admissions tests for spring semester for transfer students: College aptitude test; and writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to the college.
January 23	Fundamentals test for transfer students entering elementary or kindergarten-primary education, 9:00-11:00 a.m.
January 30	Mechanical Drawing test.
January 30	Mathematics placement examinations, 8 a.m.-1 p.m., for students planning to enroll in Math. 3, 4, 12, 20, 21, 40, 50; or Economics 2.
February 1	First day, second semester.
February 2-5	Registration, payment of fees, advising, and enrollment in classes. (These dates for continuing students subject to change. See Class Schedule.)
February 8	First day of classes.
February 9	File applications for admission to elementary teacher education. Assembly, 11 a.m.
February 11	File applications for admission to secondary education. Assembly 11 a.m.
February 12	Holiday—Lincoln's birthday.
February 15	Holiday—Washington's birthday.
February 23	Last day to apply for refunds.
February 26	Last day to withdraw from class without penalty for unsatisfactory work.
February 27	Fundamentals test, 9 a.m.-11 a.m.
March 13 and April 17	Comprehensive College Tests, general examinations for students entering secondary education.
April 3	Last day of classes before spring recess.
April 5-10	Spring recess.
April 12	Classes resume.
April 16	Last day to withdraw from classes or change program.
May 1, June 12, 19, 26	Admissions tests for fall semester for transfer students: College aptitude test; and writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to the college.
May 2	San Diego State Founders' Day.
May 19	Last day for a complete withdrawal from college.
May 29	Last day of classes before final examinations.
May 30	Holiday—Memorial Day.
May 31, June 1	Study and consultation.
June 2	First day of final examinations.
June 6	Baccalaureate services.
June 11	Commencement. Last day of the spring semester.

### SUMMER SESSIONS, 1971

June 14-25	Intercession (2 weeks).
June 28-August 6	Term I summer session (6 weeks).
August 9-27	Term II summer session (3 weeks).

## SCHEDULE OF FEES

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

### FEES PAYABLE AT TIME OF REGISTRATION (PER SEMESTER)

#### Fees for more than six units:

Materials and services	\$54.00
Student activity fee	9.50
Student Union Fee	7.00
Facilities Fee	3.00
Auditors pay same fees as students carrying courses for credit.	
Total required fees	\$73.50

#### Fees for six units or less:

Materials and service	\$54.00
Student activity fee	4.75
Student Union Fee	3.50
Facilities Fee	3.00
Auditors pay same fees as students carrying courses for credit.	
Total required fees	\$65.25

#### Tuition for nonresident student:

(In addition to materials and service, activity, and student union fees)	
Nonresident student enrolled for 15 units or more	\$445.00
Nonresident student enrolled for less than 15 units, or fraction thereof	(per unit) 30.00
(For fee-paying purposes, zero unit courses are counted as one unit)	

#### Tuition for visa-foreign student (as prescribed by regulations):

(In addition to materials and service, activity, and student union fees)	
Foreign student enrolled for 15 units or more	180.00
Foreign student enrolled for less than 15 units	or fraction thereof (per unit) 12.00
(For fee-paying purposes, zero unit courses are counted as one unit)	

#### Parking fees:

Students carrying more than six units	13.00
Students carrying six units or less	6.00
Each alternate car in addition to first vehicle	1.00
Two wheeled, self-propelled vehicle:	
Student carrying more than six units	3.25
Student carrying six units or less	1.50

#### MISCELLANEOUS FEES

(Fees payable when service is rendered)

Application for admission or readmission (non-refundable)	20.00
Late registration	5.00
Change of program	1.00
Failure to meet administratively required appointment or time limit	2.00
Transcript of record (first copy free)	1.00
R.O.T.C. deposit (unexpended portion is refundable)	10.00
Check returned for any cause	2.00
Studio lesson, per lesson per student	1.00 to 10.00
Current fee per semester (15 40-minute lessons)	90.00
Organ practice	10.00
Loss or damage of equipment and library books	Cost



## Schedule of Fees

### REGULAR SESSION FEE REFUNDS

#### Materials and service fees:

To be eligible for partial refunds of materials and service fees, a student withdrawing from college must file an application with the Business Office not later than 14 days following the day of the term when instruction begins; and provided, further, that the amount of \$10 shall be retained to cover the cost of registration.

#### 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 therefor is received by the Business 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

The late registration fee is not refundable.

The Business Office should be consulted for further refund details.

### SUMMER SESSION FEES

Tuition, each session (per unit) \$24.00

#### Activity fee:

Term I	2.00
Term II	1.00

#### Student union fee (required):

Term I	3.50
Term II	2.00

#### Parking fees:

Nonreserved spaces:	
Six-week session	5.00
Other sessions of one week or more (per week)	1.00

### EXTENSION COURSE FEES

Lecture or discussion course (per unit) 19.00

### EXEMPTIONS

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

## ORGANIZATION AND ADMINISTRATION

BOARD OF TRUSTEES  
OFFICE OF THE CHANCELLOR  
THE CALIFORNIA STATE COLLEGES  
SAN DIEGO STATE ADVISORY BOARD  
ADMINISTRATION  
COLLEGES, SCHOOLS, DEPARTMENTS  
RESEARCH BUREAUS



## TRUSTEES OF THE CALIFORNIA STATE COLLEGES

### Ex Officio Members

Ronald Reagan, B.A. Governor of California and President of the Trustees	State Capitol, Sacramento 95814
Ed Reinecke, B.S. Lieutenant Governor of California	State Capitol, Sacramento 95814
Max Rafferty, A.B., M.A., Ed.D. State Superintendent of Public Instruction	721 Capitol Mall Sacramento 95814
Robert T. Monagan, B.A. Speaker of the Assembly	State Capitol, Sacramento 95814
Glenn S. Dumke, A.B., M.A., Ph.D., LL.D., L.H.D. Chancellor of the California State Colleges	5670 Wilshire Blvd., Los Angeles 90036

### Appointed Trustees

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

Charles Luckman, LL.D., A.F.D. (1974)  
9220 Sunset Blvd., Los Angeles 90069  
Theodore Meriam, A.B. (1971)  
P.O. Box 370, Chico 95926  
Albert J. Ruffo, LL.B., B.S. in E.E. (1971)  
675 North First St., Suite 1200, San Jose 95112  
Mrs. Philip Conley, B.A. (1972)  
3729 Huntington Blvd., Fresno 93702  
E. Guy Warren, B.A. (1973)  
P.O. Box 59, Hayward 94541  
Daniel H. Ridder, B.A. (1975)  
604 Pine Ave., Long Beach 90801  
George D. Hart, A.B. (1975)  
111 Sutter St., San Francisco 94104  
James F. Thacher, A.B., LL.B. (1970)  
310 Sansome St., San Francisco 94104  
Alec L. Cory, B.A., LL.B. (1973)  
530 B St., Suite 1900, San Diego 92101  
William A. Norris, A.B., LL.B. (1972)  
609 So. Grand Ave., Los Angeles 90017  
Edward O. Lee, B.A. (1974)  
610 16th St., Room 420, Oakland 94612  
Earle M. Jorgenson (1970)  
10650 So. Alameda, Los Angeles 90054  
Dudley Swim, A.B., M.A. (1976)  
Route 2, Box 5000, Carmel Valley Road, Carmel 93924  
Karl L. Wente, M.S. (1976)  
5565 Tesla Road, Livermore 94550  
E. Litton Bivans (1977)  
2431 Dallas St., Los Angeles 90031  
W. O. Weissich, B.S., J.D. (1977)  
1299 Fourth St., San Rafael 94901

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# THE CALIFORNIA STATE COLLEGES

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Bakersfield, California 93304  
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805 327-9101

### CALIFORNIA STATE COLLEGE, DOMINGUEZ HILLS

1000 East Victoria Street  
Dominguez Hills, California 90247  
Leo F. Cain, President  
213 532-4300

### CALIFORNIA STATE COLLEGE, FULLERTON

800 North State College Boulevard  
Fullerton, California 92631  
William B. Langsdorf, President  
714 870-2011

### CALIFORNIA STATE COLLEGE, HAYWARD

25800 Hillary Street  
Hayward, California 94542  
Ellis E. McCune, President  
415 538-8000

### CALIFORNIA STATE COLLEGE, LONG BEACH

6101 East Seventh Street  
Long Beach, California 90801  
Donald H. Simonsen, Acting President  
213 433-0951

### CALIFORNIA STATE COLLEGE, LOS ANGELES

5151 State College Drive  
Los Angeles, California 90032  
John A. Greenlee, President  
213 224-2011

### CALIFORNIA STATE COLLEGE, SAN BERNARDINO

5500 State College Parkway  
San Bernardino, California 92407  
John M. Pfau, President  
714 887-6311

### CALIFORNIA STATE POLYTECHNIC COLLEGE, KELLOGG-VOORHIS

3801 West Temple Avenue  
Pomona, California 91766  
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213 964-6424

### CALIFORNIA STATE POLYTECHNIC COLLEGE, SAN LUIS OBISPO

San Luis Obispo, California 93401  
Robert E. Kennedy, President  
805 546-0111

## The California State Colleges

### CHICO STATE COLLEGE

Chico, California 95926  
Robert E. Hill, President  
916 345-5011

### FRESNO STATE COLLEGE

Shaw and Cedar Avenues  
Fresno, California 93726  
Karl Falk, Acting President  
209 487-9011

### HUMBOLDT STATE COLLEGE

Arcata, California 95521  
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707 826-3011

### SACRAMENTO STATE COLLEGE

6000 Jay Street  
Sacramento, California 95819  
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916 454-6011

### SAN DIEGO STATE COLLEGE

5402 College Avenue  
San Diego, California 92115  
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714 286-5000

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18111 Nordhoff Street  
Northridge, California 91324  
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213 349-1200

### SAN FRANCISCO STATE COLLEGE

1600 Holloway Avenue  
San Francisco, California 94132  
S. I. Hayakawa, President  
415 469-9123

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125 South Seventh Street  
San Jose, California 95114  
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408 294-6414

### SONOMA STATE COLLEGE

1801 East Cotati Avenue  
Rohnert Park, Cotati, California 94928  
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707 795-2011

### STANISLAUS STATE COLLEGE

800 Monte Vista Avenue  
Turlock, California 95380  
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209 634-9101



## THE CALIFORNIA STATE COLLEGES

The 19 California State Colleges, from Humboldt County in the north to San Diego in the south, comprise the largest system of public higher education in the Western hemisphere and one of the largest in the world. Current enrollment exceeds 227,000 full-time and part-time students who are served by a faculty that numbers approximately 13,000.

Although San Jose State College, the oldest, was founded over a century ago, the California State Colleges were not drawn together as a system under an independent Board of Trustees until after passage of the Donahoe Higher Education Act by the Legislature in 1960.

Responsibility for the California State Colleges is vested in the Board of Trustees, whose members are appointed by the Governor. The Chancellor is the administrative officer of the Trustees. Together, the Trustees and the Chancellor set broad policy, while delegating responsibility for implementation to the colleges. The Academic Senate of the California State Colleges, consisting of elected representatives of the faculty at each college, recommends academic policy to the Board of Trustees through the Chancellor.

Each college in the system has its own geographic and curricular character, but all emphasize the liberal arts and sciences. Programs leading to the bachelor's and master's degrees, as well as a limited number of joint doctorates, are master planned to anticipate and accommodate student interest and the educational and professional needs of the State of California. The primary responsibility of the faculty is the instructional process, with increasing recognition of the importance of the role of research as a necessary concomitant to high quality teaching.

The California State Colleges are now in the most dynamic period of their development. Prior to World War II, there were seven State Colleges with a peak total enrollment of 13,000. Since 1947, twelve new colleges have been established and sites have been selected for new campuses in Ventura, San Mateo, and Contra Costa counties. California State College, Bakersfield, will open its doors to students for the first time this year. Enrollment in the system is expected to go beyond 400,000 by 1980.

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Associate Dean	Daniel D. Whitney
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English Department	Lowell Tozer (Acting)
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Home Economics Department	Nona H. Cannon
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Public Administration and Urban Studies	Robert F. Wilcox
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Mathematics Department	Calvin V. Holmes
Microbiology Department	William L. Baxter
Physical Science Department	Norman F. Dessel
Physics Department	Jacques D. Templin
Psychology Department	Robert Penn
Zoology Department	Richard E. Etheridge

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Civil Engineering Department	Iraj Noorany
Electrical and Electronic Engineering Department	Vincent R. Learned
Mechanical Engineering Department	Robert L. Bedore

<b>SCHOOL OF SOCIAL WORK</b>	Irving B. Tebor, Dean (Acting)
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<b>IMPERIAL VALLEY CAMPUS</b>	Joseph A. Rodney, Director
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Center for Latin-American Studies	William A. Finch, Director
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Center for the Study of Counselor Education	David D. Malcolm, Director
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## GENERAL INFORMATION

**GENERAL INFORMATION**  
**IMPERIAL VALLEY CAMPUS**  
**SPECIAL PROGRAMS AND SERVICES**  
**STUDENT SERVICES**  
**STUDENT ACTIVITIES AND HOUSING**  
**LOANS AND SCHOLARSHIPS**



## GENERAL INFORMATION

### PURPOSES OF SAN DIEGO STATE

The primary purpose of San Diego State is to provide instruction for undergraduate and graduate students, through the bachelor's and master's degrees, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession. The doctoral degree is awarded jointly with the University of California.

The programs at San Diego State are designed to aid the student to develop his powers of critical, independent thought and to become aware of the main streams of our Nation's cultural, social, and scientific traditions; to inform him of the political ideas and ideals that have built our Democracy and to stimulate in him an interest in participation in civic life; and to equip him with the knowledge and skills necessary to meet the needs of California and the Nation for competence and leadership.

To achieve these purposes San Diego State offers:

1. Student personnel services to assist the individual student to plan his educational program and to make progress toward the attainment of immediate and long range goals.
2. General and liberal education for students whose studies lead toward the bachelor's degree or to the higher professions through graduate work.
3. Undergraduate and graduate curricula in teacher education for those students who plan to teach, supervise or administer in California's public schools.
4. Preprofessional curricula for fields such as medicine, dentistry, theology, and law.
5. Four-year curricula in such fields as business, industry, engineering, governmental services, homemaking, and social service.
6. Extension courses in appropriate fields.
7. Courses at the graduate level designed to lead to advanced degrees in a variety of fields.

### GROWTH OF SAN DIEGO STATE

San Diego State is a dynamic institution that looks with pride to more than a half century of continued progress. From its humble founding in 1897 under a local board of trustees, it became a four-year teacher's college in 1921 under the State Board of Education, and in 1935 the liberal arts San Diego State College. With the advent of the California State College system in 1960 it became one of nineteen state colleges under the jurisdiction of a Board of Trustees and chancellor.

During the first year of its existence, the college, with a faculty of seven and a student enrollment of 91, occupied temporary quarters in downtown San Diego. The following year it moved to a new campus on University Heights in a central area of the city. By 1931, growth of the college made necessary another move, this time to its permanent campus of several hundred acres in the eastern part of San Diego, 12 miles from beach resorts and within a short drive of mountain and desert recreational sites. It lies one mile north of El Cajon boulevard, and just south of Interstate 8 on College Avenue. San Diego provides the cultural opportunities usually found in cities of over 650,000.

The original group of buildings to be erected on the campus is of Spanish colonial architecture characteristic of early California. During its recent years of explosive growth, San Diego State has enjoyed the support of a community alert to its educational needs. To serve the rapidly expanding student population, which now numbers 24,000, many new buildings of modern design have been added. The institution now has classrooms, laboratories, and other facilities covering over a million and a half square feet. Buildings include the following: Administration, Arts and Sciences, Aztec Center, Business Administration and Mathematics, Chem-

### General Information

istry-Geology, Campus Laboratory School, Dramatic Arts, Education, Engineering, Fine Arts, Home Economics, Home Management Residence, Industrial Arts, Library, Life Sciences, Little Theatre, Music, Peterson Gymnasium (men), Physics-Astronomy, Physical Education, Physical Sciences, Speech Arts, Social Sciences, Women's Physical Education, Residence Halls, Residence Commons, Commons East, and the West Commons (cafeterias), Aztec Shops Bookstore, and Health Service; also included are the Greek Bowl, Track Field, Aztec Bowl (stadium), Scripps Cottage (student lounge and outdoor recreational center), a faculty lounge and cafeteria.

### FACULTY

The college faculty numbers over 1,400 members who have received their advanced training in over 100 colleges and universities of the United States or foreign countries. The faculty is distinguished not only in terms of formal education, but also represents a wide variety of practical experience in business, industry, and the teaching profession. Both past and recent contributions to publications and research are extensive and impressive. For listings and further details see the Faculty Directory.

### LIBRARY

One of the largest university type library buildings in the nation will be opened to this academic community in September 1970. It will provide ideal facilities for study and research. At the heart of the expanding campus the five floor building will seat 3,700 readers and have space for a million volumes. Special services planned are: a central reference room, a lower division library, special collection room for rare books and archives, documents department, curriculum materials center, typing rooms, current periodicals reading room, and a viewing and listening center for microforms viewing and disc and tape listening.

Library resources and services are noteworthy. The collection consists of 680,000 volumes including books, bound periodicals and government documents. Additional resources include: 600,000 micro opaques, 151,000 microfiches, 14,000 reels of microfilm, 30,000 college catalogs, 53,000 curriculum materials, 22,000 scientific reports, 170,000 archival papers and many other information media including phonorecords, sound tapes, prints, pamphlets and other graphic materials.

The Library receives 7,400 periodical and other serial titles excluding government documents. It is a depository for United States, California, Illinois, New York and Texas government publications and receives all United Nations, Organization of American States publications and those of several other international bodies.

Highly trained reference librarians assist students and faculty in their reading, study, and research. To aid the student to develop his powers of critical, independent thought through wide acquaintance with books, the library has an open shelf arrangement which gives direct access to nearly all books. Inexpensive copying machines are available throughout the building.

Several research centers on campus have collections not included in the libraries' holdings. Among them are: Public Administration and Urban Studies Laboratory, 50,000 items; Economic Research Center, 32,000 items; Geography and Geology departments, 90,000 maps; International Relations Research Center, 14,000 items.

### ACCREDITATION

San Diego State is a member of the following educational associations:

- American Association of Colleges for Teacher Education
- American Association of Collegiate Schools of Business
- American Dietetic Association
- 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



## General Information

Through membership in these associations, San Diego State is fully accredited. It is also accredited by the National Council for Accreditation of Teacher Education and by the California State Board of Education. It is on the approved list of the American Chemical Society and is approved by the Veterans Administration for the education of veterans.

## DEGREES AND CERTIFICATES

San Diego State offers the following degrees and certificate:

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

A nondegree program leading to the Certificate in Public Administration is offered by Public Administration and Urban Studies.

## TYPES OF CURRICULA OFFERED

San Diego State 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 eight 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 pre dentistry, prelegal, and premedical, leading to transfer to professional schools. A nondegree program is offered in public service, leading to 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.

## ACADEMIC YEAR

San Diego State operates on the semester plan. The academic year, which consists of two semesters of 18 weeks each, begins in September and ends in June. The academic year is defined in the State Administrative Code, Chapter 5, Section 42800, as follows: "The beginning date of the academic year of the college shall be Monday of the week preceding the week that class instruction is scheduled to begin in the regular fall session, and the ending date shall be the second calendar day following the last day that final examinations are regularly scheduled for the following spring semester." Dates for the current academic year are carried in the calendar in this catalog.

## General Information

## PUBLICATIONS

The *General Catalog*, which is published annually in April, may be purchased at the Aztec Shops Bookstore on the campus. The current price is \$1.00 plus tax and mailing costs. The catalog carries information on admissions, fees and tuition, programs and degrees, courses, scholarships, residence halls, student services and activities, and a faculty directory.

The *Graduate Bulletin*, issued in April of each year, is available without cost to the applicant upon request made to the Graduate Office. The bulletin gives complete information on all graduate programs.

The *Summer Sessions Bulletin*, issued each April, carries information on the ensuing summer terms. The bulletin includes an application form, information on admission and registration, fees, living accommodations in residence halls, courses, institutes, workshops, and study tours. Write to the Summer Sessions Office for a free bulletin.

The *Extension Courses Bulletin* is issued prior to each semester by the Office of Extended Services. This bulletin gives information on courses and programs to be offered in the next semester. It will be mailed upon request without charge by the Office of Extended Services.

For a *Bulletin of the Imperial Valley Campus*, write to the Director, Imperial Valley Campus, 720 Heber Avenue, Calexico, California 92231. This bulletin carries information on admissions, courses, and programs. It is available prior to the opening of each semester and will be mailed free of charge upon request.

The *Class Schedule and Instructions for Registration* is published prior to the opening of each semester and may be purchased at the Aztec Shops Bookstore on the campus. The current price is 35¢, subject to change. An additional charge of ten cents is made for mailing. Address requests to the Bookstore.

The *Daily Aztec*, a student newspaper, is issued daily in regular semesters and once a week in Term I Summer Session. The cost of the paper is included in the student activity fee. *Del Sudoeste*, the campus yearbook, is published at the close of the spring semester. It is sold at the Bookstore or may be obtained at a reduced price when ordered in advance. A *Student Handbook* is published at the beginning of the academic year and is distributed free of charge to new students at time of registration or may be obtained from the Office of the Dean of Activities. It contains information on scholastic and social life, services offered, customs of the college, and other material designed to encourage the student to participate fully in the life of the college. The *Alumni News* is published monthly by the Alumni Association and distributed to its members.

*Special bulletins and brochures* are issued at irregular intervals by the various divisions and offices of the college. Information on these special publications which may be currently available may be obtained by writing to the Office of Publications and Public Relations.



# IMPERIAL VALLEY CAMPUS

## LOCATION AND FUNCTION

The Imperial Valley Campus is a division of San Diego State. 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, California, 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. Imperial Valley Campus is 120 miles east of San Diego via U.S. Interstate Highway 8. The program at this campus is an integral part of San Diego State 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 the Standard Teaching Credentials with specializations in elementary, secondary, and special educations. Admission of students, counseling, and testing are provided by the Director and a full-time college instructional staff. In addition to the regular program, the campus also assists in the administration of extension courses for the Southeastern California area. The campus operates on the regular basis for fall and spring semesters with summer sessions conducted in fully refrigerated buildings.

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 to frequently 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 and Gulf of California and golfing and hiking may be enjoyed the year around.

Due to restricted enrollment (limited to upper division and graduate students), the student-faculty ratio is low, thus personal student counseling is provided. Each student is assigned a faculty adviser who assists him in arranging his program to realize his educational and occupational plans.

## PROGRAM

The program at the Imperial Valley Campus is restricted to upper division and postgraduate courses applicable to a bachelor's degree and the Standard Teaching Credential. In general, the programs are similar to those described in this catalog for elementary and secondary teaching; however, not all majors and minors are available at Imperial Valley Campus. Presently, the campus offers major programs in Spanish, English, social science, fine arts, history, and Latin American studies. Authorized programs to be added include mathematics, sociology, art, music, political science, and economics.

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

For those transfer students needing certain lower division college work in connection with their work at this campus, there is 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 junior colleges offering the first two years (60 units) of college work.

## Imperial Valley Campus

## INFORMATION

Information on admission, registration, programs, and classes may be obtained by writing the Director, Imperial Valley Campus of San Diego State College, 720 Heber Avenue, Calexico, California 92231. Telephone, Area Code 714, 357-3721 or 352-5872.

## REGISTRATION

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. Students who are continuing, or have been admitted or readmitted by the college, will be mailed detailed instructions for registration. Any student who is not a continuing student (i.e., was not officially enrolled the previous semester, fall to spring or spring to fall, or is seeking admission after having attended another college) must file the appropriate application for admission forms with the Director's office at Calexico. Students in previous attendance at the San Diego Campus should notify both the Director's office and the Registrar's office of their intention to enroll for courses at Calexico.

## COMMENCEMENT EXERCISES AT CALEXICO

Commencement exercises are held once a year in Calexico at the end of the spring semester. Those students who were graduated at midyear, plus those graduating at the end of the spring semester, and students who expect to complete requirements for graduation in the summer session are encouraged to attend. The general requirements for graduation are found elsewhere in this catalog.

## PHYSICAL FACILITIES: OFFICES, CLASSROOMS, STUDENT UNION, BOOKSTORE

The Imperial Valley Campus is comprised of a cluster of four large buildings set in a six 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 all located in the central building. Classrooms are located in all buildings on the campus. All are large, comfortable, and equipped with refrigerated and/or heated air conditioning to fit the season. All resident faculty members maintain offices on campus.

Facilities are provided for student use in the student union consisting of two large rooms entirely separated from the office and classroom areas. The rooms which are furnished with television, sofas, lounge chairs, small tables, and easily movable chairs, can be used for conferences and meetings. Snack facilities are also available to students. The Associate Student Body Offices are located in the student union area.

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

## STUDENT CULTURAL EXCHANGE WITH MEXICO

The Imperial Valley 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.

## FACULTY

The full-time faculty and many of the part-time faculty are regular members of the San Diego State instructional staff. Serving at the Imperial Valley Campus are full-time resident faculty members in the areas of anthropology, art, drama, English, geography, history, mathematics, political science, psychology, sociology, Spanish, elementary education, secondary education, and special education. More than fifty per cent of the full-time faculty possess the doctoral degree. Part-time faculty, selected from outstanding educators of Imperial Valley, augment the instructional programs of the Imperial Valley Campus.



## Imperial Valley Campus

### LIBRARY

The Imperial Valley Campus library is housed in the south wing of a three building complex. It contains over 20,000 books, 2,500 pamphlets, and 200 periodicals. Stacks are separated from the study-reference area. 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.

### AUDIO-VISUAL EQUIPMENT

A basic collection of audio-visual equipment is available for classroom use. Films and other instruction materials are available to the staff and students through the Audio-Visual Departments of the San Diego Campus and of the Imperial County Education Center. Films are also rented from outside sources as needed.

### FINANCIAL ASSISTANCE

Loans and scholarships available at San Diego State and Imperial Valley Campus are described elsewhere in this catalog. Consideration is usually given to students on the basis of scholastic attainment, financial need, character, and promise. National Defense Education Act Loans and United Student Aid Fund Loans are also available, as well as veteran benefits.

### PLACEMENT AND EMPLOYMENT

The college 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 schools for teacher placement. Present conditions result in more elementary teaching position vacancies than the campus has graduates.

### ADMISSION TESTS

The various tests required for the programs offered at the Imperial Valley Campus are given at the Calexico Campus. For further information and dates of administration contact the Director's office.

### ACCREDITATION

The Imperial Valley Campus, being a division of San Diego State, is fully accredited. Consult this catalog for full listing of the accrediting associations.

## SPECIAL PROGRAMS AND SERVICES

### CLASSES MEETING AT FOUR O'CLOCK OR LATER

In order to meet the needs of adults in the community for work on the college level, some courses are scheduled to begin at four o'clock or later. These include both undergraduate and graduate courses and carry full college credit. Classes offered at this time are part of the regular college offerings and are taught by faculty of the college.

Students enrolling in these classes must be fully matriculated students who have met all admission requirements of the college, including the filing of an official application for admission, the filing of complete official transcripts from other schools and colleges, and in the case of undergraduates, the completion of required tests for admission. See the section of this catalog on Admissions for deadline dates.

### SUMMER SESSIONS PROGRAM

San Diego State conducts an intercession and two summer sessions which offer credit applicable to graduation and residence requirements. During the two-week Intercession, from one to two units of credit may be earned; during the six-week Term I Summer Session, six units of academic credit may be earned; and during the three-week Term II Summer Session, three units may be earned. The tuition fee for summer session work is based upon cost per semester unit. (Refer to the section of this catalog on Schedule of Fees for information on fees.) Information concerning course offerings, special workshops, and requirements for admission may be obtained by communicating with the Summer Sessions Office. A *Summer Sessions Bulletin* is available during the month of April and will be mailed free of charge upon request.

### EXTENSION COURSES PROGRAM

In order to serve more adequately the educational needs of the community, San Diego State cooperates with off-campus organizations and groups in arranging extension classes in response to expressed needs when the enrollment is sufficiently large to finance the instruction. Offerings are made each semester in a number of departments including education, business administration, and the arts and sciences. Classes may be organized at various locations within San Diego, Riverside, and Imperial Counties. A minimum of 16 to 20 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. These courses are listed in a special *Bulletin of Extension Courses* published each semester. Refer to the section of this catalog on Schedule of Fees for information on fees.

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 Extended Services Office.

### HONORS PROGRAM

The Honors Program at San Diego State provides opportunities for superior students to use and develop their talents in a variety of ways, both all-college and departmental.

Those who have taken the Advanced Placement Examinations should refer to the section of the catalog so titled.

Prior to entrance, freshmen who have superior high school records may, on the basis of their college aptitude test scores, be invited to participate in a special advising program. Here attention is given to individual needs and interests. Stu-



## Special Programs and Services

dents in this program are given Honors at Entrance. Later, as sophomores, such students are eligible for the Honors Colloquium (Humanities 66).

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. Currently honors sections are offered in English 1, 3; Mathematics 50, 51, 52; Physics 4A-4B-4C; Political Science 1, 2; and Psychology 1, 167A-167B. Chemistry 10A-10B is an honors course.

Upon completion of the sophomore year a student who has maintained a superior scholastic record may be eligible for admission to the upper division Honors Program of his major department. Specific requirements and details of these programs vary with the different departments. To apply, a student should consult his major adviser or the chairman of his major department.

The purpose of the San Diego State Honors Program is, within practicable limits, to meet the individual needs of the most capable students. Credit by examination, release from regular attendance, modification of curriculum requirements in the major and minor, and individual study are other opportunities available with the consent of the major adviser or other authorities. See also the section of this catalog titled "Graduation with Honors."

## INTERNATIONAL PROGRAMS

The California State Colleges offer programs of study for a full academic year at a number of distinguished universities abroad. Students study and live under the same conditions as students at the cooperating universities, but remain enrolled in the California State Colleges, where they may apply their work toward degree requirements in accordance with college regulations. The programs, which are voluntary, cooperative and systemwide in nature, are designed as bona fide academic undertakings with clearly defined educational and professional objectives.

For 1970-71 the cooperating universities are: University of the Andes, Bogota, Colombia; University of Aix-Marseille, France; Free University of Berlin and University of Heidelberg, Germany; University of Ghana; The Hebrew University of Jerusalem and Tel Aviv University, Israel; University of Florence, Italy; Waseda University, Tokyo, Japan; University of Granada and University of Madrid, Spain; University of Stockholm and University of Uppsala, Sweden; National University, Taiwan.

Students are selected on the basis of academic, linguistic and personal qualifications. The criteria are:

- a) Upper division or graduate standing by the beginning of the academic year abroad;
- b) Academic achievement;
- c) Proficiency in the language of instruction;
- d) Faculty recommendations.

Programs in Ghana, Israel, Italy, Japan, Sweden, and Taiwan do not require previous linguistic preparation; applicants for all other programs must demonstrate adequate facility in the language of instruction at the host university.

Approximate cost to the student during the 1970-71 year, including round trip transportation from San Francisco, room and board for the academic year, and medical insurance, is \$2,300 for Colombia, France, Germany and Spain; \$2,000 for Israel and Taiwan; and \$2,500 for Ghana, Italy, Japan and Sweden.

Application for the 1971-72 academic year should be made early in the fall semester, 1970. Detailed information may be obtained at the Office of the Dean of the College of Arts and Letters, San Diego State, or by writing to the Office of International Programs, The California State Colleges, 1600 Holloway Avenue, San Francisco, California 94132.

## VETERANS' EDUCATION

The college has been approved by various accrediting agencies to offer courses for veterans leading to the baccalaureate in numerous fields and to the master's degree and various teaching credentials. A veterans' office is maintained to facilitate registration, aid in the establishment of benefits, and serve as an information center.

## Special Programs and Services

### EDUCATIONAL OPPORTUNITIES PROGRAM

The Educational Opportunities Program of San Diego State College is designed to assist capable young people who could make good use of a college education but for financial and/or academic reasons did not consider the possibility of being admitted to a four-year college. In cooperation with high schools and community organizations the program recruits students, helps them enroll in San Diego State College, and advises them on proper procedures for requesting financial assistance when this is necessary. Many E.O.P. students secure financial aid to assist them in meeting part or all of the expenses of college life. This financial aid is disbursed through San Diego State College Financial Aids office according to established individual need. See the Financial Aids section of this catalog for details.

The major aim of the program since its inception in Spring 1967 is to involve members of the minority and low income communities. E.O.P. started with five students and in the Fall of 1968, 365 students were enrolled. In response to this rapid growth more supportive services have been established. These services are intended to insure each individual student the opportunity to reach his fullest potential.

The E.O.P. faculty advising services provides a faculty friend and adviser for the academic year. A tutorial program for academic help in needed subject areas is available. Professional counselors are also available for help with any personal problems that may occur.



## SERVICES

### RESEARCH BUREAUS

#### BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is an 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 an editor. Fiscal matters are coordinated through the San Diego State 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) compile local and regional data; (5) publish the results of bureau research investigations and aid the 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 Associated University Bureaus of Business and Economic Research.

#### BUREAU OF MARINE SCIENCES

The Bureau of Marine Sciences has been established to facilitate interdisciplinary education and research activity in the Marine Sciences at San Diego State. The Bureau is administered by a director, and operated under the guidance of a Faculty Committee. Fiscal operation is coordinated through the San Diego State Foundation.

#### BUREAU OF SCHOOL SERVICES AND RESEARCH

The Bureau of Educational Research operates within the School of Education. The objective of the bureau is to improve the quality of education through research by (1) assisting with research activities of individual faculty members who wish to make use of its services, (2) cooperating in community and service studies, (3) serving faculty graduate advisers as a resource in research design and statistical techniques, and (4) engaging in the dissemination of educational research information.

#### CENTER FOR ASIAN STUDIES

The Center for Asian Studies is an interdisciplinary organization in the College of Arts and Letters. Drawing upon faculty members from such areas as anthropology, art, business administration, comparative literature, economics, education, geography, history, philosophy, and political science; the Center 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 level; (4) responding to campus and community requests for information and services; (5) fostering campus and community interest in Asian Studies.

#### CENTER FOR ECONOMIC EDUCATION

The Center for Economic Education works with the public schools to promote better economic education. The functions include (1) research, (2) the development, evaluation, collection, and dissemination of appropriate materials, (3) in-service and pre-service instruction, and (4) service. The development of more effective strategies and the evaluation of teaching at all levels is involved.

#### CENTER FOR LATIN AMERICAN STUDIES

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 faculty who discuss a variety of Latin American topics. The center also assists in the development of the College Library's Latin American holdings, and has created a special collection of Latin American materials.

#### CENTER FOR RESEARCH ON ECONOMIC DEVELOPMENT

The Center for Research on 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.

#### CENTER FOR THE STUDY OF COUNSELOR EDUCATION

The Center for the Study of Counselor Education is an interdisciplinary task force under the administrative jurisdiction of the Dean of Education; fiscal matters are coordinated through the San Diego State 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 college 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.

#### CENTER FOR SURVEY RESEARCH

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.

#### ECONOMICS RESEARCH CENTER

The Economics Research Center collects research materials, and publishes occasional monographs. The research facilities are available to advanced students for their research reports and to faculty members in economics, and in other fields, for the purpose of aiding research projects. The regular faculty seminars of the Economics Department, meetings of the local chapter of Omicron Delta Epsilon, and special economics conferences are held in this Center.

#### INSTITUTE OF LABOR ECONOMICS

The Institute of Labor Economics is an activity of the Economics Department with its administration under a director. The Institute, located with the Economics Research Center in SS-338, provides materials and direction for research in labor problems, collective bargaining, labor legislation, and social security.

#### INSTITUTE OF PUBLIC AND URBAN AFFAIRS

The Institute of Public and Urban Affairs is an agency of San Diego State, 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. 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 college.

#### PALEOBIOLOGY COUNCIL

Interdisciplinary characteristics of considerations of the fossil record are expressed in the distribution of courses, faculties, students, and research programs through several departments. Information concerning opportunities for paleobiological studies at San Diego State is provided by appropriate catalogs, circulars, administrative offices, and by Paleobiology Council members.

#### SOCIAL RESEARCH CENTER

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



## Special Programs and Services

center to include laboratories for experimental studies of social organization. The center is administered for the Department of Sociology by a director and an assistant director, whose duties include consulting assistance in the designing and execution of studies and in the preparation of proposals to funding agencies.

### COMPUTER CENTER

The Computer Center is established to encourage and support the use of computers in all instructional, research and administrative activities of San Diego State. The Center is a cooperative venture by the San Diego State Foundation, Aztec Shops and the College. The present equipment includes a medium sized electronic digital computer—an IBM 360 Model 40 with 131,072 bytes of core storage, disks, tapes, a card reader a card reader-punch, and a printer. The supervisor is the Disk 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. Programming and data processing courses, and courses related to some specialized applications of computers are offered by several departments at San Diego State.

### RESEARCH AND PROJECT ADMINISTRATION SAN DIEGO STATE FOUNDATION

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

### SAN DIEGO STATE PRESS

The San Diego State Press operates under supervision of a publications board composed of representatives from each of the 10 college divisions. Financial assistance is coordinated through the San Diego State Foundation.

The press publishes important faculty-sponsored research reports, community studies, documents, and literary articles.

### AUDIOLOGY DIAGNOSTIC CENTER

The Audiology Diagnostic Center is a facility of the Speech Pathology and Audiology Department with its administration under a director. The center is located in the lower floor of the Education Building, adjacent to Health Services. The principal objectives of the center are: 1) to provide complete diagnostic information regarding the hearing loss for faculty, students, and staff free of charge; 2) to provide the same service to the community for a minimal fee administered through the College Foundation; 3) to provide hearing assessment of all freshmen and transfer students as part of their health examination; and, 4) to foster research in the area of hearing function and pathology. This center operates throughout the school year and in Summer Session I.

### SPEECH AND HEARING CLINIC

A speech and hearing clinic in which college students are trained in the application of speech and hearing pathology techniques, speech, lipreading and auditory training and language development for the hard of hearing and deaf, is held

## Special Programs and Services

throughout the academic school year and in Summer Session I. The clinic admits those with speech and hearing problems, ages three to adult. Because of limitations in staff, not all who apply can be admitted. A minimal fee is charged for diagnostic evaluation and/or therapy.

### CLINICAL TRAINING CENTER

The Clinical Training Center prepares college students 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.

### AUDIO-VISUAL CENTER

The Center provides: (1) student operators to handle all types of A-V equipment for the instructional staff; (2) a comprehensive library of motion pictures, filmstrips, and tape recordings; (3) facilities for renting and borrowing instructional materials from most outside agencies; (4) a pool of audio-visual equipment for use by individual instructors. In addition, complete photographic, graphic and audio recording services are available for all instructional areas on campus. A professional staff of media specialists is available for consultation regarding purchases, production, and appropriate instructional utilization.



## STUDENT SERVICES

### ACTIVITIES, AND HOUSING LOANS AND SCHOLARSHIPS

#### PERSONNEL SERVICES CENTER

The Personnel Services Center includes the Student Counseling Office, Test Office, Foreign Student Office, and the Veterans Office. The function of the Center is to help students gain the greatest benefit from their college experience through counseling, testing, and related personnel services. A staff of counselors is available to students who wish help in the solution of problems of a personal, social, or occupational nature. Questions of an academic nature for undeclared and special majors are handled in the Counseling Office.

The program of student advising is coordinated through the Center. Students wishing to set up special majors do so in the Counseling Office.

#### HEALTH SERVICE

As a part of the program of student personnel services, the college provides health services for the protection and maintenance of student health. These services are administered under the direction of a medical physician-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. A student must be currently enrolled for seven or more units of credit to be eligible for other than emergency treatment. As a part of the regular admission procedures a health history is required of all students, full and part-time. A form is furnished prior to registration for the purpose of recording the results of a physical examination performed by the student's private physician. These admission examinations are not available at the college. Careful attention is given to students undergoing private remedial treatment and those for whom a modified study load or limited participation in physical activities seems advisable. All students carrying more than six units must receive validation at the Health Services prior to registration.

Physical examinations are required before students are authorized to participate in the organized programs of intramural or intercollegiate athletics or physical education when required. If the original physical examination submitted by the private physician is acceptable for these activities, the examination need not be repeated provided there have been no serious illnesses or accidents subsequently.

A student health insurance program, sponsored by the Associated Students, available to those carrying seven or more units is currently in effect. This insurance, which gives coverage for hospitalization and specified medical and surgical services for the period for which issued, may be purchased at the time of registration at Aztec Shops. It may be purchased on a semester or a yearly basis. In the latter event coverage includes the summer months. Refunds on a prorated basis may be made to those students who graduate, or to those individuals who drop out of school during the period covered by the insurance.

#### CAREER PLANNING AND PLACEMENT CENTER

The college provides a centralized placement service in cooperation with the various departments of the college. Undergraduate students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Liaison is maintained with the Personnel Services Center on matters relating to senior vocational counseling. Staff members maintain constant contact with schools, businesses, and industries. Seniors and graduate students should contact the Placement Center early in the year in which they expect to receive degrees or credentials.

## Student Services Activities and Housing

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 per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week. Students are strongly advised to take this into consideration before accepting any part-time job.

#### STATE VOCATIONAL REHABILITATION

Assistance to certain students having physical handicaps or limitations may be available through the Bureau of Vocational Rehabilitation, California State Department of Education. Services available include diagnosis, counseling and guidance, psychological testing, provision of fees, books, and supplies, subsistence and transportation allowances. Restoration services to reduce or remove disabilities may also be provided and can include medical and psychiatric treatment, artificial appliances, hospitalization and allied therapies. Applicants must be residents of California for one year and have a significant disability which interferes with employment. Information is obtainable at the District Office, New State Office Building, 1350 Front Street, Room 4053, San Diego or branch offices located in El Centro, National City, and Oceanside.

#### IMPROVEMENT OF WRITING COMPETENCY

Standard English, free from flagrant errors in grammar and spelling, is required on written assignments throughout the college. To help students attain a reasonable proficiency, the English Department offers several courses in composition, beginning with the freshman year. Additional assistance is provided by the Reading-Writing Improvement Center. Passing of the Writing Competency test or satisfactory completion of designated courses or remedial programs is a requirement for graduation. This program is under the supervision of the College Committee on English.

#### READING AND WRITING LABORATORIES

A Reading Laboratory and a Writing Laboratory are maintained by the English Department. These laboratories offer a semitutorial service to those wishing to improve reading or writing ability, or secure individual help with study problems or writing projects, either remedial or advanced. The service is open to all students at any level of college work. To avail himself of this service, the student may enroll in English R or English W as he does in any course. He may also report for special help without registration. The laboratory course carries no college credit.

#### STUDENT ACTIVITIES PROGRAM

A rich field of extracurricular activities is available to San Diego State students. The *Student Handbook*, available at the time of registration, gives information concerning the nature and scope of these opportunities. The Office of the Dean of Activities is open to students desiring advice and assistance in planning appropriate participation. A multitude of opportunities are offered through musical and dramatic performing groups, programs of intercollegiate athletics, newspaper, magazine, radio, television, film, and theater productions. Among the approximately 200 student organizations offering membership are national service, honorary and professional fraternities, recreational, religious, special interest and departmental organizations, national social fraternities, and national social sororities.

There are twelve national sororities at San Diego State. Housing accommodations for approximately 300 women are available in sorority houses. Only one formal rush period is held during an academic year, while informal rush continues throughout the entire year. Registration for the 1970 Formal Fall Rush Program will extend through August, 1970, and Formal Fall Rush will be held during the first week of September. Early registration is encouraged. Although final acceptance to the College is not a prerequisite for registering with the Panhellenic Office to receive rush material before rush begins, formal acceptance to the College is required in order to participate in Rush. During the Formal Fall Rush period hous-



## Student Services Activities and Housing

ing is available to each rushee in a college residence hall. Further information and material may be obtained by writing San Diego State Panhellenic Office, San Diego State College, San Diego, California, 92115.

### AZTEC CENTER

San Diego State was the first of the California State Colleges to build and operate a permanent college 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.

The Center provides a pleasant background for many cultural, social, and recreational activities. The name, as well as the symbol, were selected to reflect Aztec Center's unifying nature—a dynamic, enriching focal point for members of the campus community.

From inception to the finalities of interior furnishings, students and faculty have shared alike in all phases of planning and development of the Center. Financed by a student union fee, it is a non-profit, self-sustaining, self-liquidating, non-tax supported, student-financed operation.

Use of the Center is the privilege of San Diego State students, faculty, staff, alumni and their guests.

The 110,000 square foot structure houses a portion of the activities program and sponsors several other supplemental programs. The facilities include several lounges, conference rooms, bowling lanes, billiards, table tennis, campus information center, U.S. Post Office, ticket offices, lost and found, barbershop, Alumni Office, student government center, a snack bar and restaurant, and a large hall for dances, lectures, assemblies, movies, etc.

### ALUMNI ASSOCIATION

The Alumni Association has as its major purpose the continuation of interest by students, faculty, and the community in the college. Cooperating with student and faculty committees, the association participates in Homecoming and Founders Week as well as other campus events. The official publications are the monthly *Alumni News* and the biannual *El Campanario* magazine which have as their purpose the distribution of news about the changing college scene to its members. Information regarding alumni affairs may be secured from the alumni office in the Aztec Center. Membership in the Alumni Association is open to former students of the college who were in regular attendance for one or more semesters. Membership is also open to past or present members of the faculty.

### RESIDENCE HALLS

Accommodations for 1668 single students are available in six residence halls on campus. Each of the buildings is fireproof and air-conditioned throughout. Five halls (two for men and three for women) accommodate 209 students each, with sleeping and study facilities on a two-students per room basis. The sixth residence, which is co-ed, accommodates 623 students with 221 spaces for men. Adequate provision for study hours will be made, as well as an opportunity for participation in campus activities. Student government in each residence, working through the Associated Students of San Diego State, sets standards for basic behavior in these residence halls. Each of the smaller residence halls is staffed by one Head Resident and five Assistants, with two Head Residents and appropriate staff in the larger hall.

For 1969-70 the total charge for room, health service benefits, linens and 19 meals per week served in the cafeteria was approximately \$476-\$571 per semester,

## Student Services Activities and Housing

depending upon accommodation. Since there has been no increase in food prices since 1959, it is reasonable to assume that there will be an increase for the academic year 1970-71. As prices continue to rise on food and services, it is reasonable to be prepared for changes in these rates for the academic year of 1970-71. It should be noted that license contracts are required of students who live in the residence hall upon occupancy, with preference being given to those who sign a two semester contract. Food services are optional for those 21 years or over.

Official reservation for housing in the residence halls is made upon payment of \$91 deposit to the College Cashier's Office. A \$20 refundable security deposit is required and is included in the deposit. If you have not received Notice of Admission to the College by August 1st, you should check to be sure that you will be accepted. *Students not accepted by August 18 (or January 24, spring semester) will have their housing reservations cancelled and their monies refunded.* Please understand that receipt of a housing contract DOES NOT mean that you have been accepted for admission by the College.

As an additional service for married students and others, a bulletin board of available apartments or rooms in this vicinity is maintained. Should you be on campus, feel free to come in and look through these listings.

During the Summer Sessions, rooms are available in the residence halls on a receipt-of-check date priority. Meals at this time can be purchased on a casual basis from the College cafeteria as the individual desires. A Meal Ticket program will be available during Summer Session I. Rooms are available on a single and double occupancy basis for Session I (six weeks) and Session II (three weeks). Weekly rates may be made available to students under special circumstances. Space will be available for enrolled married students without children at the same rate. A \$20 refundable security deposit should accompany a request for reservation.

### OFF-CAMPUS HOUSING

San Diego State is located in a residential district of apartment houses and small homes. The campus is about 10 miles east of the downtown central business section of San Diego and five or six miles west of the neighboring cities of La Mesa and El Cajon. Information on housing facilities, as well as on residence halls, may be obtained from the Director of Housing, San Diego State College.

Adjacent to the campus is located a nine-story privately-operated college-approved co-educational residence hall where room and board is attainable for approximately 576 students. Information concerning accommodations can be secured by writing to El Conquistador Residence Hall, 5505 Montezuma Road, San Diego, California, 92115.

### EATING FACILITIES

During the periods when the college is in session, two cafeterias and two snack bars are operated on the campus serving breakfast, lunch and dinner at modest cost per meal. In addition, restaurants are available within one mile of the campus.

### TRANSPORTATION

Bus line transportation to the college, 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 El Cajon Boulevard with Route E, at University Avenue with Route 7, and at Streamview Drive with Route 5.

### PARKING

On-campus parking areas are provided for students, faculty and staff. A visitor information booth is located at the entrance to the campus on Campanile Drive. Please refer to the map of the campus in this catalog for information on location of parking areas and to the section of the catalog on Schedule of Fees for information on parking fees. The traffic headquarters office is located at the entrance to the Administration Building.



## Student Services Loans and Scholarships

### COST OF LIVING

Each student should plan his budget based upon individual needs. The wide range of financial resources of students in a college with an enrollment of 24,000 makes it difficult to give specific information on the cost of attending college. At San Diego State it is possible to live simply and participate moderately in college life and activities on a modest budget. A table of estimated costs is given below as a guide to students in planning the college budget.

#### ESTIMATED EXPENSES FOR THE ACADEMIC YEAR

##### Typical Costs for Living on Campus

Materials, service, student activity, student union fee, and facilities fee (Nonresident tuition for out-of-state students of \$890 or Foreign Student tuition of \$360 is in addition to the above fee)	\$147.00
Books and supplies	180.00
Room, board, health services, parking	1,200.00
Personal	450.00
	<hr/> \$1,977.00

##### Typical Cost for Commuting Students

Materials, service, student activity, and student union fee	\$147.00
Books and supplies	180.00
Lunches	180.00
Transportation and parking	250.00
Board and incidental allowances	400.00
Personal	360.00
	<hr/> \$1,517.00

Typical expenses for married students without children average \$3,800 for a 12 month period.

### FINANCIAL AID

San Diego State makes every effort to see that students who wish to attend are not prevented from doing so because of inadequate resources. Funds available to the college, however, are not unlimited and applications are considered on the basis of greatest financial need. 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. These programs are administered by the Financial Aid Office, Administration Buildings, Room 222.

#### SAN DIEGO STATE FOUNDATION LOAN PROGRAM

Through the generosity of a number of individuals and groups, funds have been established to assist students with emergency loans. The amount that may be borrowed is generally limited to \$200. Repayment is required no later than the end of the academic year in which the loan is made. These loans are interest free; only a small service charge is collected. Applications are available throughout the academic year at the Financial Aid Office.

#### NATIONAL DEFENSE STUDENT LOAN PROGRAM

Loans under the National Defense Act of 1958 are available to all students, both entering and continuing who meet specific qualifications. The amount that may be borrowed, based on college-related need, may not exceed \$1,000 per year for an undergraduate, nor \$2,500 per year for a graduate student. The interest rate is three percent simple interest per year starting nine months after the student leaves college. Repayment begins nine months after the student ceases to carry at least one-half the normal full-time academic work load. The repayment period may be interrupted when a borrower enters the military service, Peace Corps, VISTA, or continues as a student at an institution of higher education. This loan program may

## Student Services Loans and Scholarships

provide a borrower with partial cancellation of his loan each year at the rate of ten or fifteen percent, plus interest, for service as a full-time teacher in a public or other non-profit elementary or secondary school or institution of higher education.

### NURSING STUDENT LOAN PROGRAM

Students enrolled in a full-time course leading to the Bachelor of Science degree in nursing may apply for Nursing Student Loans. The amount that may be borrowed, based upon college-related need, may not exceed \$1,500 per year. Repayment begins nine months after the student graduates or otherwise withdraws from the nursing program, and may extend over a ten-year period. The interest rate is three percent simple interest starting at the beginning of the repayment period. This loan program provides a partial cancellation privilege for full-time professional nursing service.

### NURSING STUDENT SCHOLARSHIP

Nursing Student Scholarships provide up to \$1,500 per year to full-time nursing students, based on an evaluation of financial need. These scholarships are available to both entering freshmen and transfer students, as well as continuing students.

### UNITED STUDENT AID FUND PROGRAM

United Student Aid Fund loans, made through a participating bank, are available to those students who can demonstrate that they have need for these loans for college-related expenses. The amount that may be borrowed may not exceed \$1,500 per year for graduate or undergraduate students. Repayment begins nine months from the time the borrower graduates or ceases to carry at least one-half the normal full-time academic work load, and may extend between three and ten years depending on the amount borrowed. Interest at the rate of seven percent per year begins when the loan is granted. In most cases (depending on the applicant's family adjusted gross income) this interest cost may be fully subsidized by the federal government while the student is in college and for nine months following graduation.

### EDUCATIONAL OPPORTUNITY GRANT

Educational Opportunity Grants provide \$200 to \$1,000 to students who are from low-income families, are of exceptional financial need, and who would not, but for such a grant, be financially able to pursue a course of higher education. These grants are available to both entering freshmen and transfer students, as well as continuing students. Grants may be renewable each year for the number of years necessary for the student to complete the normal four-year undergraduate degree program. The Educational Opportunity Grants must be matched with other designated forms of financial assistance.

### COLLEGE WORK-STUDY PROGRAM

Students demonstrating financial need may be employed in positions for up to an average of fifteen hours per week when classes are in session and up to a maximum of forty hours per week during vacation periods. The rate of pay for such employment, based upon individual skills, is \$1.60 to \$3.50 per hour. Job opportunities are available both on campus and with selected community and government agencies in the San Diego area.

### FEDERALLY INSURED LOAN PROGRAMS

These long-term loans are made by participating banks and credit unions, and provide deferred payment until graduation or the termination of higher education. Interest at the rate of seven percent per year begins when the loan is made. This



## **Student Services Loans and Scholarships**

interest, however, may be subsidized by the federal government (if the applicant's family adjusted gross income is under \$15,000) during the period of full-time attendance and for nine months. Repayment is over a period of three to ten years depending on the amount borrowed. Application forms are available from the Financial Aid Office; students from other states may also secure forms from their home town banks.

### **LAW ENFORCEMENT EDUCATION PROGRAM—LOANS**

Full-time students in academic programs, graduate and undergraduates, leading to careers in law enforcement may borrow up to \$1,800 per year. The amount of the loan, over and above the amount necessary to cover expenses directly related to attendance in college (fees, books and supplies, and transportation), is determined by evaluation of financial need. Repayment begins six months after graduation or otherwise withdrawing from college; seven percent simple interest begins to accrue at the beginning of the repayment period. This loan program provides a partial cancellation (25 percent per year) privilege for full-time employment in a law enforcement agency after graduation.

### **LAW ENFORCEMENT EDUCATION PROGRAM—GRANTS**

Full-time employees of certain law enforcement agencies are eligible for grants of up to \$300 per semester as necessary to cover the cost of required fees to enroll in courses to upgrade their total education. Such courses are normally related to law enforcement and may be taken on campus or in San Diego State Extension.

### **MINIMUM REQUIREMENTS FOR APPLICATIONS**

San Diego State College participates in the College Scholarship Service (CSS) of the College Entrance Examination Board. As a participant, this institution subscribes to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists the college in determining the student's need for financial aid. All students who have resided with their parents for over three weeks during the past year, have been claimed by parents as tax deductions for the preceding calendar year, or who have received over \$600 of financial assistance from their parents, are required to submit a copy of the Parent's Confidential Statement form to CSS, designating San Diego State College as one of the recipients. Other necessary forms and an information brochure may be secured from the Financial Aid Office.

### **APPLYING FOR AID**

Students may request assistance for all programs explained above on financial aid forms provided by the college. When requesting necessary forms, the student should indicate the program(s) in which he desires to participate in order that the correct form(s) may be provided. Applicants twenty-five years of age or under, regardless of marital status, must also complete a Parents' Confidential Statement. Application forms are available beginning January 1, 1970 and must be submitted by April 15, 1970 to be considered for financial aid for the academic year 1970-71. (Applications for Law Enforcement Loans and Grants are available throughout the year as long as funds are still available.)

Since all of the programs described above, except the San Diego State Foundation Loan Program and the United Student Aid Fund (USAF) Loan Program, are supported by the federal government, they are available only to citizens of the United States or to persons who are in the United States for other than a temporary purpose and intend to become permanent residents thereof. USAF loans also are limited to U.S. Citizens.

## **Student Services Loans and Scholarships**

### **SCHOLARSHIPS**

#### **APPLICATIONS**

Most donors of scholarships at San Diego State have chosen to grant moneys to students who have academically proven themselves for at least one semester at San Diego State; therefore, the college can award only a few music, athletic, and general scholarships to incoming students.

Scholarships ranging from \$50 to \$500 are granted to outstanding students by the College Scholarships Committee. Applications for scholarships may be secured in AD-221 of the Administration Building. Applications should be filed in March for the school year. California State Scholarship applications are available during October and November.

Many of the scholarships available in the college are for students in specific programs; many are awarded to students directly by donors, and administered by the college. Each semester the committee announces, in the campus paper and to all faculty and students, a list of available awards and the procedures to be followed in applying for them. All students in the college are encouraged to be alert for these announcements, and to consult with their advisers and departments about scholarships in their fields of study.

A scholarship brochure will be mailed if request is made to the Financial Aid's Office, San Diego State College, San Diego, California 92115.

### **SCHOLARSHIPS AWARDED IN HIGH SCHOOLS**

Ordinarily, freshmen who enter San Diego State with a scholarship have received the award through their high school scholarships committee. For example, the DeWitt Bisbee Williams Memorial offers a \$100 scholarship to each high school in San Diego City and County for a member of the California Scholarship Federation. The scholarship committee of each high school selects its scholarship recipient from students who have been CSF members for at least two semesters and have qualifications for admission to San Diego State.

### **FOREIGN STUDENT APPLICATIONS**

Foreign students, once registered, may participate in the competition for scholarships at San Diego State. From time to time there are a few small scholarships available that are designated for foreign students, but most scholarships are open to applications from any student.

### **SCHOLARSHIPS FOR GRADUATE STUDENTS**

A few small grants for graduate students are awarded through departmental recommendations of students who have attended San Diego State. Information about departmental assistantships may be obtained by writing to the department in which the applicant is interested.

A repository of information concerning graduate scholarships and fellowships awarded by other colleges and universities will be found in the education section of the library.

Special assistance is available in applying for certain Graduate Fellowships. Deadlines range from September 20 through October 25. Contact Dr. Kurt Friedrich, Professor of Education, for Fulbright Fellowship Information, Dean Margery Warner for Danforth, Kent, Woodrow Wilson and Rhodes Fellowships.



## Student Services Loans and Scholarships

### SCHOLARSHIPS COMMITTEE

In addition to more than 600 scholarships granted to students directly by organizations and individuals, the following scholarships are awarded through the Scholarships Committee.

Alpha Epsilon-Brenda Beitner	Klicka Foundation
Altrusa Club	KOGO-TV
Alvin Morrison Memorial	Lioness Club of East San Diego
American Society Civil Engineers	Linkletter, Art
American Society for Metals	Lodge, Catherine Yuhon
American Yugoslav Woman's Club	Marcy, May Finney
Amsden Memorial	Miriam Payne Memorial
Aztec Club Athletic Scholarships	Pacific Beach Jr. Woman's Club
Baranofsky Memorial	Perry, Fay Van Ness
Beta Alpha Psi	Phi Epsilon Phi
Budd Boyle Memorial Scholarship	Pi Lambda Theta
California Congress P.T.A.	Realty Board of San Diego
Cameron, Roy	Ruth Jenkins Fund
Cooper, Daniel William	San Diego Women's Club—Home and
Coronado Woman's Club	Garden, Valerian, and Study Sections
Country Friends	Sellman, Hunton
Del Cerro Women's Club	Senn, Percie Bell
Dow Chemical Company	Shields, Robert Foundation
Dresser, Elizabeth	Sigma Alpha—Gamma Upsilon Chapter
Ellis, George William Memorial	Sigma Alpha Iota Alumnae
Executive Secretaries, Inc.	Sigma Phi Epsilon—Bruce Sandell
Finder, George A. Memorial	Silvergate Lions Club
Scholarship	Silverman, Anna and David
Fireman's Assoc., Ladies Auxiliary	Solar Recreation
Fleischner, Anna S.	Stott, Dorothy C.
Fleet Foundation	Stott, Kenneth W.
General Dynamics-Astronautics	Thearle Music Company
Golden, Kenneth	Trott, Wilma Tyler
Haskins & Sells Foundation	Union-Tribune Charities
Kappa Beta Nu Sorority	Whitney, Guilford H., Foundation
Kappa Delta Pi	Williams, DeWitt Bisbee
Kent Manchester Memorial Scholarship	

## REGULATIONS

### ADMISSION

### REGISTRATION

### GENERAL REGULATIONS

### GRADUATION REQUIREMENTS



# ADMISSION

## APPLICATION FOR ADMISSION

### FILING OF APPLICATIONS

**Dates for Filing Application.** An application for admission to San Diego State may be filed during the semester preceding the one in which the applicant expects to enroll.

Applications are accepted on the opening dates indicated below for the respective semester, and continue to be accepted until enrollment quotas are met. Acceptance of applications may be discontinued without notice; it is advisable to file applications as early as possible within the application filing period.

*For fall semester:* January 1.

*For spring semester:* October 1.

**Required Official Forms.** The following official forms must be submitted to the Admissions Office:

- (1) Application for admission or readmission, accompanied by a \$20 application fee. Make check or money order payable to San Diego State College.  
(Fee may be waived for readmission application if student was regularly enrolled in either of the two semesters immediately preceding the semester for which the application is submitted, unless such student was enrolled at another institution in a regular session subsequent to such previous semester.)
- (2) Health history record
- (3) Residency statement

These forms may be obtained from the Admissions Office. Letters from applicants signifying intention to enroll will not be considered as applications for admission. The official forms must be filed.

### 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.)

An official transcript is one sent directly between schools. The applicant must request the school or college to send the transcript to the Admissions Office, San Diego State. All records or transcripts received by the college become the property of the college 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 60 units. Applicants should consult the high school counselor for dates and places where tests are given.

## Admission

Transfer students with more than 60 units who have not taken either the ACT or the SAT are required to take a college aptitude test administered at this college. A test reservation card is filed with the application for admission. Refer to the calendar in this catalog for dates of the test.

- (2) **Writing Competency Test.** This test may be taken before registration by all undergraduate students transferring to this college with 45 units or more of advanced standing. Passing this test or satisfactory completion of designated courses or remedial programs is a graduation requirement for all students.
- (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.** These tests are required of all candidates for teaching credentials. Refer to Admission to Teacher Education in the section of this catalog on Professional Curricula in Education, and to the calendar for additional information.

- (1) **Fundamentals Test.** This test is required of all candidates for the general elementary and kindergarten-primary credentials before admission to teacher education. May be taken before registration by students transferring to this college with 15 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Office of Elementary Education, Education Building.
- (2) **Comprehensive College Test.** This test is required of all candidates for any of the secondary school credentials before admission to teacher education. May be taken before registration by students transferring to this college with 60 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Test Office, Administration Building one month prior to test date. Fee required.

### Qualification Tests.

**Mathematics Placement Examinations.** Required of students before enrollment in any of the following courses: Mathematics 3, 4, 12, 20, 21, 40, 50; and Economics 2. These examinations may be taken before registration. Reservations for the examinations are not required. Refer to the calendar in this catalog for examination dates.

**Graduate Aptitude Test.** 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, Administration Building. Refer to the Graduate Bulletin for full information and test dates.

## ADMISSION REQUIREMENTS

Requirements for admission to San Diego State are in accordance with Title 5, Chapter 5, Subchapter 2 of the California Administrative Code. A prospective applicant who is unsure of his status under these requirements is encouraged to consult with a school or college counselor or contact the college admission office.

## ADMISSION AS A FRESHMAN

An applicant who has had no college work will be considered for admission under one of the following provisions. Except as noted, submission of the results of either the Scholastic Aptitude Test or the American College Test is required.

**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 a grade point average and either total score on the SAT or composite score on the ACT which provides an eligibility index\* placing him among the upper one-

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



## Admission

third of California high school graduates. The grade point average is based upon all high school work taken, excluding work completed in the freshman year as well as any courses in physical education or military science. The table below does not cover every case, but gives several examples of the test score needed with a given grade point average to be eligible for admission.

Grade Point Average	SAT/ACT Needed
3.21 and above	Eligible with any score
2.80	832/19
2.40	1152/27
2.00	1472/35
1.99 and below	Not eligible

**Non-Residents Graduating from High Schools in Other States or Possessions.** An applicant who is a non-resident for tuition purposes and who is a graduate of a high school in another state or a U.S. possession must have an eligibility index which would place him among the upper one-sixth of California high school graduates. The minimum required eligibility index is SAT 3402 or ACT 826 and is calculated as in the previous section.

**Graduates of High Schools in a Foreign Country.** An applicant who is a graduate of a foreign high school must have preparation equivalent to that required of eligible California high school graduates. The college will carefully review the previous record of all such applicants and only those with promise of academic success equivalent to that of eligible California high school graduates will be admitted. Such applicants are not required to take either the SAT or the ACT except when specifically requested to do so.

**Non-High School Graduates.** An applicant who is over 21 years of age, but has not graduated from high school will be considered for admission only when his preparation in all other ways is such that the college believes his promise of academic success is equivalent to that of eligible California high school graduates.

**High School Students.** A student still enrolled in high school will be considered for enrollment in certain special programs if he is recommended by his principal and his 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.

**Recommended Preparation.** Overall excellence of performance in high school subjects and evidence of academic potential provide the basis for admission at San Diego State. While no course pattern is required, the applicant to be properly prepared to undertake a full program of studies and particularly to pursue the required program in General Education, is strongly encouraged to include the following subjects as minimally adequate background for college work:

1. College preparatory English.
2. Foreign language.
3. College preparatory mathematics.
4. College preparatory laboratory science.
5. College preparatory history and/or social science.
6. Study in speech, music, art, and other subjects contributing to general academic background.

## Admission

The following general outline is suggested as a guide to students in selecting courses in preparation for college.

### A TYPICAL HIGH SCHOOL PROGRAM

Subjects	Freshman Year	Sophomore Year	Junior Year	Senior Year
ENGLISH..... (Four years recommended)	English	English	English	English
SOCIAL STUDIES... (Three years recommended)	Social studies		U.S. History	Civics
MATHEMATICS...	Algebra	Geometry	Advanced Algebra for science majors; recommended for others	Advanced Mathematics for science majors
SCIENCE.....		Life science (Botany, Biology, or Physiology)	Chemistry (with laboratory)	Physics (with laboratory)
FOREIGN LANGUAGE (Three or four years in one language recommended)	Foreign language	Continue the same language	Continue the same language	Recommend continue the same language
PHYSICAL EDUCATION	P. E.	P. E.	P. E.	P. E.
ELECTIVES.....	Recommended for all precollege students: typing, art, music, additional social studies. English; for science majors: slide rule, mechanical drawing. Students should enrich the high school program by selecting freely from courses in the fine arts, practical arts, and the humanities. Many students are availing themselves of the opportunity afforded in high school summer sessions to take courses which otherwise could not be included within the regular semesters.			

### ADMISSION OF UNDERGRADUATE TRANSFERS

**General Qualifications.** Applicants for admission to San Diego State as undergraduate transfer students must qualify under one of the provisions specified below:

**Applicants With 60 or More Semester Units.** An applicant who has completed 60 or more semester units or the equivalent will be admitted if he has achieved a grade point average of 2.0 (C) on all college work attempted and was in good standing at the last college attended.

**Applicants With Fewer Than 60 Semester Units.** An applicant who has completed fewer than 60 semester units or the equivalent may be admitted if he meets the above requirements and he meets requirements currently in effect for first-time freshmen or, if he has been in full-time continuous enrollment at a college since his graduation from high school, he meets the requirements in effect for first-time freshmen at the time of his high school graduation.

### OTHER APPLICANTS

An applicant not admissible under one of the above provisions should enroll in a junior college, or other appropriate institution. Only under the most unusual



## Admission

circumstances will such applicants be permitted to enroll in the college. Permission is granted only by special action.

San Diego State 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, or contact the E.O.P. office on campus.

### REDIRECTION

It is not always possible for the college to accommodate all qualified applicants. If an application is accepted and it later becomes evident that admission will not be possible, it and any supporting documents will, at the applicant's request, be forwarded to any State College where space is still available. No additional application fee is required.

## ADMISSION OF GRADUATE STUDENTS

### FILING OF APPLICATIONS

All students holding a baccalaureate degree who desire to enroll at San Diego State for post graduate study must apply for admission to San Diego State through the Office of Admissions. In making the application, they must observe the procedures outlined above for admission to San Diego State. If accepted, they will be admitted with unclassified graduate standing if they hold an acceptable bachelor's degree from an accredited institution or with undergraduate standing if they do not hold such a degree. Upon the satisfactory completion of a minimum of 12 units of undergraduate courses as approved by the Dean of Admissions and Records with a grade point average not less than 2.50, the Dean of Admissions and Records may change the undergraduate standing to unclassified graduate standing.

### FILING OF RECORDS

The student must file official transcripts from **EACH** college or university attended (including extension, correspondence, summer session, or evening courses). An official transcript is one sent directly between registrars of schools. The student should request the college or university attended to send the transcript to the Admissions Office, San Diego State. All records or transcripts received at the Admissions Office become the property of the college and **will not be released nor will copies be made. If a student plans to enter a master's degree program or a graduate credential program, he must file all transcripts in DUPLICATE.**

A student who has obtained his degree from San Diego State need not file transcripts, except those transcripts covering work he may have taken at other institutions since graduation. He must, however, file an application for readmission to the college and, if he plans to enter a master's degree program, an application for admission to the Graduate Division and must comply with all other admission procedures outlined above.

### Admission With Graduate Standing: Unclassified.

(a) For admission with graduate standing as an unclassified graduate student, a student shall have completed a four-year college course and hold an acceptable baccalaureate degree from an accredited institution; or shall have completed equivalent academic preparation as determined by the appropriate college authorities.

(b) Admission to a state college with graduate standing does not constitute admission to graduate degree curricula.

**Admission to Graduate Degree Curricula: Classified.** A student who has been admitted to San Diego State as an unclassified graduate may, upon application to the Graduate Division, be admitted to an authorized graduate degree curriculum of San Diego State as a classified graduate student if he satisfactorily meets the professional, personal, scholastic, and other standards for graduate study, including qualifying examinations, as the appropriate college authorities 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, as determined by the appropriate

## Admissions

college authorities, shall be eligible to continue in such curricula. Students whose performance in a graduate degree curriculum is judged to be unsatisfactory by the authorities of San Diego State may be required to withdraw from all graduate degree curricula offered by San Diego State.

### GRADUATE BULLETIN

The Graduate Bulletin is available at the office of the Graduate Division.

## ADMISSION OF FOREIGN STUDENTS

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. 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.

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 college before admission to the college 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, 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, undergraduates and graduate, are required to take one or more of the following courses, depending upon performance on the placement test: English 1X, English 1Y, English 3. These English courses must be taken in consecutive semesters, with first required course being taken during the student's first semester at San Diego State. 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. Scholarship aid for entering students is limited; no scholarships are specifically reserved for students from another country. Further information regarding scholarships will be found elsewhere in this catalog.

Upon arrival at San Diego State the student should obtain an appointment as early as possible with the Adviser for Foreign Students.

## LIMITATION OF ENROLLMENT

Admission to a state college shall be limited to the number of students for whom facilities and competent instructors are available to provide opportunity for an adequate college education. The Board of Trustees shall determine the number of students for whom there are available facilities and competent instructors at the college.

### REGISTRATION PRIORITY FOR PAYMENT OF FEES

Each student is assigned a priority number which determines the order in which he registers and pays fees. The schedule for registration and payment of fees is published in the San Diego State and University for the Registrar. Priority numbers are assigned to students in the order of their admission to the college. Students who are admitted to the college after the registration period have been assigned a lower priority number. Information concerning the value of the non-refundable fee for registration is available from the office of the Dean of the College of Arts and Sciences.



## REGISTRATION

Students who receive notice that they are eligible for admission to San Diego State must complete additional requirements for registration, such as clearance of residency status, payment of fees, and the keeping of other designated appointments as outlined in the *Class Schedule and Instructions for Registration*, a publication issued prior to the beginning of each semester and sold at the campus Bookstore.

### RESIDENCY STATUS CLEARANCE

The laws of the State of California require this college to determine the residency status of each student enrolling prior to the payment of fees and tuition (if required).

Tuition is free to every student who has been a legal resident of the State of California for a period of one year immediately preceding the residence determination date announced by the Board of Trustees. Every student who has not been a legal resident of the State for said period is classified as a nonresident and is subject to payment of a nonresident tuition fee in addition to fees paid by California residents. (Exemption from payment of the nonresident tuition fee may be granted to an unmarried minor whose parent is in the active military service of the United States and is stationed in California on the residence determination date of the semester during which the minor proposes to enroll.)

Residence is acquired through the combination of physical presence in California together with the intention of remaining in the state. As a general rule, the residence of an unmarried minor student is determined by the residence of his father. The residence classification of each student is determined in accordance with the California Government Code and the California Education Code.

The attention of the prospective alien student is directed to the fact that he is a nonresident unless, in addition to the general residence requirements for tuition purposes, he has been admitted to the United States for permanent residence in accordance with all applicable laws of the United States. The attention of the prospective student who has not attained the age of twenty-two and whose parents are not California residents and the attention of the Veteran who was not a resident of California at the time of his entrance into the Armed Forces is directed to the fact that presence in California for more than one year does not, of itself, entitle the student to classification as a resident.

The residency classification received by any student is subject to review and change. Every student who is classified as a resident but who becomes a nonresident of California is held responsible for notifying the Residency Office at once. Application for a change of classification with respect to a previous semester will not be received under any circumstances.

A person incorrectly classified as a resident student is subject to reclassification as a nonresident if the incorrect classification resulted from concealed facts or untruthful statements made by him. The student then shall be required to pay all tuition fees which would have been charged to him as a nonresident student.

Information concerning the waiver of the nonresident tuition fee for graduate students is available from the office of the Dean of Graduate Studies.

### REGISTRATION PRIORITY FOR PAYMENT OF FEES

Each student is assigned a priority number which determines the order in which he registers and pays fees. The schedule for registration and payment of fees is published in the *Class Schedule and Instructions for Registration*, which is available at the student Bookstore prior to the beginning of each semester. Priority numbers appear on the Notice of Admission for entering students, and on the permanent identification cards for students continuing their uninterrupted enrollment in the regular semesters.

## Registration

### ADVISING

Provision is made at the time of registration for each new student to obtain assistance from a faculty adviser in arranging a program. The faculty adviser is assigned at the time of registration. 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 college regulations will not exempt a student from whatever penalties he may incur.

## MARKING SYSTEM

### GRADES AND GRADE POINTS

The following grades and grade points are used in reporting the standing of students at the end of each semester:

Grade	Grade Points	Grade	Grade Points
A Outstanding achievement	4	D Passing	1
B Commendable	3	F Failure	0
C Satisfactory	2	I Incomplete	0
Cr Credit	-	(Not counted in grade average, but units allowed)	
Aud Audit S	-	(No credit and not counted in grade average, performance or attendance satisfactory)	
Aud Audit N	-	(No credit and not counted in grade average, performance or attendance not satisfactory)	
W Withdrawal passing	-	(Not counted in grade average)	
WF Withdrawal failing	0	(0 grade points for units attempted)	

### GRADE POINT AVERAGE

The scholarship or grade point average is determined by dividing the total number of grade points earned by the number of units attempted. The minimum satisfactory grade-point average for a bachelor's degree or recommendation for transfer to another collegiate institution is 2.0 (grade of C). The student must have earned at least twice as many grade points as units attempted.

### INCOMPLETE GRADE

An incomplete grade is counted as units attempted with no grade points and remains on the student's record unless made up. One calendar year beyond the end of the term when an incomplete is assigned will be allowed for makeup of the incomplete. The student must arrange with the instructor who gave the incomplete for removal of the course deficiencies, upon completion of which a final grade will be assigned. **An incomplete cannot be removed by repeating the course.**

If the student does not make up the incomplete, but instead re-enrolls in the course for credit, he has repeated the course for which he will receive the credit and grade points earned, subject to the regulations for repeating courses. The incomplete will remain on the student's permanent record as units attempted with no grade points earned and cannot thereafter be made up through removal of course deficiencies.

This regulation does not apply to the theses courses numbered 299, which are not counted as units attempted until the final grade has been assigned, provided that the course be completed within the time permitted by the Graduate Council.

### INCOMPLETE AT TIME OF GRADUATION

A candidate for graduation with the baccalaureate degree whose record carries an incomplete which was received within the last calendar year will be graduated without the opportunity of making up the incomplete if he is otherwise eligible for graduation; however, the incomplete will be counted as units attempted in determining grade point averages and the incomplete cannot be made up after

## General Regulations

the degree has been granted. If the student does not wish to be graduated with the incomplete on his record, he must officially withdraw as a candidate for graduation.

## SCHOLASTIC PROBATION

Any student, undergraduate or graduate, whose scholarship record falls below a C average (2.0) for all college work attempted or all college work attempted at San Diego State will be placed on probation.

Probation may be continued provided that the student obtains a C average or better each semester while on probation. The student will be removed from probation when he has attained a C average or better on all college work attempted and on all college work attempted at San Diego State.

## SCHOLASTIC DISQUALIFICATION

### DISQUALIFICATION

Any student on probation whose scholarship falls below a C average (2.0) in any single semester or summer session will be subject to disqualification and dismissal from the college.

### Veterans' Eligibility

Veterans who are disqualified from further attendance at this college forfeit their rights to veteran benefits. Specific information should be obtained from the Veterans Administration regarding continuance of education.

### PETITION FOR REINSTATEMENT

A disqualified student may be reinstated for reasons satisfactory to the Board of Admissions. Applications for reinstatement must be made on forms which may be obtained at the Admissions Office (AD 127).

## STUDENT DISCIPLINE AND ATTENDANCE

Any student may be expelled, suspended, placed on probation or given a lesser sanction for one or more of the following causes which must be state college related:

- Cheating or plagiarism in connection with an academic program at a state college.
- Forgery, alteration or misuse of state college documents, records, or identification or knowingly furnishing false information to a state college.
- Misrepresentation of oneself or of an organization to be an agent of a state college.
- Obstruction or disruption on or off college property, of the state college educational process, administrative process, or other college function.
- Physical abuse on or off college property of the person or property of any member of the college community or of members of his family or the threat of such physical abuse.
- Theft of, or non-accidental damage to, state college property; or property in the possession of, or owned by, a member of the college community.
- Unauthorized entry into, unauthorized use of, or misuse of state college property.
- On state college 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.
- Knowing possession or use of explosives, dangerous chemicals or deadly weapons on state college property or at a state college function without prior authorization of the state college president.
- Engaging in lewd, indecent, or obscene behavior on state college property or at a state college function.
- Abusive behavior directed toward a member of the college community.



## General Regulations

- (l) Violation of any order of a state college 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.

No fees or tuition paid by or for the student for the semester or summer session in which he is suspended or expelled shall be refunded. If the student is readmitted before the close of the semester 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 twenty-first birthday is suspended or expelled, the President shall immediately notify his parent or guardian of the action by registered mail to the last known address, return receipt requested. (Reference: California Administrative code, Chapter 5, Sections 41301 and 41302.)

## STUDENT GRIEVANCES

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 college 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 Students (AD 231).

## CREDIT

### UNIT OR CREDIT HOUR

A unit or credit hour represents 50 minutes of lecture or recitation combined with two hours of preparation per week through one semester of 18 weeks. Two hours of "activity" or three hours of "laboratory" are considered equivalent to one hour of lecture.

### CREDIT FOR UPPER DIVISION COURSES

Freshmen may not enroll in upper division or graduate courses (numbered 100 and above); sophomores may not enroll in upper division or graduate courses, with the following exceptions:

(a) A student in the last semester of his sophomore year who is approaching upper division standing and is carrying sufficient lower division units to complete the required minimum of 60 units may carry upper division units for the remainder of his study load.

(b) A student with sophomore standing may carry upper division courses for upper division credit provided that he has the written approval of the chairman of the department and the Vice President for Academic Affairs or his authorized representative. This written approval must be filed at the Evaluations Office, Administration Building, on the Adjustment of Academic Record form, which may be obtained at the Evaluations Office.

### JUNIOR COLLEGE CREDIT

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

### CONCURRENT MASTER'S DEGREE CREDIT

A senior who is within seven 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 approved 100-numbered courses for concurrent master's degree credit with the remaining requirements for the bachelor's degree. Enrollment in 200-numbered courses is not permitted. The bachelor's degree must be completed

## General Regulations

at the end of the semester in which the concurrent credit is earned and not more than six units of such credit will be accepted on the minimum unit requirements for the master's degree. (For further information, refer to the Graduate Office.)

### 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 100-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. Enrollment in 200-numbered courses is not permitted. 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, not more than 12 of which may be transferred from another college or university, except that courses taken through the United States Armed Forces Institute, or other official military correspondence schools, shall not be included within these limits. 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 College may be accepted as part of the requirements for the master's degree, subject to limitations described in the section of the catalog on the Graduate Division and in the Graduate Bulletin.

Students desiring to enroll concurrently in extension courses and in the regular college program are subject to the regulations on excess study load. Such students should obtain approval from the Dean of Admissions in advance of registration.

### 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 can not exceed the limit authorized by the Education Code.

(2) Concurrent approval of the chairman of the department concerned and the Vice President for Academic Affairs is required prior to taking the examination. Forms for approval may be obtained from the Registrar.

(3) Credit-by-examination is restricted to regular undergraduate courses listed in the general catalog; does not include 200-numbered, 300-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, does not require a petition for excess study load; is not considered for Selective Service purposes or by the Veterans Administration in the application of their respective regulations; and is seldom accepted as transfer credit between collegiate institutions.

### CREDIT FOR ADVANCED PLACEMENT AND COLLEGE LEVEL EXAMINATIONS

San Diego State will grant advanced placement and advanced credit to high school students who take the Advanced Placement Examination of the College Entrance Examination Board prior to their enrollment and attain scores of 3, 4, or 5. A maximum of 15 semester units, with no more than three units in any one field, will be awarded for these examinations upon completion of one semester at this institution.

High school students who intend to participate in this program should indicate at the time they take the Advanced Placement Examinations that their test scores



## General Regulations

be sent to the college. To obtain credit or advanced placement, the student should contact the office of the Vice President for Academic Affairs.

San Diego State will consider the granting of credit to those students who have attained a score at or above the 25th percentile on each test of the General Examinations of the College Level Examination Program. Scores should be forwarded to the Admissions Office for evaluation.

### CREDIT FOR MILITARY SERVICE

The college 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 in the college. The military form DD-214 must be filed with the Admissions Office if military credits are to be counted toward the bachelor's degree or used to shorten the time needed for the degree. This form, or equivalent records verifying active military service in the United States armed forces, should be submitted at the time of applying for admission to the college.

## COURSES

### NUMBERING OF COURSES

Courses numbered 1 through 99 or by letters (A, B, C, etc.) are in the lower division (freshman and sophomore years); those numbered 100 through 199 are in the upper division (junior and senior years); and those numbered 200 through 299 are strictly graduate courses. Courses numbered 300 or over are professional education courses in the postgraduate program.

### AUDITED COURSE

A student who does not wish to take a course for credit may, with the consent of the instructor, enroll as an auditor. 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, nor 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 may repeat a course in which he has received a grade of D or F, but may not receive credit for the course more than once. A repeated course is counted as units attempted and is credited with the grade points earned, the effect being an averaging of the grades. If a student repeats a course in which he has received a grade higher than D, the repeated course will not be counted as units attempted nor will grade points be counted in the student's record. **An incomplete cannot be removed by repeating the course.**

## STUDENT CLASSIFICATION

### MATRICULATED STUDENT

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

### SUMMER SESSION OR EXTENSION-CLASS STUDENT

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.

## General Regulations

### RESIDENT OR NONRESIDENT STUDENT

Each student, as a condition for enrollment in a regular semester, must be classified as a resident or a nonresident student. Residency status is defined in the California Administrative Code, Sections 23759, 23760, 41901, and 41902.

### LOWER DIVISION STUDENT

**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.

### UPPER DIVISION STUDENT

**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 STUDENT

**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, refer to the section of this catalog on the Graduate Division.

## 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 (first copy free). One week should be allowed for the processing and mailing of the transcript. Transcripts sent from one college to another are considered as official. Transcripts presented by a student to a college are considered to be unofficial and are usually not accepted. Transcripts from other schools or colleges become the property of this college and **will not be released nor will copies be made.**

### 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 60 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 of the Board of Admissions and Evaluations.

**A student who has earned 60 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 college, except as otherwise provided in the California Administrative Code, Chapter 5, Section 40401, Election of Regulations. (Further information is given in the section 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 re-evaluation.

### STUDY LIST LIMITS

Students who enroll for more units than authorized, including courses taken concurrently outside this college, will not receive credit for the excess number of units.

For the undergraduate student, a normal semester's program is 16 units, with 12 units considered the minimum full-time load. A student may carry up to 17½ units with the permission of his adviser. Greater variations for undergraduate students are subject to approval of the Dean of Undergraduate Studies.

Students accepting extensive part-time employment are strongly advised to limit their study loads in college. 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 per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week.



## General Regulations

For information on study list limits for the graduate student, refer to the Graduate Bulletin.

### CHANGE OF MAJOR OR CURRICULUM

At the time of admission to the college, 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 AND READMISSION

### OFFICIAL WITHDRAWAL

The student is held for every course appearing on his official study list. Any withdrawal from college or withdrawal from a class must be officially filed at the Registrar's Office; otherwise the student will receive a grade of "F" in the course. Application for withdrawal is made at the Registrar's Office.

**Withdrawal Deadline Dates and Penalties.** If a student withdraws officially from college or from a class by the end of the third week of classes, the course will not be recorded on the permanent record. If he withdraws after the third week and not later than the end of the ninth week of classes, either a W (withdrawal passing) or WF (withdrawal failing) will be recorded, depending upon whether he is passing or failing the course on the date of filing the request for withdrawal. (WF is equivalent to a failing grade.) After the ninth week of classes, withdrawal from a class is not permitted. A final grade will be recorded for each class for which the student is enrolled. Withdrawal from college (that is, from all courses) will be permitted up to 10 days preceding the final examination schedule; however, the student will receive a W or WF grade in each class, depending upon whether he is passing or failing in the class on the date of filing his request for withdrawal from college.

### UNOFFICIAL WITHDRAWAL

**Unofficial Withdrawal.** A student withdrawing unofficially from class or from college 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 deadlines established for withdrawing.

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 college 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 college.)

Entrance upon extended active military duty must be without unreasonable and unnecessary delay (normally within 30 days) after the date of withdrawal from college 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 college 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 college, 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 college does not wish to influence the student in choosing between partial credit and refund of fees; however, it should be pointed out that partial

## General Regulations

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.

### READMISSION

A student who withdraws from college must file application for readmission if a full semester lapses between the time of his withdrawal and return to college. Check calendar for deadline dates on readmission applications.

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. Make check or money order payable to San Diego State College.

## CHANGE OF PROGRAM AFTER REGISTRATION

A change of program after registration includes the following: withdrawal from a class; adding a class; adding or reducing units to a class for which the student is already registered; changing a section of the same course.

A change of program may be made on or before the published dates. Forms for the change of program may be obtained at the Registrar's Office. A fee of \$1 is charged for each change of program made after registration. The effective date of withdrawal or change of program is the date on which the completed and acceptable forms are filed by the student at the Registrar's Office.

## 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.

## GRADUATE DIVISION REGULATIONS

The general regulations described in this section of the catalog apply to both undergraduate and graduate students. For information on regulations for graduate students, refer to the section of this catalog on the Graduate Division and to the Graduate Bulletin.

## 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 or degree, fulfills all requirements for the degree as required by this college, and has approval of the Vice President for Academic Affairs.



# GRADUATION REQUIREMENTS FOR THE BACHELOR'S DEGREE

## SUMMARY OF REQUIREMENTS

To qualify for graduation the student must complete the following requirements: (1) minimum number of units, (2) residence requirement, (3) minimum scholarship average, (4) upper division course requirement, (5) a major, and a minor if required, (6) competency tests, (7) all college regulations, (8) requirement in American institutions, and (9) 40 units of general education in addition to the major, (10) application for graduation.

## REQUIREMENTS

### 1. UNITS

Graduation with a bachelor's degree represents a four-year college course of study with a minimum of 124 to 132 semester units required as follows:

**BACHELOR OF ARTS DEGREE.** A minimum of 124 semester units.

**BACHELOR OF SCIENCE DEGREE.** A minimum of 128 semester units (except for students with a major in engineering which requires 132 semester units).

**BACHELOR OF EDUCATION (OR B.V.E.) DEGREE.** A minimum of 124 semester units.

**BACHELOR OF MUSIC DEGREE.** A minimum of 124 semester units.

### 2. RESIDENCE

For all degrees, except the bachelor of education, a minimum of 24 semester units must be earned in residence credit, at least half of which must be completed among the last 20 semester units counted toward the degree. Credit in summer sessions may be counted as residence credit on a unit-for-unit basis. Credit for "extension courses" or "credit-by-examination" cannot be counted as residence credit.

For residence requirements for the B.E. degree, refer to the section of this catalog on the Bachelor of Education Degree.

### 3. SCHOLARSHIP

Each student shall complete with a grade-point average of 2.0 (grade C on a five-point scale) or better: (a) all units attempted; (b) all units in the major; and (c) all units attempted at this college.

### 4. UPPER DIVISION COURSE REQUIREMENTS

Graduation with a bachelor's degree requires a minimum of 36 to 45 semester units in courses carrying upper division credit (may include the major, minor, general education, and electives), distributed as follows:

**BACHELOR OF ARTS DEGREE.** A minimum of 40 upper division semester units in applied arts and sciences or 45 upper division semester units in liberal arts and sciences.

**BACHELOR OF SCIENCE DEGREE.** A minimum of 36 upper division semester units.

**BACHELOR OF EDUCATION (OR B.V.E.) DEGREE.** For a description of requirements for the B.E. degree, refer to the section of this catalog on the Bachelor of Education Degree. Requirements for the B.V.E. degree are 40 upper division units.

**BACHELOR OF MUSIC DEGREE.** A minimum of 36 upper division semester units.

## Graduation Requirements

### 5. MAJOR AND MINOR

Each student shall complete as a requirement for graduation one major and, if required by the major department, one minor. Some majors also include a foreign language requirement.

**Major.** The major consists of a pattern of prescribed upper division courses totaling not less than 24 units for the A.B. or B.M. degree and not less than 36 units for the B.S. degree. The maximum number of units for a major is determined by the college.

Courses in the major are exclusive of those courses used to meet the requirements in general education. Not more than 15 units in lower division prerequisite and related courses required by the department in preparation for the major may be used in general education. Such course or courses, however, may not be used as part of the minimum unit requirement in the student's minor.

**Minor.** The minor normally consists of from 15 to 22 units, at least six units of which must be in upper division courses. Specific requirements and maximum number of units are determined by the college. Courses in the minor may not be counted toward the general education requirements.

### 6. COMPETENCY TESTS

To qualify for graduation with any bachelor's degree, except the B.E. degree, each student must demonstrate competence in mathematics, speech, and the writing of English by satisfactorily passing the college tests in these areas or by passing courses or programs of study specifically designated in lieu of these competency tests. For special regulations governing the B.E. degree, refer to that degree. Descriptions of the competency tests follow:

#### MATHEMATICS COMPETENCY TEST

Mathematics competency may be demonstrated either by successfully completing Mathematics 3, 10B, or 18, or a higher level mathematics course, or by satisfactorily passing the Mathematics Competency Test. Transfer students with 60 units completed take the competency test as a part of their entrance tests. Other students, not planning to take one of the mathematics courses listed above, must take the test at the times listed in the class schedule, published each semester.

Students failing to make a satisfactory score on the test, and not including one of the courses listed above in their degree program, must do individual remedial work, and make a satisfactory score on a second test, which will be administered on an individual basis by the Test Office. Tutorial help is available in the Mathematics Department on a scheduled basis.

#### SPEECH COMPETENCY TEST

The Speech Competency Test is given to all entering undergraduate students. Students failing the test may be required to enroll in Speech Pathology and Audiology 3, Oral Communication Laboratory, and complete the course for one unit of credit as part of the graduation requirement in speech competency.

#### WRITING COMPETENCY TEST

The Writing Competency Test may be taken by all students except candidates for the B.E. degree at the first scheduled date for the test following the student's completion of 45 units of college work. All students transferring to this college with 45 units or more of advanced standing credit may take this test before registration. Passing of this test or the retake, which includes the writing of an essay, or satisfactory completion of English W, English 100, or remedial programs prescribed for the student by the College Committee on English is a graduation requirement, except for B.E. degree students.

### 7. ALL-COLLEGE REGULATIONS

Compliance with all regulations prescribed by the college is a requirement for graduation with any bachelor's degree.



## Graduation Requirements

### 8. AMERICAN INSTITUTIONS

Each student to qualify for graduation with a bachelor's degree shall demonstrate competence in the following areas of American institutions:

1. The Constitution of the United States.
2. American history, including the study of American institutions and ideals.
3. The principles of state and local government established under the Constitution of the State of California.

The student shall meet these requirements by passing a comprehensive examination on these fields prepared and administered by the college or by completing appropriate courses.

Students transferring from other accredited institutions of collegiate grade who have already met these requirements shall not be required to take further courses or examinations therein.

The graduation requirement in American institutions may be fulfilled by any one of the following alternatives:

#### COMPLETION OF AMERICAN INSTITUTIONS THROUGH COURSES

The graduation requirement in American institutions may be met by satisfactory completion of one of the following groups of courses:

- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| (a) History 17A and 17B              | (f) Political Science 115, and 117 or |
| (b) History 172A and 172B            | 118 or Public Administration 142      |
| (c) History 184A and 184B            | or 143                                |
| (d) Mexican-American Studies 20A-20B | (g) Political Science 105 and 115 or  |
| (e) Political Science 1 and 2        | 117 or 118.                           |

#### COMPLETION OF AMERICAN INSTITUTIONS THROUGH EXAMINATIONS

The graduation requirement in American institutions may be met by satisfactory completion of a comprehensive examination in each of the following areas:

1. American history, institutions and ideals
2. United States Constitution
3. California state and local government

Students electing to remove requirements through examination may obtain a bibliography of suggested reading at the Evaluations Office in the Administration Building. Examinations for removal of these requirements are given once each semester and in Term I summer session.

#### COMPLETION OF AMERICAN INSTITUTIONS THROUGH COMBINATION OF COURSES AND EXAMINATIONS

The graduation requirement in American institutions may be met by satisfactory completion of a combination of courses or a combination of courses and examinations in the required areas.

## Graduation Requirements

Students electing to remove requirements in this manner should select courses from those listed below:

#### Courses meeting requirements in American History

History 8A and 8B  
History 176A and 176B  
History 177A and 177B  
History 179A and 179B  
History 181A and 181B

#### Courses meeting requirements in U.S. Constitution

Political Science 2  
Political Science 115  
Political Science 139A and 139B  
History 17A  
History 172A  
History 177A and 177B

#### Courses meeting requirements in California Government

Political Science 2  
Political Science 115  
Political Science 117  
Political Science 118  
Public Administration 142  
Public Administration 143  
History 8B  
History 17B  
History 172B  
History 189B

### 9. GENERAL EDUCATION REQUIREMENTS

In order to provide students with opportunities for education which contributes to their effectiveness as citizens, as members of social groups, and as individuals capable of appreciating and participating in the culture in which they live, a plan of General Education requirements has been established.

A minimum of 40 semester units in general education must be completed. Courses taken in satisfaction of requirements for the major and minor may not be counted toward the general education requirement, and not more than 15 units in preparation for the major may be applied to general education requirements. The major is defined as the required block of upper division courses.

Students with majors in applied arts and sciences must select general education courses in accordance with the pattern described below. Students in liberal arts and sciences must follow the pattern outlined in the section of this catalog on Liberal Arts and Sciences.

The pattern requirements in general education may be fulfilled by examinations with an accompanying reduction in the 40 units but without course credit. Permission to take such examinations must be obtained from the Vice President for Academic Affairs and have the approval of the department in which the examination will be taken. Examinations in American institutions are given each semester and during the summer session; these examinations may be taken once without the Vice President's permission.

General Education requirements specified here are broad general requirements and serve as minima. The student is free to choose from within the Pattern of Courses for General Education the specific course he will use to fulfill the requirement.

#### PATTERN OF COURSES FOR GENERAL EDUCATION

##### A. Natural Sciences

At least two courses (minimum of 6 units) to include at least 1 unit in a laboratory course

1. One course (minimum 2 units) in life sciences—biology, botany, microbiology, or zoology
2. One course (minimum 2 units) in physical sciences—astronomy, chemistry, geology, meteorology, physical geography, physical science, or physics.
3. Electives in any of the above or in oceanography or general psychology.

##### B. Social Sciences

1. At least two courses (minimum 3 units for each course) taken in two departments selected from anthropology, economics (except 2), geography (except 1 or 3), public administration, or sociology (except 35 or 60).
2. Electives in any of the above.



## Graduation Requirements

### C. Humanities

1. At least two courses (minimum 6 units) taken in two departments selected from comparative literature, religious studies, humanities, philosophy (excluding logic), literature in English or literature in a foreign language.
2. Electives in any of the above or in art, music, drama, semantics, rhetorical theory or history (western civilization, Asian civilization, or ancient history).

### D. Basic Subjects

One course (minimum 2 units) from each of three of the five areas:

1. written communication in English
2. oral communication
3. logic
4. mathematics or statistics
5. foreign language (excluding courses in literature or civilization)

Total units in Parts A, B, C, and D must be not less than 32 units; courses which satisfy the requirement in American Institutions may be counted in the 32 units total but may not apply to the 6-unit minimum in either Part B or Part C.

### E. Physical Activities, minimum of 2 units

A minimum of four semesters of physical activity in courses or equivalent monitored activity, to be fulfilled by

1. Completing four  $\frac{1}{2}$  unit physical education activity courses over a period of at least four semesters
2. Completing four satisfactory semesters of regular monitored physical activity for credit
3. Combinations of 1 and 2 to give the equivalent of four semesters of physical activity

### F. Electives to complete 40 units

Additional units may be elected from the above, from courses specifically excluded above, or from any other courses listed in the *General Catalog*.

### HONORS 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 office of the Vice President for Academic Affairs 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 8 units, to provide a total of 40 units
- F. Additional requirement, 5 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 6 units shall be applicable to preparation for the major.

## 10. APPLICATION FOR GRADUATION

Application for graduation must be made by the student. A candidate for graduation at mid-year must file the application with the Evaluations Office, Administration Building, not later than the end of the third week of classes of the fall semester. A candidate for graduation in June or summer session must file an

## Graduation Requirements

application for graduation not later than the end of the eleventh week of classes of the fall semester of the academic year in which he expects to graduate. Refer to the calendar in this catalog for deadline date for filing. A \$2 fee is charged for filing applications for graduation after deadline date.

### ELECTION OF REGULATIONS FOR GRADUATION

The California Administrative Code, Chapter 5, provides as follows:

**40401. Election of Regulations.** A student remaining in continuous attendance in regular sessions and continuing on the same curriculum in a state college may, for purposes of meeting graduation requirements, elect to meet the graduation requirements in effect 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 college authorities.

### AUTHORIZATION FOR GRADUATION

The California Administrative Code, Chapter 5, provides as follows:

**40400. Procedure for Granting Diplomas, Certificates, and Degrees.** The Board of Trustees, upon recommendation of the faculty of the college, shall issue the appropriate diploma, certificate or degree to a student who has completed the prescribed course of study.

### GRADUATION WITH HONORS

With the approval of the faculty, graduation with honors is granted to those students in each graduating class who have filed an application for graduation prior to the published deadlines and 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 June and summer session graduates.

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, that work is included in the computation of the grade point average on which honors will be granted.

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.

### GRADUATION WITH DISTINCTION IN THE MAJOR

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

### COMMENCEMENT EXERCISES

Commencement exercises are held once a year at the end of the spring semester for students who were graduated at midyear, those graduating at the end of the spring semester, and students who expect to complete requirements for graduation in the summer session.



## SUMMARY

# CURRICULA

## SUMMARY



## SUMMARY OF CURRICULA OFFERED

## SUMMARY OF CURRICULA OFFERED—Continued

Majors	Arts and Sciences Curricula			Professional Curricula			Graduate Curricula		Majors	Arts and Sciences Curricula			Professional Curricula			Graduate Curricula	
	Applied Arts and Sciences		Liberal Arts and Sciences	School of Business Administration	School of Engineering	School of Education	Graduate Division			Applied Arts and Sciences		Liberal Arts and Sciences	School of Business Administration	School of Engineering	School of Education	Graduate Division	
	AB	BS	AB	BS	BS	BE	MA	MS		AB	BS	AB	BS	BS	BE	MA	MS
Accounting.....				BS					Mexican-American Studies.....			AB					
†Aerospace Engineering.....								MS	Microbiology.....		BS	AB					
†Afro-American Studies.....			AB				MA		Music.....	*AB	BM	AB				MA	
American Studies.....			AB				MA		Nursing.....		BS						
Anthropology.....			AB				MA		Philosophy.....			AB				MA	
Art.....	AB		AB						Physical education.....	AB						MA	
Asian Studies.....			AB						Physical science.....	*AB						MA	
Astronomy.....	AB		AB					MS	Physics.....		BS	AB				MA	
Biology.....	AB	BS	AB				MA	MS	Political science.....			AB				MA	
Botany.....		BS	AB						Psychology.....	*AB		AB				MA	
†Business administration.....							MBA	MS	Public administration.....	AB						MS	
Chemical Physics.....		BS							Radio-TV, Film.....		BS					MPA	
Chemistry.....	AB	BS	AB				MA	MS	Real estate.....				BS				
Child Development.....		BS					†Ph.D.		Recreation administration.....	AB							
†City Planning.....							MCP		Religious Studies.....			AB					
†Civil Engineering.....							MS		Russian.....			AB				MA	
Comparative Literature.....			AB						Russian Area Studies.....			AB					
†Counseling.....							MS		Social science.....	*AB		AB				MA	
Criminal Justice Administration.....		BS							Social welfare.....			AB					
Drama.....	AB						MA		†Social work.....							MSW	
†Ecology.....							Ph.D.									MSSW	
Economics.....			AB				MA		Sociology.....			AB				MA	
†Education.....							MA		Spanish.....			AB				MA	
†Electrical engineering.....								MS	Special major.....	AB		AB					
Elementary education.....						BE			Speech.....	AB						MA	
Engineering.....					BS		MA		Speech Arts.....	AB						MA	
English.....			AB						Speech Pathology and Audiology.....	AB							
Environmental health.....		BS							Telecommunications.....	AB					BVE		
European studies.....			AB				MA		Vocational arts.....		BS	AB					
Finance.....				BS					Zoology.....								
French.....			AB				MA										
†Genetics.....							Ph.D.										
Geography.....			AB				MA										
Geology.....		BS	AB					MS									
German.....			AB				MA										
Health education.....		BS					MA										
History.....			AB				MA										
Home economics.....	AB							MS									
Industrial arts.....	AB						MA										
Information systems management.....				BS													
Insurance.....				BS													
Journalism.....			AB														
Latin-American studies.....			AB				MA										
†Linguistics.....							MA										
Management.....				BS													
Marketing.....				BS													
†Mass Communication.....								MS									
Mathematics.....	AB		AB				MA	MS									
†Mechanical engineering.....								MS									

\* 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.

Preprofessional Curricula

Prelegal  
Premedical

Curricula in Broad Field Areas

Humanities  
Africa and the Middle East

Military Curricula

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

Certificate (nondegree) Program

Certificate in public administration

\* 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.

## 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) Program

Certificate in public administration



## Curricula

### TEACHING CREDENTIALS

Standard teaching credential with specialization in:	Specialized preparation (as a substitute for a minor)
(a) Elementary teaching	Standard designated services credential
(b) Secondary teaching	Standard supervision credential
(c) Junior College teaching	Standard administration credential
	Restricted Credential

### MINORS FOR THE BACHELOR'S DEGREE

Accounting	Insurance
Aerospace studies	Italian
Anthropology	Journalism
Art	Library science
Astronomy	Marketing
Biology	Mathematics
Botany	Mexican-American Studies
Business education	Microbiology
Business management	Music
Chemistry	Philosophy
Classics	Physical education
Comparative literature	Physical science
Dance	Physics
Drama	Political science
Economics	Production and operations management
Employee relations	Psychology
Engineering	Public administration
English	Real estate
Finance	Recreation
French	Religious studies
Geography	Russian
Geology	Social welfare
German	Sociology
Health education	Spanish
History	Speech
Home economics	Speech arts
Industrial arts	Telecommunications
Information systems management	Zoology

## GRADUATE DIVISION

All master's degrees are conferred by the Trustees of the California State University. The Doctor of Philosophy degree is conferred jointly with the University of California, San Diego. The Doctor of Philosophy degree in Ecology is conferred jointly with the University of California, Riverside. The Doctor of Philosophy degree in Genetics is conferred jointly with the University of California, Berkeley.

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

Anthropology	Geography
Art	Health education
Biology	History
Chemistry	Industrial arts
Drama	Latin-American studies
Economics	Liberal studies
Education	Mathematics
English	Music
French	Philosophy
German	Physical education
	Physical science



## 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 Graduate Studies 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 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 college authority for the administration of all matters related to graduate degree curricula, requirements for which are specified in Section 40504 of the Administrative Code.

### ASSOCIATION MEMBERSHIP

San Diego State 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 Colleges upon recommendation of the faculty of San Diego State. 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.

Joint doctorates are awarded by the Board of Regents of the University of California and the Board of Trustees of the California State Colleges in the names of San Diego State and the cooperating campus of the University.

### 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	Geography	Physics
Anthropology	Health education	Political science
Art	History	Psychology
Biology	Industrial arts	Russian
Chemistry	Latin-American studies	Social science
Drama	Linguistics	Sociology
Economics	Mathematics	Spanish
Education	Music	Speech
English	Philosophy	Speech Arts
French	Physical education	
German	Physical science	

## Graduate Division

### MASTER OF SCIENCE

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

Aerospace engineering	Counseling	Mechanical engineering
Astronomy	Electrical engineering	Physics
Biology	Geology	Psychology
Business administration	Home economics	Social work
Chemistry	Mass communication	
Civil engineering	Mathematics	

### MASTER OF BUSINESS ADMINISTRATION

### MASTER OF CITY PLANNING

### MASTER OF PUBLIC ADMINISTRATION

### MASTER OF SOCIAL WORK



## ADMISSION PROCEDURES

## MATRICULATION

Any student, holding the baccalaureate degree and wishing to be admitted to San Diego State for post-graduate study, must apply for admission to the college at the Admissions Office and comply with the regulations of the Admissions Office as stated in the section of this catalog on Admissions.

## UNCLASSIFIED GRADUATE STANDING

Acceptable graduate students are admitted to the college by the Admissions Office with unclassified graduate standing. Admission to the college with unclassified graduate standing does not constitute admission to graduate degree curricula in the Graduate Division.

## CLASSIFIED STANDING IN THE GRADUATE DIVISION

A student who has been admitted to the college by the Admissions Office with unclassified graduate standing who desires to earn an advanced degree must file an application for admission to an authorized advanced degree curriculum and the Graduate Division. If the applicant meets the requirements of Section 41001 of the Administrative Code, he will be admitted to the graduate curriculum of his choice and to the Graduate Division with *classified graduate standing*. The Graduate Office notifies the Registrar to change the status of the student from unclassified to classified standing.

## FAILURE TO MEET ADMISSION REQUIREMENTS

If the applicant fails to meet the requirements for classified graduate standing, he may remain in the college with unclassified graduate standing and enroll in any undergraduate course for which he has the necessary prerequisites, provided facilities and competent instructors are available.

Unclassified graduate students are not eligible to enroll in 200-numbered courses except with permission of the instructor and the Dean of Graduate Studies. All credit earned by an unclassified graduate student is subject to evaluation as to its acceptance in satisfaction of master's degree requirements.

Undergraduate students are not permitted to enroll in 200-numbered courses.

## WITHDRAWAL AND REINSTATEMENT

A graduate student who has begun work on a graduate degree and has taken no courses within the last calendar year is considered to have withdrawn from the degree curriculum. If he wishes to resume his work, he must file an application for readmission to the Graduate Division. He will then be required to comply with regulations and requirements in effect at the time his application for readmission is accepted.

Any student who was not in attendance during the semester preceding the semester in which he wishes to enroll must apply for readmission to the college.

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.

## 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 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, the Master of City Planning degree, and the Master of Social Work are two-year master's degrees and require 54, 56, and 58 units of graduate work respectively. At least 30 units of work must be earned in residence at San Diego State for the M.B.A. 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 all courses taken to satisfy the requirements for the master's degree.

## 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 Office.



## APPLIED ARTS

APPLIED ARTS  
AND SCIENCES



# APPLIED ARTS AND SCIENCES

## DEGREE PROGRAMS

### REQUIREMENTS FOR THE A.B., B.S., OR B.M. DEGREE

Students taking majors offered in applied arts and sciences must complete the graduation requirements listed below for the A.B., B.S., or B.M. degree. (Refer to the section of this catalog on Graduation Requirements for more detailed information.)

#### GRADUATION REQUIREMENTS

1. A minimum of 124 semester units for the A.B. or B.M. degree or 128 units for the B.S. degree in the general programs in applied arts and sciences.
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 40 upper division units for the A.B. or 36 upper division units for the B.S. or B.M. degree.
5. One major, and one minor if required by the department offering the major.
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 college.
8. American institutions, to include competency 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.

### MAJORS FOR THE A.B., B.S., OR B.M. DEGREE

The major consists of a prescribed pattern of upper division courses totaling not less than 24 units for the A.B. or B.M. degree or 36 units for the B.S. degree. The number of units beyond the minimum may be specified in the description of the major. Courses in the major may not be counted in the 40 unit general education requirement.

Also required as preparation for the major are the lower division prerequisite and related courses prescribed by the department. Additional requirements may include foreign language and a minor. Not more than 15 units of such courses, not included in the upper division pattern which constitutes the major, may be counted in general education if applicable.

Majors offered are listed below. The major in child development, the major in physical science, the major in social science, and the special major, all of which require work in more than one department, are described in the following pages. All other majors are described in the section of this catalog on Courses and Curricula, under the heading of the department offering the major.

## Applied Arts and Sciences

### LIST OF MAJORS FOR THE A.B. DEGREE

#### IN APPLIED ARTS AND SCIENCES

Art	Mathematics	† Social science
Astronomy	† Music	Special major
Biology	Physical education	Speech
Chemistry	† Physical science	Speech pathology and
Drama	† Psychology	audiology
Home economics	Public administration	Telecommunications
Industrial arts	Recreation administration	

† Limited to students admitted to and continuing in Teacher Education to time of graduation.

Refer also to Liberal Arts and Sciences for a list of majors in that program; and to the School of Education for teaching majors leading to credentials.

### LIST OF MAJORS FOR THE B.S. DEGREE

#### IN APPLIED ARTS AND SCIENCES

Biology	Environmental health	Nursing
Botany	Geology	Physics
Chemical physics	Health education	Radio, television
Chemistry	Microbiology (and medical	and film
Child development	technology curriculum)	Zoology
Criminal justice		
administration		

Refer also to the School of Business Administration and to the School of Engineering for majors leading to the B.S. degree in those fields.

### CHILD DEVELOPMENT MAJOR

#### WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

**Preparation for the major.** Anthropology 1A; Home Economics 4A; Home Economics 70 (or Psychology 106 or Education 111 in upper division); Home Economics 35, Social Welfare 35 or Sociology 35; Psychology 50; Sociology 1; Sociology 60 or Psychology 70 (20 units).

**Major.** A minimum of 36 upper division units to include Psychology 131, and 175 or Education 112; Sociology 135 or Home Economics 135; Education 111 or Psychology 106 (or Home Economics 70 in lower division); Sociology 140 or Psychology 145; Home Economics 171; and Biology 159; and an additional 18 units to be 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.

### PHYSICAL SCIENCE MAJOR

#### WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

(For Students in Teacher Education)

The major is available in applied arts and sciences only to students who have been admitted to and continue in teacher education to the time of graduation. (Refer to the section of this catalog on the School of Education for a description of the majors for elementary and secondary teachers.)

### SOCIAL SCIENCE MAJOR

#### WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

(For students in Teacher Education)

This major in social science is offered by the College of Arts and Letters.

The major is available in applied arts and sciences only to students who have been admitted to and continue in teacher education to time of graduation. (Refer to the section of this catalog on the School of Education for a description of the majors for elementary and secondary teachers.) The social science major in liberal



## Applied Arts and Sciences

arts and sciences is available to all students. (Refer to the section in this catalog on Liberal Arts and Sciences for a description of the major in liberal arts and sciences.)

### SPECIAL MAJOR

#### WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

The special major, consisting of three fields, offers a general type of education leading to objectives not otherwise provided in the regular programs of the college. Assistance in arranging the special major may be obtained in the Personnel Services Center in the Administration Building. The plan for the major must be cleared with the Evaluations Office for appropriate use of courses, approved by the department chairman in each of the three fields selected, and finally approved by the Dean of Counseling and Testing. Forms are provided for this purpose.

#### Requirements

**Preparation for the major.** A minimum of a year course in each of the three fields selected in the major must be completed in the lower division as foundation for upper division courses.

**Major.** The major consists of 36 upper division units chosen from three fields, with not more than 15 nor fewer than nine units from any one field. If two of the three fields selected are from majors offered only in liberal arts and sciences, the special 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, the special major is governed by the regulations in applied arts and sciences. The three fields selected are subject to approval by the Dean of Counseling and Testing.

**Minor.** A minor is not required with this major.

#### MINORS FOR THE A.B. OR B.S. DEGREE

The minor consists of from 15 to 22 units, at least six of which must be in upper division courses. A few minors may vary from this pattern. Minors are described in the selection of this catalog on Courses and Curricula, under the heading of the department offering the minor.

## LIBERAL ARTS AND SCIENCES



# LIBERAL ARTS AND SCIENCES

## A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

### PURPOSE OF THE PROGRAM

The purpose of a four-year collegiate program in liberal arts and sciences is to develop the student's intellectual interests and mental and physical fitness, and to increase his fund of information, his ability to think accurately, and his judgment, and thus to make him adaptable to various and changing life situations. A liberal education provides a foundation useful for many occupations and especially for graduate work leading into the professions; it is even more valuable as a preparation for assuming civic leadership and for attaining a balanced intellectual and emotional life. Hence the program in liberal arts and sciences aims to introduce college students to the major domains of human knowledge:

1. The natural sciences, physical and biological, for an understanding of the world and the complicated forces of life.
2. The social studies, for developing a knowledge and appreciation of the institutions and complex influences in society and of the privileges and obligations of citizenship.
3. The tools of critical understanding and the integration of knowledge—language, logic, mathematics, psychology, philosophy.
4. The sources of aesthetic enjoyment—literature, the fine arts, music—for understanding, enjoyment, and, if possible, creation of the beautiful.

### REQUIREMENTS FOR THE DEGREE

The student must complete the following requirements for the A.B. degree in liberal arts and sciences. Refer to the section in this catalog on Graduation Requirements for additional, college-wide requirements.

1. A minimum of 124 semester units. No more than 48 units in one department may be counted in meeting the 124 units.
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 45 upper division units.
5. One major, and one minor if required by the department offering the major.
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 college.
8. American institutions, to include competence in American history, institutions, and ideals; U. S. Constitution; and California state and local government.
9. Distribution of course work to fulfill the pattern below; this pattern fulfills the general education requirements for the degree.
10. Application for graduation.

## Liberal Arts and Sciences

### GENERAL EDUCATION AND DISTRIBUTION OF COURSES

A change in requirements is under consideration and will be available prior to September 1, 1970. Courses indicated in the pattern below will be applicable to the new requirements.

The degree in liberal arts and sciences requires, in addition to a major field, a distribution of course work to be selected according to the following pattern. Completion of the pattern of courses will satisfy the requirements in general education. No single course may be used to meet more than one requirement in the following pattern of distribution. For prerequisites to certain courses, refer to the description of courses in the section of this catalog on Courses and Curricula.

A student who is certified as having completed the General Education-Breadth requirements will be expected to complete the pattern recommended below, provided that for such completion not more than 23 units are required in addition to the 40 units applied to fulfillment of the General Education-Breadth requirements. Of the total of 63 units, up to 12 units will be waived in proportion to that part of the foreign language requirement completed in high school or by examination.

A transfer student who cannot fulfill all the recommended pattern within the 63 units required should present early in his first semester in residence, at the office of the Dean of Undergraduate Studies, a proposed plan of courses to be taken. If approved, this becomes the required pattern. Late presentation of the proposed plan will not excuse the student from completing a pattern which was possible at the time of admission.

Courses specified by an accredited college as being in excess of the 40-unit General Education-Breadth requirements and certified as applicable to the liberal arts and sciences requirements in distribution will be accepted by San Diego State as applying towards the requirements in distribution. In any case, however, the requirement in a foreign language must be satisfied.

If the college certifies that a student has completed the liberal arts and sciences requirements in effect at the time of his transfer or two years previously, San Diego State will honor the certification.

### DISTRIBUTION OF COURSES

Minimum  
units

#### A. Natural Science

1. A combination of two or more courses to complete a minimum of nine units fulfilling:  
(a) Not less than three units including laboratory in life science from Biology 1 and 2, or 4; Biology 1 and Botany 1.  
(b) Not less than three units including laboratory in physical science from Astronomy 1 and 9; Chemistry 1A or 2A or 10A; Geology 1A or 2 and 3; Physical Science 1 and 3, or 2 and 4, or 5 and 3; Physics 4A, or 1A, or 2A and 3A, or 5.  
(c) If, in meeting the above requirements, the student has not completed at least nine units, the remaining units of the total requirement of nine may be satisfied by choosing a course, with or without laboratory, from the following: Geography 1 or 3; or any course in astronomy, biology, botany, chemistry, geology, microbiology, oceanography, physical science, physics, or zoology.

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#### 2. Mathematics

This requirement may be satisfied by Mathematics 18 or a higher numbered course. Students accepted in the elementary credential program may satisfy this requirement by taking Mathematics 10A-10B. Passing of the Mathematics Competency Test does not satisfy this requirement.

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#### B. Social Science

1. American Institutions  
History 17A and 17B, History 172A and 172B, History 184A and 184B, Mexican-American Studies 20A-20B, Political Science 1 and 2, Political Science 115, and 117 or 118 or Public Administration 142 or 143, Political Science 105, and 115 or 117 or 118. (May be met in whole or in part by examination or by various options. Refer to the section of this catalog on Graduation Requirements, American Institutions, for an outline of options. If the entire requirement is met by examination, add three units to the requirement in Social Science, below.)

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## Liberal Arts and Sciences

	Minimum units
2. Social Science _____	6
Two 3-unit courses, choosing from Anthropology 1A, 1B, or 1C (one course only) or 100A or 100B, Economics 1A or 103A, Geography 2, Sociology 1 or 102. If the entire requirement in American Institutions is met by examination, add a second semester to one of the above (but not Geography 1 or 3), or add a 3-unit course in political science.	
<b>C. The Humanities and Fine Arts</b>	
1. A one-year course in western civilization _____	6
Choose either History 4A-4B or English 52A-52B. Certain upper division courses may be applied to this requirement; inquire at the office of the Dean of Undergraduate Studies.	
2. Six units in literature, philosophy, or the history or appreciation of art or music _____	6
To be taken in a department or departments other than that in which the requirement in western civilization was met. Applicable courses: Art 5, 50A, 50B, 51; Music 51, 52, 151; Humanities 66A-66B; any course in the Department of Philosophy; any course in literature in the department of English numbered 50 or above, or any course in literature in a foreign language or in comparative literature.	
3. The student must complete at least three units in literature or philosophy either in fulfilling the above requirements or elsewhere.	
<b>D. Other</b>	
1. Foreign language _____	0-12
Each student in this program must demonstrate his knowledge of a language other than his native tongue by the satisfactory completion of twelve units in one foreign language, by written examination administered by the foreign language department concerned in consultation with the student's major department, or by four years of one language in high school. (Refer to the specific foreign language in the section of this catalog on Courses and Curricula for complete information on course equivalents for high school language study.)	
2. Communication _____	2-3
Oral—Speech Communication 3 or 4 _____	3
Written—English 1 or 3 _____	3
Three units selected from English 51 through 70 _____	
(If excused from the requirement in written communication (English 1 or 3), an equal number of units in literature.)	
3. Psychology 1 _____	3
4. Health Science and Safety 21 _____	2
5. Physical education activity courses _____	2
(Four semesters required.)	
<b>TOTAL:</b> _____	51-64
Courses to complete the major, the minor (if any), and electives _____	73-60
<b>UNITS REQUIRED FOR GRADUATION:</b> _____	124

### THE MAJOR

The liberal arts and sciences major consists of a pattern of prescribed upper division courses totaling not less than 24 units. Also required as preparation for the major are lower division prerequisite and related courses, a requirement in foreign language, and a minor, if required by the department offering the major. Departmental majors, listed below, are described in the section of this catalog on Courses and Curricula, under the heading of the department offering the major. Interdepartmental majors and special curricula, also listed below, are described in detail in the following pages.

## Liberal Arts and Sciences

### LIST OF MAJORS AND CURRICULA FOR THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Majors		
American Studies	Geology	Russian
Anthropology	German	Russian area studies
Art	History	Social science
Asian studies	Journalism	Social welfare
Astronomy	Latin-American studies	Sociology
Biology	Mathematics	Spanish
Botany	Mexican-American studies	Special major
Chemistry	Microbiology	Zoology
Comparative literature	Music	<b>Curricula</b>
Economics	Philosophy	Africa and the Middle East
English	Physics	Afro-American studies
European studies	Political science	Humanities
French	Psychology	
Geography	Religious studies	

### DESCRIPTION OF INTERDEPARTMENTAL MAJORS AND SPECIAL CURRICULA

#### WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

#### AFRICA AND THE MIDDLE EAST

##### IN LIBERAL ARTS AND SCIENCES

The curriculum in Africa and the Middle East is an area of emphasis in the social science major. This curriculum is offered by the College of Arts and Letters.

**Preparation for the major.** History 4A-4B or Political Science 1 and 3; Economics 1A-1B; Anthropology 1B; and Geography 1. (18 units.)

**Major.** Thirty upper division units from the departments of anthropology, economics, geography, history, political science, and sociology, chosen with the consent of the adviser and including not less than 15 units in one department and six units in each of two other departments. Required courses in this curriculum include: History 157, 158B; Geography 125 and 130; Political Science 188; Economics 119; and Anthropology 152. Additional recommended courses to complete the requirements above are as follows: History 156, 158A or 121A-121B; Geography 150 and 151; Political Science 170A-170B and 165; Economics 102, 190, and 196; Anthropology 153, 154, and 156.

**Foreign Language Requirement.** French 1, 2, 3, 4 (or equivalent competence demonstrated by examination). Recommended: Comparative Literature 52A-52B.

**Minor.** A minor is not required with this curriculum.

#### AFRO-AMERICAN STUDIES MAJOR

##### WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

**Preparation for the major.** Sociology 1, English 3, and 12 additional units in courses prerequisite to upper division courses to be taken in the major. Economics 1A-1B and Political Science 1 and 2 are recommended.

**Major.** A minimum of 30 upper division units, to be selected from the list below and from other suitable courses, in a program approved by the adviser in Afro-American studies. Required courses, nine units: Comparative Literature 180; History 183; Sociology 124 or 125; 15 units selected from the following: Economics 150, 185; History 173A-173B; Music 151D; Political Science 118, 130; Social Welfare 100A-100B; Sociology 157, 124 or 125; and six units of electives as approved by the adviser.

**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 in consultation with the Chairman of the Afro-American Studies Committee.

**Minor.** A minor is not required with this major.



## Liberal Arts and Sciences

### AMERICAN STUDIES

#### IN LIBERAL ARTS AND SCIENCES

The major in American Studies is offered by the College of Arts and Letters.

**Preparation for the major.** History 17A-17B, and English 53A-53B. (12 units.)

**Major.** A minimum of 30 upper division units to include Humanities 180, History 179A-179B (may be used for group B), and two groups of 9 to 12 upper division units chosen from Group A, Group B, or Group C and 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 130, 131, 133, 134, 135, 136, 138, 139, 198 (when relevant to American Studies).

Group B: American History. History 171A-171B, 172A-172B, 173A-173B, 174, 175A-175B, 175C, 176A-176B, 177A-177B, 178A-178B, 179A-179B, 180 (when relevant to American studies), 181A-181B, 183A-183B, 184A-184B.

Group C: Social Sciences. Economics 111A-111B, 135, 138, 173, 174; Geography 121, 155; Political Science 105, 115, 116, 120, 123S, 127A-127B, 139A-139B; Sociology 124, 125, 157; Journalism 117, 121.

Group D: Electives. Art 157; Music 151D; Philosophy 164; Anthropology 171.

**Foreign Language Requirements.** See above, under Distribution of Courses, D.1, Foreign Language. Choice of foreign language should be made in consultation with adviser.

**Minor.** A minor is not required with this major.

### ASIAN STUDIES MAJOR

#### WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in Asian studies is offered by the College of Arts and Letters.

**Preparation for the major.** Six units in History 4A-4B, 9A-9B, or Philosophy 1A-1B; six units in Anthropology 1B-1C, Economics 1A-1B, Geography 1 and 2, or Political Science 1 and 3; and Humanities 59A-59B. (18 units.) Art 52A-52B and Comparative Literature 70A-70B are recommended.

**Major.** A minimum of 30 upper division units to include: From the Humanities not less than 12 units from at least two departments chosen from Comparative Literature 152A, 152B, 170; History 190A, 190B, 191A, 191B, 192, 193, 194, 195, 196A, 196B, 197A, 197B; Philosophy 135 (when appropriate), 150A, 150B; Religious Studies 121A-121B and from the Social Sciences not less than 12 units from at least two departments chosen from Anthropology 175, 177, 178; Economics 102, 115; Geography 131, 133, 134, 150; Political Science 183, 187, 191. Recommended courses in addition to those required: Business Administration 165 and other courses relevant to Asia, subject to approval of the Asian Studies adviser.

**Foreign Language Requirement.** See above under Distribution of Courses, D. 1., Foreign Language (Asian language recommended).

**Minor.** A minor is not required with this major.

### EUROPEAN STUDIES MAJOR

#### WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in European studies is offered by the College of Arts and Letters.

**Preparation for the major.** A minimum of 22 units to include History 4A-4B; Geography 1 and 2, or Political Science 1 and 3, or Economics 1A-1B; Art 50A or 50B; and eight units in one of the major European languages (French, German, Italian, Russian, Spanish) beyond the minimum of 12 units required in the liberal arts and sciences program.

## Liberal Arts and Sciences

**Major.** A minimum of 30 upper division units to be chosen with approval of the adviser and to be distributed as follows: A minimum of six units in Humanities to include Humanities 150 and 151; six units in a foreign language (French, German, Italian, Russian, Spanish); nine units in Geography, History, Economics, or Political Science; six units in Philosophy, Art, Comparative Literature, Comparative Education, or Music; three units of electives.

**Minor.** A minor is not required with this major.

### HUMANITIES

#### IN LIBERAL ARTS AND SCIENCES

The Humanities curriculum is offered by the College of Arts and Letters.

The intensive program in humanities provides a course of study which gives a comprehensive view of the development of contemporary civilization, with practice in critical thinking and careful expression. The program encourages extensive reading in history, literature, and philosophy, with oral and written discussion.

#### Specific Requirements and Recommendations

- I. A major in one of the departments of the College of Arts and Letters, consisting of 24 upper division units and the required introductory courses, plus a minor if required by the major department. Knowledge of one foreign language is required, as specified in the departmental major.
- II. Twelve or more upper division units in related fields, selected with approval of the faculty adviser for the curriculum. (May include courses in the minor, if appropriate.)
- III. The adviser will assist the student who undertakes this program to distribute his course work among the following areas:
  - (a) The Origins of Western Civilization: Greek and Roman, Hebrew, Medieval.
  - (b) Western Civilization, 1500-1900; Continental, British, and American.
  - (c) Contemporary Civilization.
  - (d) Type courses concerned with more than one period; comparative study of Asian Civilization; linguistics and composition; theory.
- IV. Humanities 198, Integration in the Humanities (3 units).

The student will file with the Evaluations Office a master plan approved by the adviser for the humanities curriculum.

### LATIN-AMERICAN STUDIES MAJOR

#### WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in Latin-American Studies is offered by the College of Arts and Letters. 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 or both of these languages is indispensable to a successful career in this area of study.

#### Requirements

**Preparation for the major.** Portuguese 1 and 2; Spanish 1, 2, 3, 4, 10, 11, and 41; 12 units selected from Anthropology 1C, Economics 1A, 1B, Geography 1, History 8A, 8B, Political Science 1, and 3.

**Major.** A minimum of 36 upper division units to include Spanish 104A-104B, 106A-106B; and 24 units in courses in Social Science chosen with the approval of the faculty adviser for this curriculum. At least 21 units must be from courses of Latin-American content.

**Minor.** A minor is not required with this major.



## Liberal Arts and Sciences

### RUSSIAN AREA STUDIES MAJOR

#### WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in Russian area studies is offered by the College of Arts and Letters.

**Preparation for the major.** Russian 1, 2, 3, 4, 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 101A-101B, History 147A-147B, Humanities 152, Humanities 153; nine units from at least two departments in the social sciences selected from Economics 102, Economics 118, Geography 126, Geography 127, Political Science 181, Political Science 186; six units in Russian selected from Russian 101A-101B, 102A-102B, 103, 104, 105A-105B, 110A-110B; and six units of electives selected with the approval of the adviser.

**Minor.** A minor is not required with this major.

### SOCIAL SCIENCE MAJOR

#### WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in social science is offered by the College of Arts and Letters.

**Preparation for the major.** 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. (18 units.) Courses recommended for these sequences are as follows: Anthropology 1A-1B or 1A-1C or 1B-1C, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 1 and 2, Sociology 1 and 10.

**Major.** Thirty upper division units to include 15 units from any field named above; six units from each of two additional fields named above; and three units of electives from any of the fields named above. Courses covering four fields named above, must be completed either in lower division prerequisites or in the major.

**Foreign Language Requirement.** See above, under Distribution of Courses, D.1., Foreign Language.

**Minor.** A minor is not required with this major.

#### Curriculum in Africa and the Middle East

The social science major may be taken with an emphasis in Africa and the Middle East. For a description of this program, refer to Africa and the Middle East in its alphabetical order above.

### SPECIAL MAJOR

#### WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The special major, consisting of three fields, instead of the usual major-minor pattern, offers a general type of education leading to objectives not otherwise provided in the regular programs of the college. Assistance in arranging the special major may be obtained at the Personnel Services Center in the Administration Building. The plan for the major must be cleared with the Evaluations Office for appropriate use of courses, approved by the department chairman in each of the three fields selected, and finally approved by the Dean of Counseling and Testing. Forms are provided for this purpose.

**Preparation for the major.** A minimum of a year course in each of the three fields selected in the major must be completed in the lower division as foundation for upper division courses.

## Liberal Arts and Sciences

**Major.** Thirty-six upper division units chosen from three fields, with not more than 15 nor fewer than nine units from any one field. At least two of the fields must be selected from the majors in liberal arts and sciences listed above; the third field may be selected from the same list or from other fields in the college curriculum, subject to approval of the Dean of Counseling and Testing.

**Foreign Language Department.** See above, under Distribution of Courses, D.1., Foreign Language.

**Minor.** A minor is not required with this major.

### THE MINOR

A minor may be required by the department offering the major. In departments not requiring a minor, the minor is optional with the student. A minor generally consists of from 15 to 22 units, at least six units of which must be in upper division courses.

Minors are described in the section of this catalog on Courses and Curricula, under the heading of the department offering the minor.



# 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 of Business Administration is a member of the American Association 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 of Business Administration. Its chief purpose is to facilitate research by faculty and students in the areas of economics and business. For further information, refer to the section in this catalog on Research Facilities, under Special Programs and Services.

### 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 Science degree in business administration with concentrations in ten areas, and the Master of Business Administration degree, a two-year graduate program. For further information, refer to the Graduate Bulletin and to the section in 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  
Real Estate

#### DEPARTMENT OF MARKETING

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

#### DEPARTMENT OF INFORMATION SYSTEMS

Major in Information Systems Management with the B.S. degree  
Teaching major in Business Education with specialization in secondary teaching  
Minor in the following:  
Business Education  
Information Systems Management  
Teaching minor in Business Education with specialization in secondary teaching

#### 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, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 40 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.

## DEPARTMENT OF ACCOUNTING

### ACCOUNTING MAJOR

#### WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

**Preparation for the major.** Business Administration 1A-1B, 30A, 80, 83; Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20. (25 units.) Students who expect to use Economics 1A and/or Business Administration 30A 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 100, 102, 106, 127, 132, 150, and Economics 100A or 100B; and 12 units selected from the following:

*Accounting:* Business Administration 101, 107, 108, 112, 114, 115, 116, 118, 119  
*Economics:* Economics 135, 170

*Finance, Management, Marketing, and Information Systems:* Any upper division course may be selected in these areas, but only one course may be taken in each department.

In addition to courses in the major and in general education, 12 upper division elective units outside of business administration and economics are required. (Any courses in one foreign language may be taken to satisfy this requirement.)



## School of Business Administration

### ACCOUNTING MINOR

The minor in accounting is offered to students who are not majors in the School of Business Administration. The minor consists of from 15 to 22 units in accounting, of which Business Administration 1A-1B and 100 must be included. At least eleven units must be in upper division courses.

## DEPARTMENT OF FINANCE

### Majors

#### FINANCE MAJOR

##### WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

All students majoring in finance must meet the requirements listed below in (1) the major, and (2) pattern requirements outside the Department of Economics and the School of Business Administration.

##### (1) REQUIREMENTS WITHIN THE MAJOR FIELD

**Preparation for the major.** Business Administration 1A-1B, 30A-30B, 80, 83; Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20. (28 units.) Students who expect to use Economics 1A and/or Business Administration 30A 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 100, 127, 128, 130, 132, 150, and 197; Economics 100A, 100B, and 135; the remaining five units to be selected from business administration and economics courses with consent of the adviser.

##### (2) PATTERN REQUIREMENTS OUTSIDE THE DEPARTMENT OF ECONOMICS AND SCHOOL OF BUSINESS ADMINISTRATION

Eight to nine units in the area of Life, Physical, or Social Sciences (except Economics) as listed below in (a); and eight to nine units in the area of Humanities or Fine Arts as listed in (b) below. A minimum of 17 units is required.

Students in the AFROTC program may substitute the program of upper division aerospace studies courses for the above requirement.

No courses taken to satisfy the requirements in (1) may be used to satisfy any other requirement of (2) or of general education.

**(a) Life, Physical, and Social Sciences.** Courses to be selected with consent of the adviser from all upper division courses (except in economics) and Chemistry 1A-1B, 4 or 5, and Physics 4A-4B-4C.

**(b) Humanities and Fine Arts.** Courses to be selected with consent of the adviser from all upper division courses and Art 5, 50A, 50B, 52A, 52B, Music 52, and Speech Communication 4, 60, 61, and 64, or from all courses in foreign languages, but not less than eight units in one language.

#### INSURANCE MAJOR

##### WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

**Preparation for the major.** Business Administration 1A-1B, 30A-30B, 80, 83; Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20. (28 units.) Students who expect to use Economics 1A and/or Business Administration 30A 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 120, 121, 124, 125, 127, 132 and 150; and 15 units selected from Business Administration

## School of Business Administration

tion 106, 107, 118, 128, 131, 140, 170, 171, 173, 174; Economics 111, 131, 135, 138, 142, 170, and 171. In addition to the upper division units in the major and in general education, twelve upper division elective units outside of Business Administration and Economics are required.

#### REAL ESTATE MAJOR

##### WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major in real estate is offered primarily for the student desiring to acquire a core of essential knowledge of the principles of real estate and urban land economics which will prepare him to engage in professional real estate activities or general business. The student in the School of Business Administration seeking a career in real estate development, land management, real estate finance, insurance, and related fields will have the opportunity to select courses in economics, political science, sociology, and other areas so as to develop a broad educational background in this field of study.

**Preparation for the major.** Business Administration 1A-1B, 30A-30B, 80, 83; Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20. (28 units.) Students who expect to use Economics 1A and/or Business Administration 30A 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 127, 132, 140, 150, 170, 171, 172, 173, 174, Public Administration 160, and six to seven units selected from Business Administration 100, 106, 107, 120, 121, 153, Economics 135, 138, and 142. In addition to the upper division units in the major and in general education, twelve upper division elective units outside of Business Administration and Economics are required.

### Minors

#### FINANCE MINOR

A minor in finance is offered to students who are not majors in the School of Business Administration. The minor consists of from 16 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, and Economics 135.

#### INSURANCE MINOR

A minor in insurance is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, 30A-30B, and nine upper division units, including Business Administration 120 and either Business Administration 121 or 124.

#### REAL ESTATE MINOR

A minor in real estate is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, 30A-30B, and nine upper division units, including Business Administration 170 and six units to be selected with approval of the adviser in this field.

## DEPARTMENT OF MANAGEMENT

#### MANAGEMENT MAJOR

##### WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major in management with the B.S. degree is offered in three areas of concentration: business management, employee relations, and production and operations management.

Students majoring in management must complete all three of the following requirements: (1) Requirements in the professional curriculum of the major, (2)



## School of Business Administration

requirements in one of the areas of concentration of the major, and (3) in addition to the major, pattern requirements outside the Department of Economics and the School of Business Administration.

### (1) PROFESSIONAL CURRICULUM WITHIN THE MAJOR FIELD

**Preparation for the major.** Business Administration 1A-1B, 30A, 80, 83; Economics 1A-1B; Mathematics 12 and 20. (25 units.)

**Major.** Business Administration 102, 127, 131, 132, 134, 135, 140, 145, 149, 150, 190 and Economics 100A. (37 units.)

### (2) AREAS OF CONCENTRATION WITHIN THE MAJOR FIELD

Select one area:

(a) **Business Management.** Twelve units made up of one upper division three unit course from each of four of the following fields: accounting, business law, economics, employee relations, finance, insurance, marketing, production management, purchasing, and real estate.

(b) **Employee Relations.** (1) At least six units from Business Administration 141, 142, and 143; and (2) six units from Economics 150, 152, Psychology 105, 121, 124, 133, and Sociology 120. (12 units.)

(c) **Production and Operations Management.** (1) Business Administration 136 and either 137 or 138; and (2) six units from Business Administration 162, Economics 107, Mathematics 130B, Philosophy 121, 122, Psychology 121, 124. (12 units.)

### (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. These requirements are met by taking a minimum of eight units in the area of Life, Physical, and Social Sciences as indicated in (a) below and a minimum of eight units in the area of Humanities and Fine Arts as indicated in (b) below. These requirements may also be met by completing the two year AFROTC program of upper division aerospace studies courses.

Courses taken to satisfy the requirements shown in (a) and (b) below are in addition to and may not be used to satisfy any requirements in general education nor may they be used to satisfy requirements stated in (1) and (2) above.

(a) **Sciences:** A minimum of eight units to be selected, with consent of adviser, from one department in the College of Sciences. All upper division courses and the following lower division courses are suitable: Chemistry 1A-1B, 4, or 5 and Physics 4A-4B-4C.

(b) **Professional Studies and Arts and Letters:** A minimum of eight units to be selected with consent of adviser, from one department in the College of Arts and Letters or College of Professional Studies, excluding economics, aerospace studies, industrial arts and physical education. All upper division courses and the following lower division courses are suitable: Art 5, 50A-50B, 52A, 52B, Music 52, Speech Communication 4, 60, 62, and 64. All courses in a foreign language are acceptable but at least eight units must be taken in one language.

## Minors

### BUSINESS MANAGEMENT MINOR

A minor in business management is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, and six to nine additional units of upper division courses approved by the adviser in this field.

## School of Business Administration

### EMPLOYEE RELATIONS MINOR

A minor in employee relations is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, 140, and three to six units of upper division courses approved by the adviser in this field.

### PRODUCTION AND OPERATIONS MANAGEMENT MINOR

A minor in production and operations management is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, 135, and three to six units of upper division courses approved by the adviser in this field.

## DEPARTMENT OF MARKETING

### MARKETING MAJOR

#### WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major is planned so that the student will attain a comprehensive, rigorous knowledge of marketing. It is important to the student that he integrate this professional knowledge with the mainstream of culture and education. Sixty-two units of professional courses are required for the major in marketing. The student is urged to plan the additional 66 units to include not only the general education requirements but also exploration of as many subject fields in other departments of the college as possible, preferably concentrating his work in a limited number of fields and in upper division courses. Consultation with the adviser is recommended.

#### Requirements

**Preparation for the major.** Business Administration 1A-1B, 30A, 80, 83; Economics 1A-1B; Mathematics 20; and either Economics 2 or Mathematics 12. (28 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 127, 132, 150, 151, 156, 157, 158 and 190; six units selected from Business Administration 152, 153, 154, 159, 161, 162, 163, 164, 165; and nine units to be selected from Economics and/or Business Administration to include at least three units from Business Administration 140, 145, or Economics 150 and at least three units from Business Administration 102, 135, or 149. In addition to the upper division units in the major and in general education, 12 upper division elective units outside of Business Administration and Economics are required.

### MARKETING MINOR

A minor in marketing is offered to students who are not majors in the School of Business Administration. The minor consists of at least 19 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 150, and six additional units of upper division courses in this field approved by the adviser.

## DEPARTMENT OF INFORMATION SYSTEMS

### INFORMATION SYSTEMS MANAGEMENT MAJOR

#### WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major in information systems management is offered with two options: (1) the major with a concentration in information systems (38 upper division units); or (2) the major with a concentration in automation and data processing (38 upper division units).



## School of Business Administration

Students must complete the following requirements: (1) Courses in the professional curriculum, required of all majors; (2) courses in one of the areas of concentration; and (3) from 11-16 additional units of general electives approved by the adviser, at least 10-11 of which must be in courses outside the fields of business administration and economics.

### PROFESSIONAL CURRICULUM (Required of all students in the major)

**Preparation for the major.** Business Administration 1A, 1B, 30A, 30B, 73, 80, 83; Economics 1A, 1B, Economics 2 or Mathematics 12, and Mathematics 20 (29 units). Demonstration of proficiency in typing is required. Students who expect to use Economics 1A and/or Business Administration 30A to meet general education requirements must complete compensating units in courses outside business administration and economics.

**Major.** Twenty-five units to include Business Administration 102, 127, 132, 135, 150, 184, 185, and 188. In addition, students must complete the courses in one of the areas of concentration.

### AREAS OF CONCENTRATION (Select one option)

#### (1) INFORMATION SYSTEMS

**Preparation for the major.** Business Administration 74. (2 units)

**Major (continued).** Thirteen upper division units, in addition to courses in the professional curriculum, to include the following: Business Administration 100; and nine units selected from Business Administration 120, 128, 145, 159, 164, 182, 189.

#### (2) AUTOMATION AND DATA PROCESSING

**Major (continued).** Thirteen upper division units, in addition to the courses in the professional curriculum, to include the following: Business Administration 100, 187, and 188; and three additional units selected from Business Administration.

### GENERAL ELECTIVES

In addition to requirements in the professional curriculum, in the general education requirements, and in one of the areas of concentration, students should select upper or lower division electives to complete their required 128 units for the degree. Nine units of these electives must be outside of business administration and economics. Students who plan to teach secretarial subjects in the secondary schools should elect Business Administration 75B and 183.

## BUSINESS EDUCATION MAJOR

### FOR THE STANDARD 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.

#### Specialization in Secondary Teaching

Requirements are the same as the requirements for the Information Systems Management Major for the B.S. degree as outlined above. In addition, students must complete, in their postgraduate year, a minimum of six upper division or graduate units acceptable toward the credential.

### Minors

## BUSINESS EDUCATION MINOR

A minor in business education is offered to students who are not majors in the School of Business Administration. The minor consists of not less than 21 units, exclusive of course equivalents, to include the following courses: Business Administration 1A, 1B, 72, 73, 74; nine upper division units, including Business Administration 189; and three additional lower or upper division units selected in consultation with the adviser in business education.

## School of Business Administration

## INFORMATION SYSTEMS MANAGEMENT MINOR

A minor in Information Systems Management is offered to students who are not majors in the School of Business Administration. The minor consists of 21 units and includes the following courses: Business Administration 1A, 1B, 73, and 74 (proficiency in typewriting required); and fourteen additional units to be selected in consultation with the business education adviser. Nine of these additional units must be in upper division.

## BUSINESS EDUCATION MINOR

### FOR THE STANDARD TEACHING CREDENTIAL

#### Specialization in Secondary Teaching

Requirements for the teaching minor in business education for secondary teaching are the same as requirements for the minor in business education for the bachelor's degree.



## SCHOOL OF EDUCATION

### ACCREDITATION

San Diego State and the School of Education are fully accredited by the California State Board of Education and the National Council for Accreditation of Teacher Education.

### BUREAU OF SCHOOL SERVICES AND RESEARCH

The Bureau of School Services and Research 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, refer to the section in this catalog on Research Bureaus, under Special Programs and Services.

### TEACHER EDUCATION PROGRAM

The college maintains a modern elementary school on the campus where it has developed an extensive program for the education of elementary school teachers. The classroom-laboratory plan which calls for the use of workrooms, the library, and shops, affords unusual opportunities for the induction of students into teaching. By arrangement with schools in the San Diego metropolitan area, observation, participation, and directed teaching are provided in the elementary and secondary schools and in the junior college.

### 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 ten areas and a Master of Science degree in 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 Education Degree.** The bachelor of education degree is currently offered with the elementary or kindergarten-primary credential to teachers holding a provisional credential in either of these areas.

**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.

## School of Education

## CREDENTIALS

Anyone wishing to teach or provide other types of professional service in the public schools of California must hold a credential issued by the State Department of Education. Credentials which are currently available are listed below with an indication of the school service authorized by each. A student who completes the prescribed program at San Diego State will be recommended by the college to the State Department of Education for the credential.

### LIST OF CREDENTIALS

Credential	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
(c) Junior College teaching	Teach major in junior college
	By completing specialized preparation, additional authorization may be earned in: (1) <i>Specialization in Teaching of Exceptional Children</i> , authorizing teaching in the area of mentally retarded or speech and hearing handicapped in kindergarten and grades one through fourteen; and (2) <i>Specialization in Librarianship</i> , authorizing service as librarian and teaching of librarianship in kindergarten and grades one through fourteen. (3) <i>Specialization in area of Deaf and Severely Hard of Hearing</i> , authorizing teaching in the area of deaf and severely hard of hearing in kindergarten and grades one through fourteen.
(2) † A standard designated subjects credential	Teach trade or technical courses at grade levels specified on the credential
(3) A standard designated services credential	Perform pupil personnel services or health services as specified on the credential
(4) A standard supervision credential	Serve as supervisor, consultant, or other intermediate administrative position including school principal
(5) A standard administration credential	Serve as a district superintendent or in intermediate level administrative positions, including those services authorized by the standard supervision credential
(6) A restricted credential	Serve as a speech and hearing specialist at all grade levels.

† This program is not offered at San Diego State.



## ADMISSION TO TEACHER EDUCATION

### APPLICATION FOR ADMISSION

Students who plan to earn a credential for elementary teaching should apply for admission to Teacher Education during the first semester of the junior year. Students transferring in after the freshman year should apply immediately. For secondary teaching, application for admission should be made during the junior year. For other credentials, see the appropriate coordinator for details. Application may be made at a special meeting held each semester. (For date and place of this meeting, refer to the calendar in this catalog.) No courses in education may be taken until admission is granted; any exception to this rule must have the approval of the appropriate admissions committee.

### STANDARDS FOR ADMISSION

The standards for admission to Teacher Education are different from those for admission to the college; therefore, admission to the college does not guarantee that the student will be admitted to Teacher Education. The committees on admission to Teacher Education will base their decision upon the following factors:

1. A satisfactory score on the college aptitude test taken at the college.
2. Competence in the use of English and satisfactory ability in arithmetic, handwriting, reading and spelling as indicated by scores on fundamentals tests for those applying for elementary education. (See the college calendar for dates of these tests which should be taken in the second semester of the freshman year.)
3. Satisfactory scores on The Comprehensive College test for secondary and junior college teaching. (See the college calendar for dates of these tests, which should not be taken prior to the junior year.)
4. Satisfactory quality of speech and voice control.
5. Results of the college health examination given for teaching credential candidates.
6. Interviews with representatives of the Admissions Committee and, for secondary education only, with a representative of the department in which the student is a major. The Admissions Committee will base its evaluation upon the following factors established by the Board of Trustees: intelligence, scholarship, professional aptitude, personality and character, speech and language usage, and many-sided interests.
7. Satisfactory grade point averages on the first two years or more of a given curriculum and on all subsequent work taken for the credential. Minimum grade point averages are indicated below:
  - a. Elementary teaching, 2.20.
  - b. Health and development credential, 2.20.
  - c. Secondary teaching, all subjects, 2.50, and major field, 2.75.
  - d. Junior college teaching, 2.50.
8. For administration, supervision, and pupil personnel services credential candidates, a satisfactory grade point average (minimum 2.75) on all work applicable to that credential, exclusive of the work applied to the basic credential.
9. For secondary teaching candidates, an official evaluation and program approved by the authorized departmental representative in the student's major field and by a representative in secondary education.
10. A transcript of all work completed at other institutions must be filed with the secondary education department.

### TRANSFER STUDENTS

Elementary education students who have completed two or more semesters of work in another college, upon transferring to San Diego State, should make application for admission to Teacher Education as soon as they enroll in the college. Secondary education students should apply when they have achieved junior standing. All transfer students admitted to the college with either upper division or graduate standing should take the necessary tests for admission to Teacher Education at the earliest time the tests are given. (See academic calendar for dates.)

#### TRANSFER STUDENTS WITH PROVISIONAL CREDENTIALS

Teachers with a provisional credential or partial fulfillment of requirements credential who are teaching and working concurrently toward a regular credential may have a program designed to fit their background. For an evaluation of college credit completed to date, make formal application at the Evaluations Office, Administration Building, San Diego State. For additional details, see the Coordinator of Elementary Education or the Coordinator of Secondary Education.

#### ADVANCED STANDING IN TEACHER EDUCATION

A student transferring into San Diego State with advanced standing must complete a minimum of six units of professional education work in residence at San Diego State College before recommendation for a credential, regardless of extent of education work already completed elsewhere.

### EVALUATION OF CREDITS

After an interval of five years, courses in education are re-evaluated and subject to reduction in credit, in light of such new requirements as may have been put into effect and changes in educational procedures. Students formerly in attendance will not be considered to be working in the curriculum until an evaluation and statement of credit has been secured from the Evaluations Office. All courses taken either at this college or elsewhere must be approved by an official adviser in order to be credited toward meeting credential requirements or pattern requirements for a degree.

## STANDARD TEACHING CREDENTIAL—ELEMENTARY

### GENERAL REQUIREMENTS

To be recommended by San Diego State for the Standard Teaching Credential with specialization in elementary teaching, an applicant shall have completed successfully a program including the following requirements:

- I. Four years, or the equivalent, of college or university education with a baccalaureate or higher degree from an approved institution.
- II. A fifth year of postgraduate education taken at the upper division or graduate level. (Under certain conditions, including the completion of a major and of the required undergraduate work in professional education, this fifth year may be postponed, and completed during the first seven years of teaching. Further details on this option are available in the office of the Coordinator of Elementary Education.)
- III. Forty semester hours in general education.
- IV. One of the majors specified for elementary teaching. If the major is not in an academic subject, the completion of one or two minors is an additional requirement. For further information, see the Coordinator of Elementary Education.
- V. The following professional courses in education: Education 111, 112, 130, 131, 132, 101 or 202 (30-31 units). This sequence of professional courses will typically begin in either the first or second semester of the junior year.
- VI. The following courses (unless taken as part of the major, minor, or general education): Art 2A, Geography 1, 2, Health Science and Safety 150, Mathematics 10A, Music 2, Physical Education 53, and Speech Communication 3.



## MAJORS FOR ELEMENTARY TEACHING

Majors for elementary teaching available at this college are listed below. A description of each departmental major will be found in the section of this catalog on Courses and Curricula, under the heading of the department offering the major. Interdepartmental majors, not limited to a single department, are described below. Although these teaching majors need not be completed until the end of the post-graduate year, most students will need to complete an undergraduate major applicable toward a bachelor's degree.

Students in Teacher Education at the time of graduation who complete the teaching major in the undergraduate program, including prerequisites, will normally meet the requirements for the corresponding major for a bachelor's degree. Any exceptions are noted in the description of the teaching major. Students planning to major in English, French, German, or Spanish should note that these majors for the degree are offered only in the Liberal Arts and Science program; candidates for a degree with these majors must complete graduation requirements for that program. Students with majors other than those listed below should see the Coordinator of Elementary Education to clarify credential requirements.

## LIST OF MAJORS

Majors will be selected from the following list:

## INTERDEPARTMENTAL MAJORS

Art  
Chemistry  
English  
French  
German  
Mathematics  
Physics  
Spanish

## DEPARTMENTAL MAJORS

Fine arts  
Fine arts and humanities  
Fine arts and social sciences  
Physical sciences  
Social sciences

DESCRIPTION OF INTERDEPARTMENTAL MAJORS  
FOR ELEMENTARY TEACHING

## FINE ARTS MAJOR

## FOR ELEMENTARY TEACHING

**Preparation for the major.** Art 1A and 2A; Music 2, 10A, 10B, 10C; and Speech Communication 3. (14 units)

**Teaching Major.** A minimum of 26 upper division units to include six units selected from Art 110, 117A or 119A, 118, and 108 or 156A; Music 144, 145, 146; either one course selected from Art 106A, 111A, 117A, 120A or two units from Music 170 through 188; nine units selected from Drama 110, 120, 122, 132, 140A, 142 (maximum 3 units), 152A, 160A, Telecommunications and Film 180.

**Degree Requirements.** Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree in applied arts and sciences. A minor is not required with this major for the degree.

## FINE ARTS AND HUMANITIES MAJOR

## FOR ELEMENTARY TEACHING

**Preparation for the major.** Courses must be selected from the same two areas as those to be used for the upper division concentrations; Art 1A, 2A; or Music 2, 10A, 10B, 10C; or Drama 3, 8; plus six units in either English or Philosophy.

**Teaching Major.** A minimum of 24 upper division units to include nine units selected from Art 110, 118, 117A or 119A, 108 or 156A; Music 144, either 143 or 145, 146A, and two units selected from courses numbered 170 through 188; Drama 110, 120, 122, 127A, 132, 140A, 142 (maximum 3 units), 152A, 160A. At least 15 additional units as specified in one of the following areas: Philosophy 101, 103, 123, 127, either 128 or 135; English 175 or 180, six units selected from 103, 121A, 121B,

or from courses numbered 111 through 118, six units selected from courses numbered 122A through 149 (except 103, 121A, 121B).

**Degree Requirements.** Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree in applied arts and sciences. A minor is not required with this major for the degree.

## FINE ARTS AND SOCIAL SCIENCES MAJOR

## FOR ELEMENTARY TEACHING

**Preparation for the major.** Courses must be selected from the same two areas as those to be used for the upper division concentrations: Art 1A, 2A; Music 2, 10A, 10B, 10C; or Drama 3, 8; plus six units in one of the following: anthropology, economics, geography, history, political science, psychology, or sociology.

**Teaching Major.** A minimum of 24 upper division units to include nine units selected from Art 110, 118, 117A or 119A, 108 or 156A; Music 144, either 143 or 145, 146A, and two units selected from courses numbered 170 through 188; or nine units selected from Drama 110, 120, 122, 127A, 132, 140A, 142 (maximum 3 units), 152A, 160A. At least fifteen additional units as specified in one of the following areas:

Anthropology 100A, 100B, 102, 103, 120, 151, 152, 156, 163, and 165.  
Economics 100A, 100B, 102, 103A, 103B, 110, 111, 131, 135, 150, 170, 195, and 196.  
Geography. Six to nine units selected from Geography 120, 121, 122, 123, 124, 125, 126, 127, 129, 130, 131, 133, 134; six to nine units selected from Geography 100, 101, 105, 110, 150, 151, 152, 153, 155, 180, 181A, 181B, and 182.  
History. Prerequisites: History 4A and 4B. History 131A, 131B, 143A, 143B, 144A, 144B, 171A, 171B, 189A, 189B, 191A, and 191B.  
Political Science. Twelve units from Political Science 105, 111A, 111B, 112, 116, 117, 120, 125, 130, 138, 170A, 170B; and three units from Political Science 180, 181, 183, 184, 185, 186, 187, 188, 189, 190, and 194.  
Psychology 105, 109, 131, 145, 150.  
Sociology 102, 110, 114, 122, 125, 136, 140.

**Degree Requirements.** Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree in applied arts and sciences. A minor is not required with this major for the degree.

## PHYSICAL SCIENCES MAJOR

## FOR ELEMENTARY TEACHING

**Preparation for the major.** A minimum of 18 units to include: three units of astronomy; three units of geology; six units of chemistry; six units of physics; and must include prerequisites for the upper division courses selected for the major. Adequate preparation in mathematics is essential.

**Teaching Major.** A minimum of 24 upper division units in any two or more of the academic subject areas of the physical sciences and mathematics, selected with approval of the adviser in the physical sciences for teaching programs.

**Degree Requirements.** Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a physical science major with the A.B. degree in applied arts and sciences. A minor is not required for the degree.

## SOCIAL SCIENCES MAJOR

## FOR ELEMENTARY TEACHING

**Preparation for the major.** A six-unit sequence in one of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, (6) sociology; and six additional units in one or two of the remaining fields.



## School of Education

**Teaching Major.** A minimum of 24 upper division units to include 12 units from any one field named above; and six units from each of two additional fields named above. (It is recommended that no less than six units of upper division or graduate work in the field selected for the 12-unit concentration be taken in the postgraduate year.)

**Degree Requirements.** Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree in either applied arts and sciences or in liberal arts and sciences. A minor is not required with this degree.

### MINORS FOR ELEMENTARY TEACHING

Students who are not completing an academic subject major must complete an additional requirement of one or two minors. The acceptable minors for elementary teaching are listed below. For further information see the Coordinator of Elementary Education.

A description of each minor can be found in the section of this catalog on Courses and Curricula, under the heading of the department offering the minor. Specialized preparation which may be substituted for a minor is described later in this section of the catalog under the title: Specialized Preparation.

#### LIST OF MINORS

Minors will be selected from the following list:

Biology	Industrial arts	Spanish
Chemistry	Italian	Speech communication
Drama	Mathematics	Specialization in
English	Music	(a) Librarianship
French	Physical education	(b) Teaching of
Geography	Physics	Exceptional
German	Psychology	Children
Health sciences	Russian	

## STANDARD TEACHING CREDENTIAL—SECONDARY

### GENERAL REQUIREMENTS

To be recommended by San Diego State for the Standard Teaching Credential with specialization in secondary teaching, an applicant shall have completed successfully a program including the following requirements:

I. Four years, or the equivalent, of college or university education with a baccalaureate or higher degree from an approved institution.

II. A fifth year of postgraduate education taken at the upper division or graduate level.

III. Forty semester units in general education.

IV. One of the majors specified for secondary teaching.

V. One of the minors specified for secondary teaching, or specialized preparation to serve as (1) a librarian or a teacher of librarianship, or (2) a teacher of exceptional children. (When the major is in a nonacademic subject, the minor must be in an academic subject and must include at least twelve upper division or graduate units.)

VI. The following professional courses in education: Education 100, 110, 121, 180A-180B-180C-180D, and 252 (24 units). Also required is Health Science and Safety 151 (2 units).

### MAJORS FOR SECONDARY TEACHING

Candidates for the Standard Teaching Credential with specialization in secondary teaching must complete one major and one minor in addition to the required courses in professional education.

Majors for secondary teaching available at this college are listed below. A description of each departmental major will be found in the section of this catalog

## School of Education

on Courses and Curricula, under the heading of the department offering the major. Interdepartmental majors, not limited to a single department, are described below. Although these teaching majors need not be completed until the end of the postgraduate year, most students will need to complete an undergraduate major applicable toward a bachelor's degree.

Students in Teacher Education at the time of graduation who complete the teaching major in the undergraduate program, including prerequisites, will normally meet the requirements for the corresponding major for a bachelor's degree. Any exceptions are noted in the description of the teaching major.

#### LIST OF MAJORS

Majors will be selected from the following list:

##### DEPARTMENTAL MAJORS

Biological sciences	German	Physical education (Men)
Art	Health sciences	Physical education (Women)
Business education	History	Physics
Chemistry	Home economics	Psychology
Drama	Industrial arts	Russian
Economics	Journalism	Spanish
English	Mathematics	Speech
French	Music	
Geography		

##### INTERDEPARTMENTAL MAJORS

Physical Sciences  
Social Sciences

### DESCRIPTION OF INTERDEPARTMENTAL MAJORS FOR SECONDARY TEACHING

#### PHYSICAL SCIENCES MAJOR

##### FOR SECONDARY TEACHING

**Preparation for the major.** A minimum of 18 units to include: three units of astronomy; three units of geology; six units of chemistry; six units of physics; and must include prerequisites for the upper division courses selected for the major. Adequate preparation in mathematics is essential.

**Teaching Major.** A minimum of 24 upper division units to include 15 units in one of the following areas: astronomy, chemistry, geology or physics. The remaining nine units must be completed in two or more of the following areas: astronomy, chemistry, geology, mathematics, physics or physical science. The adviser is a member of the faculty of the Department of Physical Science.

**Postgraduate Year.** Six upper division or graduate units must be completed in one of the areas listed in the major in which a 15 unit concentration may be done with the approval of the adviser in physical science.

**Degree Requirements.** Students in Teacher Education using this teaching major for a bachelor's degree will be graduated with a major in physical science with the A.B. degree in applied arts and sciences. A minor is not required for the degree; however, a teaching minor, which may be completed in the undergraduate program, is required for the credential.

#### SOCIAL SCIENCES MAJOR

##### FOR SECONDARY TEACHING

**Preparation for the major.** 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. Courses recommended for these sequences are as



## School of Education

follows: Anthropology 1A-1B, or 1A-1C or 1B-1C, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 1 and 2, Sociology 1 and 10. (18 units.)

**Teaching Major (Undergraduate).** Thirty upper division units to include 15 units from any field named above; six units from each of two additional fields named above; and three units of electives from any of the fields named above. The major must include six units in U.S. history in either lower or upper division and three units in a fourth field, selected from the social science fields named above.

**Postgraduate Year.** Six upper division or graduate units to be selected with approval of an adviser for the social sciences major.

**Degree Requirements.** Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree either in applied arts and sciences or in liberal arts and sciences. A minor is not required with this degree; however a teaching minor, which may be completed in the undergraduate program, is required for the credential.

### MINORS FOR SECONDARY TEACHING

Minors for secondary teaching available at this college are listed below. A description of each departmental minor will be found in the section of this catalog on Courses and Curricula, under the heading of the department offering the minor. An interdepartmental minor, not limited to a single department, is described below. Although these teaching minors need not be completed until the end of the postgraduate year, many students will need to complete an undergraduate minor applicable toward a bachelor's degree.

Students in Teacher Education at the time of graduation who complete the teaching minor in the undergraduate program will normally meet the requirements for the corresponding minor for a bachelor's degree. Any exceptions are noted in the description of the teaching minor, which will be found in the section of this catalog on Courses and Curricula, under the heading of the department offering the minor. Specialized preparation which may be substituted for a minor is described later in this section of the catalog under the title: Specialized Preparation.

#### LIST OF MINORS

Minors will be selected from the following list:

DEPARTMENTAL MINORS		
Art	History	Physical education
Biology	Home economics	(Women)
Business education	Industrial arts	Physics
Chemistry	Italian	Political science
Drama	Journalism	Psychology
Economics	Latin	Russian
English	Mathematics	Spanish
French	Music	Speech
Geography	Physical education	Specialization in
German	(Men)	(a) Librarianship
Health sciences		(b) Teaching of Exceptional Children

#### INTERDEPARTMENTAL MINORS

Humanities (concentration in Latin)

## School of Education

### DESCRIPTION OF INTERDEPARTMENTAL MINOR FOR SECONDARY TEACHING

#### HUMANITIES (concentration in Latin) MINOR

##### FOR SECONDARY TEACHING

The interdepartmental minor in Humanities (with concentration in Latin) for secondary teaching consists of 15 units of Latin, at least six units of which must be in upper division courses. Eight units must be elected from Comparative Literature 102A-102B, Philosophy 101, Humanities 40, General Language 20, and upper division Latin courses.

### STANDARD TEACHING CREDENTIAL—JUNIOR COLLEGE

#### GENERAL REQUIREMENTS

To be recommended by San Diego State for the Standard Teaching Credential with specialization in junior college teaching, an applicant shall have completed successfully a program including the following requirements:

I. A master's degree, doctor's degree, or other postgraduate degree approved by the State Board of Education requiring not less than five years, or its equivalent, of college or university education secured in an approved institution. The degree shall be in a subject matter area, except that a master's degree in library science shall be accepted if the applicant has substituted for the minor specialized preparation in librarianship.

II. Forty semester hours in general education.

III. One of the majors specified for junior college teaching.

IV. One of the minors specified for junior college teaching. (When the applicant's major is not in an academic subject matter area, 12 semester hours of the minor must be in upper division or graduate courses in a single academic subject.)

V. The following professional courses in education: Education 201, 223, 251, and 316 (10 units).

### SPECIALIZED PREPARATION WHICH MAY BE SUBSTITUTED FOR A MINOR

#### APPLICABLE TO STANDARD TEACHING CREDENTIALS WITH SPECIALIZATION IN ELEMENTARY, SECONDARY, OR JUNIOR COLLEGE TEACHING

##### SCHOOL LIBRARIAN

Specialized preparation to serve as a school librarian may be substituted for the minor in the Standard Teaching Credential in either elementary, secondary, or junior college teaching, when the major is in an academic subject matter area.

Requirements consist of the following: Library Science 110, 118, 119, 136, 138, 184, 231, 232; Education 183 (4 units); two courses selected from Library Science 225, 226, 227.

##### EXCEPTIONAL CHILDREN: AREA OF THE MENTALLY RETARDED

The program of specialized preparation to serve as a Teacher of Exceptional Children: Area of the Mentally Retarded, may be substituted for a minor for the Standard Teaching Credential in either elementary, secondary, or junior college teaching, when the major is in an academic subject matter area.



## School of Education

Requirements consist of the following: Education 167, 168 or 169, 171, 172, 173, 182, Psychology 109, Speech Arts 170A, and two units of electives with approval of the adviser. (26 units.)

### EXCEPTIONAL CHILDREN: AREA OF SPEECH AND HEARING HANDICAPPED

The program of specialized preparation to serve as a Teacher of Exceptional Children: Area of Speech and Hearing Handicapped, may be substituted for a minor for the Standard Teaching Credential in either elementary, secondary, or junior college teaching, when the major is in an academic subject matter area.

Requirements consist of the following:

*Lower Division:* Speech Pathology and Audiology 6. (3 units.)

*Upper Division:* Speech Pathology and Audiology 120, 121, 122, 123, 124, 125, 127, 128, 140, 141, 151, 244 (36 units); Speech Pathology and Audiology 126, 145 (6 units); and Education 167 and 184. (7 units.)

### EXCEPTIONAL CHILDREN: AREA OF DEAF AND SEVERELY HARD OF HEARING

The program of specialized preparation to serve as a Teacher of Exceptional Children: Area of the Deaf and Severely Hard of Hearing may be substituted for a minor for the Standard Teaching Credential in either elementary, secondary or junior college teaching, when the major is in an academic subject matter area.

Requirements consist of the following: Education 167 and 185; Speech Pathology and Audiology 127 or Education 172; Speech Pathology and Audiology 121, 140, 141; three units from Speech Pathology and Audiology 143, 244 or 250; and Speech Pathology and Audiology 145, 150, 151, 152, and 255 (38 units).

## STANDARD DESIGNATED SERVICES CREDENTIAL

### PUPIL PERSONNEL SERVICES

To be recommended by San Diego State for the Standard Designated Services Credential with a specialization in Pupil Personnel Services, an applicant shall have completed successfully a program including the following requirements:

I. A master's degree in an academic subject matter area or in counseling or psychology and course work covering certain specified areas. The course work requirements may be satisfied by completion of the following courses or their equivalents: Education 167, 225A, 225B, 226, 231, 232, 233, 234, 239, and 332.

II. Sixty semester hours of postgraduate work in the area of pupil personnel services. An applicant who has had three years of successful full-time teaching experience may have the option of substituting up to thirty units of postgraduate work in areas other than pupil personnel services.

III. Four hundred and eighty clock hours of supervised field experience. An applicant who has had three years of successful full-time teaching experience may substitute this experience for one half of this requirement. An applicant who has had successful school experience as a full-time pupil personnel worker may substitute this experience at the rate of one year for one half of this requirement. This requirement may be satisfied by completion of Education 331 or equivalent.

Note: All applicants for this credential must complete I, II, and III as outlined above. Applicants who wish to obtain a credential which includes authorization to perform the services of school psychometrist must complete additional course work covering certain specified areas; applicants who wish to obtain a credential which includes authorization to perform the services of school psychologist (a) must complete requirements for the psychometrist authorization, (b) may not substitute course work in other areas in satisfying the sixty unit requirement specified under II above, and (c) must complete certain additional course work. Applicants desiring these special authorizations should consult the Coordinator of Counselor Education for further information.

## School of Education

### SPECIALIZATION IN HEALTH

To be recommended by San Diego State for the Standard Designated Services Credential with a specialization in Health, authorizing service as a school nurse, an applicant shall have completed successfully a program including the following requirements:

I. Possession of a valid certificate of public health nursing issued by the California State Board of Public Health. Registration as an R.N. in the State of California. (Waived for applications filed prior to September 1, 1970.)

II. Five years of college or university education, including a baccalaureate degree.

III. The following professional courses: Education 111 or 113, 115 or 230, 167, 121P; Health Science and Safety 153; Nursing X-160; Nursing 125-126 or Health Science and Safety 160. (20 units.)

IV. One hundred and eighty clock hours of supervised field experience, or the authorized equivalent in terms of actual experience. (For details, see the Coordinator of the Health and Development program.)

## STANDARD SUPERVISION CREDENTIAL

The Standard Supervision Credential authorizes the holder to serve as a supervisor, consultant, coordinator, or in an equivalent supervisory or intermediate administrative position at all grade levels in all areas that his credential (basic) authorizes him to teach or serve. However, to serve as a *principal*, his college or university preparation must include a major in an academic subject area, or a diversified major as provided for by law.

NOTE: By State interpretation, department heads do not need to possess the Standard Supervision Credential.

To be recommended by San Diego State for the Standard Supervision Credential, an applicant shall have completed successfully a program including the following requirements:

I. Six years of college or university education including:

(a) Two years of acceptable postgraduate education in an approved institution.

(b) A master's degree requiring not less than five years of education earned in an approved institution. If the degree is not in an academic subject matter area, the two years of postgraduate education shall include twelve semester hours of course work in an academic subject matter area or areas.

II. The possession of a valid basic credential.

III. Five years of successful full-time classroom teaching experience.

IV. Admission to the program for school supervision and administration. (For details, see the Coordinator of the Department of Educational Administration.)

V. The following professional courses:

(a) For the elementary school concentration, Standard Supervision Credential: Education 260, 261, 262, 240 or 263, 264A-B-C, and 266A-B-C.

(b) For the secondary school concentration, Standard Supervision Credential: Education 260, 261, 262, 250 or 263, 265A-B-C, and 267A-B-C.

(c) For service as a supervisor of Pupil Personnel Services, Special Education, School Health Services, or Library Services special programs are provided. For details see the Coordinator of the Department of Educational Administration.

## STANDARD ADMINISTRATION CREDENTIAL

The Standard Administration Credential is required for service as superintendent or assistant, associate, or deputy superintendent.

The rules and regulations of the State Board of Education prescribe either (a) a doctorate or (b) an academic master's degree.

At the present time, San Diego State is not recommending for this credential. Courses required for this credential will be offered, for the present at least, on an irregular basis as demand for them occurs.



## RESTRICTED CREDENTIAL

## SPEECH AND HEARING SPECIALIST

The Restricted Credential in the area of service as a speech and hearing specialist authorizes service at all grade levels restricted, however, to service in the area of specialization designated on the credential.

Requirements for this credential consist of the following:

A baccalaureate degree or higher degree from an institution approved by the State Board of Education, and a fifth year to be completed within seven years of the first employment under such a credential.

Sixty semester hours of course work and clinical practice are required. These include: Speech Pathology and Audiology 120, 121, 122, 123, and three units selected with approval of the adviser; Speech Pathology and Audiology 129 or Education 101, and Education 202; Speech Pathology and Audiology 124 or 206, 125, 127, 128, 140, 142, 151 and 18 units selected from Speech Pathology and Audiology 141, 143, 150, 152, 201, 202, 203, 204, 205, 228 and/or related fields (three units must be selected from a related field); Speech Pathology and Audiology 133 and seven units from Speech Pathology and Audiology 126, 145, 226, 255 (65 units).

## BACHELOR OF EDUCATION DEGREE

## B.E. DEGREE WITH THE GENERAL ELEMENTARY OR KINDERGARTEN-PRIMARY CREDENTIAL

Provisions for the granting of the bachelor of education degree are made in the California Administrative Code, Chapter 5, Section 40502. In addition to the outline below, the student must complete the graduation requirements listed in the section of this catalog on Graduation Requirements.

## PURPOSE OF THE DEGREE

The purpose of this degree is to increase the professional competence of the individual as an elementary teacher in the California public schools. Through the curriculum provided, the applicant is guided into those learning experiences which best meets his cultural and professional needs on the basis of his previous preparation and of the services he is to render.

## ELIGIBILITY FOR CANDIDACY

To be eligible to enter the program for this degree at San Diego State the applicant must obtain full admission to the college, be admitted to the teacher education program of the college, must have completed a minimum of 60 semester units of standard college work acceptable toward the degree, and must hold a California provisional kindergarten-primary or provisional general elementary credential.

## RESIDENCE REQUIREMENTS

A minimum of 24 semester units shall be earned in course work at San Diego State (exclusive of credit-by-examination). Twelve of the 24 units must be in residence courses and must be secured after the candidate has earned at least 90 semester units.

## REQUIREMENTS FOR THE DEGREE

The candidate must complete a four-year college course of 124 semester units as defined by the college, must meet the grade requirements established by the college for a bachelor's degree and credential, and must include in his program the following requirements:

- |  |                  |
|--|------------------|
| (1) General education<br>(See the section of this catalog on graduation requirements.)   | 40 units         |
| (2) Teaching background, minimum<br>In addition to the 45 semester units required in general education, the teaching background in subject fields shall be selected according to the needs of the applicant, as prescribed by the teacher education department, with not less than 2 semester units in each of at least four of the following fields:<br>(a) Art. Includes subject matter, laboratory or activity in the graphic or industrial arts.<br>(b) English and speech. Includes oral and written expression, American or world literature, children's literature, dramatics, or use of books and libraries.<br>(c) Physical education, health, and hygiene. Includes personal hygiene, first aid, health education, games, rhythms, or physical activities.<br>(d) Mathematics.<br>(e) Music.<br>(f) Social science, including geography.<br>(g) Natural science. | 15 units         |
| (3) Major in elementary education<br>Shall include courses from each of the following areas:<br>(a) General elementary school methods or methods of teaching basic elementary school subjects.<br>(b) Principles of elementary education or elementary school curriculum.<br>(c) Child psychology or child growth and development.<br>(d) Other appropriate professional courses in education including instruction in the use and educational value of audio and visual aids.   | 24 units         |
| (4) Credit for teaching experience<br>A maximum of 8 semester units may be allowed for directed teaching and/or teaching experience on the elementary school level. Credit for teaching experience may be allowed at the rate of four units for one year of verified successful teaching experience.   | 8 units          |
| (5) Additional units required<br>Courses to complete the 124 units required for the degree shall be selected from those offerings of the college that best serve the cultural and professional needs of the candidate.   | 32 units         |
| <b>Total</b>   | <b>124 units</b> |

## CREDIT-BY-EXAMINATION

A maximum of 30 units may be secured by examination in subjects included in the fields of study mentioned above. Students requesting credit-by-examination must comply with the provisions of the college established for this purpose. Refer to the section of this catalog on General Regulations, Credit-by-Examination.



## School of Education

### BACHELOR OF VOCATIONAL EDUCATION DEGREE

#### ELIGIBILITY

The purpose of this degree is to promote the professional advancement of the vocational teachers in California. Eligible candidates for this degree shall be limited to those vocational teachers who meet the requirements established in the California Administrative Code, Chapter 5, Section 40503, and who are recommended by the Board of Examiners for Vocational Teachers.

#### MAJOR

The major in vocational arts consists of at least 24 upper division units to include the credits recommended by the Board of Examiners for Vocational Teachers for the applicant's occupational, managerial, and supervisory experience, and additional courses, if needed, to complete the minimum of 24 upper division units, to be selected with approval of the administrative dean of the School of Education.

The professional courses in teacher education completed by the applicant may be used toward electives.

#### GRADUATION REQUIREMENTS

Graduation requirements for this degree are the same as those for the A.B. degree in applied arts and sciences. Refer to the section of this catalog on Graduation Requirements for more complete information. Further information on this degree may be obtained from the Dean of the School of Education.

## SCHOOL OF ENGINEERING

### ACCREDITATION

The undergraduate curriculum in Engineering, with options in aerospace, civil, electrical and electronic, 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 level. 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 college, 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 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 upon 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 socio-humanistic 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 a total of 36 units of course work in aerospace, civil, electrical and electronic, 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 upon universal application and cross-fertilization of thought.



## School of Engineering

### High School Preparation

The program of 132 semester units prescribed by the School of Engineering for the bachelor of science degree presumes that the entering student brings a high school preparation which includes physics, chemistry, geometry, trigonometry, two years of algebra, and mechanical drawing. Some remedial courses in these areas may be selected in the college, although delay in graduation usually results. Students with deficiencies are urged to consider enrolling in the Summer Sessions. Placement examinations are specifically required in mathematics and in drawing, in addition to the qualifying examinations taken by all applicants for admission as freshmen to the college.

### ENGINEERING APTITUDE TEST

An Engineering-Physical Science Aptitude Test is given to all entering freshmen students during freshman orientation week. Students admitted to the college with advanced standing may file a transcript of previous college work with the dean of the School of Engineering in lieu of taking the aptitude test.

## 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 college.
4. At least 36 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 college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 40 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 in engineering consists of a pattern of prescribed upper division courses totaling 53 units, to include the requirements for all students and the requirements in the student's selected field of specialization. Courses in the major are in addition to 40 units of general education. A minor is not required. (For additional information on general education and requirements for the degree, refer to the section of this catalog on Graduation Requirements.)

Also required as preparation for the major are the lower division prerequisite and related courses prescribed by the School. These courses may be counted in general education if applicable.

## MINOR IN ENGINEERING

A minor in engineering is available to students in other academic divisions of the college. The minor consists of from 15 to 22 units in engineering, nine units of which must be in upper division courses. The courses should follow a logical sequence and must be approved by the dean of the School of Engineering.

## School of Engineering

## OUTLINE OF REQUIREMENTS

The program of study for the first two years is the same for all students in the School of Engineering. The recommended pattern is shown below. Course descriptions and prerequisites are given in the section of this catalog on Announcement of Courses.

### LOWER DIVISION REQUIREMENTS

Freshman Year			
Fall semester	Units	Spring semester	Units
Chem. 1A, General	5	Chem. 1E, Chem. for Engrs.	3
Math. 50, Anal. Geom. and Calc.	5	Math. 51, Diff. and Integ. Calc.	4
Engr. 20, Engr. Graphics	2	Phys. 4A, Principles	4
Engr. 3 or Phil. 20	3	Engr. 25, Engr. Materials	3
P.E. Activity	1/2	Biology 1	3
		P.E. Activity	1/2
	15 1/2		17 1/2

Sophomore Year			
Fall semester	Units	Spring semester	Units
Math. 52, Diff. and Integ. Calc.	4	Phys. 4C, Principles	4
Phys. 4B, Principles	4	Engr. 40, Engr. Prob. Anal. I	2
Engr. 30, Engr. Meas. Anal.	2	Engr. 50B, Engr. Mech. II	3
Engr. 50A, Engr. Mech. I	3	Engr. 60, Electr. Circuits	3
American Institutions	3	American Institutions	3
P.E. Activity	1/2	Sp. Communication 3	2
		P.E. Activity	1/2
	16 1/2		17 1/2

### 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. Course descriptions and prerequisites are given in the section of this catalog on Courses and Curricula.

### AEROSPACE ENGINEERING

All students in the Aerospace Engineering option pursue a common program of aerospace engineering fundamentals; however, some elective opportunity is provided through a choice of upper division courses in engineering, mathematics, or physics, subject to approval of the adviser and the department chairman. The recommended pattern for upper division aerospace engineering courses follows:

Junior Year			
Fall semester	Units	Spring semester	Units
E115, Fluid Mech.	3	E150, Aerodynamics	3
E115L, Fluid Lab	1	E151A, Aero. Struct. Anal. I	3
E116, Int. to Solid Mechanics	3	E154, Exp. Aerodyn.	2
E116L, Solid Mechanics Lab	1	E187B, Methods of Analysis	3
E187A, Methods of Analysis	3	E100B, E101, E130, E108	
E100B, E101, E130,		or E118	3
E108 or E118	3	†Electives within major	3
**History 172A, 176A, 184A or		**History 172B, 176B, 184B or	
Political Science 115	3	Political Science 117 or 118	
	17		17

\*\* Recommended general education course.

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



## School of Engineering

Senior Year			
Fall semester	Units	Spring semester	Units
E151B, Aero. Struct. Anal. II	3	E190G or E190H, Engr. Appl.	3
E153, Flight Mech.	3	E152, Propulsion Systems	3
†Electives within major	7	†Electives within major	6
**Social Sciences or Humanities	3	**Social Sciences or Humanities	3
	16		15

### CIVIL ENGINEERING

All students in the Civil Engineering option pursue a common program of civil engineering fundamentals; however, some elective opportunity is provided through a choice of upper division engineering courses, subject to approval of the adviser and the department chairman. The recommended pattern for upper division Civil Engineering courses follows:

Junior Year			
Fall semester	Units	Spring semester	Units
Engr. 116, Intro. to Solid Mechanics	3	Engr. 115, Fluid Mechanics	3
Engr. 116L, Solid Mechanics Lab	1	Engr. 115L, Fluid Mech. Lab	1
Engr. 187A, Methods of Analysis	3	Engr. 120A, Struc. Anal. I	4
Engr. 108, Thermodynamics, or Engr. 118, Rate Processes	3	Engr. 128A, Surveying	3
Engr. 108L (needed for 108)	1	Engr. 100B, Elec. Mach., or Engr. 187B, Methods of Analysis	3
General Education	6	Geol. 53, Gen. Geol. for Engrs.	1
	16 or 17		15

Senior Year			
Fall semester	Units	Spring semester	Units
Engr. 122, Soil Mech.	3	Engr. 121, Reinf. Concrete	3
Engr. 123, Appl. Hydraul.	3	†Electives within major	10 or 11
Engr. 127, Highway Engr.	3	General Education	3
†Electives within major	5		
General Education	3		
	17		16 or 17

### ELECTRICAL AND ELECTRONIC ENGINEERING

All students with the option in Electrical-Electronic Engineering include in their program a sequence of courses designed to develop an understanding of the basic principles, laws, and methodology of Electrical-Electronic Engineering. The student, through the proper selection of electives, has the opportunity to develop proficiency in his area of special interest. Typical areas include communications, control systems, electromagnetic radiation and propagation, digital systems and solid state electronics. The recommended pattern of courses for upper division electrical-electronic engineering majors is tabulated below.

Junior Year			
Fall semester	Units	Spring semester	Units
Engr. 100B, Electr. Mach.	3	*Engr. 100C, Electr. & Mag. Fields or Elective within major	3
Engr. 101, Appl. Electronics	2	Engr. 132, Linear Networks	3
Engr. 130, Network Analysis	4	Engr. 134A, Electr. Circuits	3
†Elective within major	1	Engr. 135A, Electronics Lab	1
Engr. 187A, Methods of Analysis	3	Core Elective	3
General Education	3	General Education	3
	16		16

\* 100C is a required course.

\*\* Recommended general education course.

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

## School of Engineering

Senior Year			
Fall semester	Units	Spring semester	Units
*Engr. 100C, Electr. & Mag. Fields or elective within major	3	†Electives within major	11
†Electives within major	6	Core elective	3
Core electives	4	General education	3
General education	3		17
	16		

The "electives within major" for each of the areas of special interest will include the following courses:

	6th Sem.	7th Sem.	8th Sem.
Communications:	E100C	E134B, E135B, E137	E139A, E139B
Control Systems:	E131	E100C, E138A, E138B	E196B (Cont Sys.)
Digital Systems:	E195	E100C, E135B, E194	E193
Electronics:	E100C	E134B, E135B, E194	E182

### MECHANICAL ENGINEERING

All students with the option in Mechanical Engineering follow a common program of mechanical engineering fundamentals. Opportunity to pursue areas of interest is provided through the choice of technical electives. This opportunity is afforded in the general areas of design and energy conversion. The recommended pattern for required upper division courses in mechanical engineering is as follows:

Junior Year			
Fall Semester	Units	Spring Semester	Units
Engr. 108, Thermodynamics	3	Engr. 118, Rate Processes or Engr. 146A, Mach. Design	3
Engr. 108L, Thermodynamics Lab	1	Engr. 148, Engr. Thermo.	4
Engr. 116, Resist. of Materials	3	Engr. 115, Fluid Mech.	3
Engr. 187A, Methods of Analysis	3	Engr. 115L, Fluids Lab or Engr. 116L, Solid Mech. Lab	1
Engr. 107, Materials and Processes	4	Engr. 183, Simul. Engr. Systems	3
Engr. 100B, Elect. Mach.	3	**History 172A, 176A, 184A or Political Science 115	3
	17		17

Senior Year			
Fall semester	Units	Spring semester	Units
Engr. 145, Mech. of Mach.	3	Engr. 190D, Engr. Applic.	2
Engr. 118, Rate Processes or Engr. 146A, Mach. Design	3	†Electives within major	6
Engr. 190C, Engr. Applic.	2	**Social Science or Humanities	6
†Electives within major	6		14
**History 172B, 176B, 184B or Political Science 142, 143 or 148	3		
	17		

\* 100C is a required course.

\*\* Recommended general education course.

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



## SCHOOL OF SOCIAL WORK

The School of Social Work offers a two-year program and a one-year program of professional education at the graduate level leading to the Master of Social Work degree or a Master of Science in Social Work. These programs are accredited by the Commission on Accreditation of the Council on Social Work Education.

The objectives of the program are to equip the student with the essential knowledge, philosophy, and basic skills for his responsible entry into the profession of social work.

A description of the program and requirements for the Social Work degrees will be found in the Graduate Bulletin. Information on requirements for admission to the college and to the Graduate Division is carried in the section of this catalog on the Graduate Division. Course descriptions and a list of the faculty of the School of Social Work appear in the section of the catalog on Announcement of Courses, under the title: Social Work.

The School also offers an undergraduate major in social welfare which is described in this catalog under the title: Social Welfare.

Further information may be obtained by writing to the Dean of the School of Social Work, San Diego State.

## NONDEGREE CURRICULA

### PREPROFESSIONAL PROGRAMS

#### AFROTC PROGRAM



## PREPROFESSIONAL PROGRAMS

### PROGRAMS AVAILABLE

Preprofessional curricula, which usually require three or four years of collegiate work, are offered. Curricula outlines of preprofessional study, which are presented on the following pages, meet the typical requirements for admission to professional schools. Students expecting to complete their professional training at other institutions should modify the suggested outlines of study to meet the requirements of the professional schools of their choice. Curricular outlines are presented for pre-dental, prelegal, and premedical programs. Students planning to enter other professional fields, such as agriculture, forestry, optometry, pharmacy, veterinary science, may obtain assistance from faculty advisers in arranging appropriate preprofessional courses of study.

### PREDENTAL CURRICULUM

Candidates for a degree in dentistry should ascertain the entrance requirements of the dental college to which they expect to transfer and should make changes in the following typical requirements that may seem desirable in satisfying the requirements of the specific dental college. For additional information students should consult the predental advisers on campus.

The curriculum for dental hygiene is essentially the same as for pre-dentistry.

Students ordinarily elect to concentrate in chemistry, biology and zoology with a major in one and a minor in another.

In high school, students should include the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics, mechanical drawing, and three years in one foreign language if required by the college to which a student expects to transfer.

Many dental schools request that letters of recommendation for applicants be prepared by a predental council rather than by individual professors. Such a council exists on this campus and all western dental schools have been so informed. In order to obtain letters from the council, it is essential that each applicant provide the council with certain information. Obtain the form and instructions from the office of the Department of Biology. This form must be submitted to the Biology Department office by April 1 of the year during which application is being made.

#### RECOMMENDED COURSE OF STUDY FOR PREDENTAL CURRICULUM

*Course of Study for Predental Curriculum.* Freshman year, physical education activities, Health Science and Safety 21, Speech Communication 3, English 1, English 3 or other literature course, Mathematics 3 and 4, or equivalents, Chemistry 1A-1B, Biology 1 and 2; sophomore year, physical education activities, Psychology 1, Chemistry 4 or 5, and 12, Physics 1A-1B or 2A-2B and 3A-3B, Zoology 60, Biology 15, social science including courses in American history, institutions and ideals; U.S. Constitution; and California state and local government.

The following courses for a third year in preparation for dentistry are suggested: Chemistry 112, Biology 156, Art 119A, Psychology 106, 107, and additional courses in general education.

### PRELEGAL CURRICULUM

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 special major pattern. Subject to individual variation, the fields of economics, history, and political sci-

ence 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.

#### RECOMMENDED COURSE OF STUDY FOR PRELEGAL CURRICULUM

*Lower division.* Business Administration 1A-1B, Economics 1A-1B, Political Science 1 and 2, and a year course in history. *Upper division:* In the junior and senior years the student will plan his course with the counsel of his adviser in terms of the field of law in which he plans to work, but keeping in mind the entrance requirements and examinations for admission to schools of law. The recommended list below 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.

*Recommended.* Economics 131, 133, 150, 170; History 151A-151B, 175A-175B; Political Science 111A-111B, 139A-139B.

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

### PREMEDICAL CURRICULUM

The completion of entrance requirements for admission to medical colleges requires three years of undergraduate study. However, four years of undergraduate study is usually completed before admission. The premedical student is strongly advised to select a major in a department leading toward an A.B. degree in liberal arts and sciences. This is most readily accomplished by majoring in biology, chemistry, or zoology, although other departmental majors are acceptable. Specific requirements for these majors are described for each department.

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

#### RECOMMENDED COURSE OF STUDY FOR PREMEDICAL CURRICULUM

The following is a list of courses which will satisfy the entrance requirements of most medical colleges. These courses should be included in the program of the premedical student regardless of his selected major. The entrance requirements for medical colleges differ somewhat and specific requirements of the medical school to which the student wishes to apply should be obtained directly from that medical college. For additional information students should consult the premedical adviser on campus.

Courses to be included in the program during the first two undergraduate years: Biology 1 and 2; Chemistry 1A-1B, 4 or 5, and 12; six semester units of English, to include English 3; twelve units of a modern foreign language (German or French); Physics 1A-1B or 2A, 2B, 3A, 3B; Zoology 50.

Courses to be included in the undergraduate program during the third and fourth years: Chemistry 112; Zoology 106, and Biology 155.

The following courses are strongly recommended for inclusion in the undergraduate program: Biology 15, 101, Biology 156; Mathematics 21 and 22.

### PREPARATION FOR OTHER PROFESSIONS

Programs leading to professional study in agriculture, architecture, forestry, optometry, pharmacy, theology, veterinary science, and other areas, may be planned for a student who may wish to take some undergraduate work in liberal arts at this college. Since these professional areas frequently require a complete four-year course of study at the institution granting the degree, preprofessional programs are not provided at San Diego State. If the student wishes to take work at this college, he is advised to consult the catalog of the college to which he expects to transfer to determine requirements before arranging his program. Faculty advisers will assist the student in planning his course of study.



## Preprofessional Programs

### STUDIES IN THE MARINE SCIENCES

No specific degree in Oceanography or in Marine Sciences is offered at San Diego State. The best preparation for work in the oceans is a degree program in a fundamental field, supplemented by marine-related course work and oceanographic experience. Ocean-oriented studies are available in the College of Sciences and in the School of Engineering. Departmental advisers should be consulted by students preparing for work concerned with the sea. Graduate studies with emphasis on marine problems may be undertaken in many existing degree programs; departmental advisers should be consulted. No single department, school, or college has sole responsibility for administering Marine studies because of its multidisciplinary character. The Bureau of Marine Sciences has been established to coordinate marine-oriented activity (see Special Programs and Services section of this catalog.) Certification by the College Diving Control Board is required for all SCUBA diving conducted under the auspices of the College.

## AFROTC PROGRAM

### AIR FORCE RESERVE OFFICERS' TRAINING CORPS

The purpose of AFROTC on college campuses is to prepare selected students for duty as Air Force officers. The Professional Officer Course provides education that will develop skills and attitudes essential to the Air Force officer. Upon completion of the AFROTC program and all requirements for a baccalaureate degree, cadets are commissioned second lieutenants in the Air Force and serve a minimum of four years active duty.

The Division of Aerospace Studies offers a two-year Air Force ROTC curriculum 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 course work 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.

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.

### APPLICATION FOR AFROTC

Any student at San Diego State College, or in any other college, who plans to attend SDSC for at least two years and earn either an undergraduate degree or participate in a post-graduate or graduate program, 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-weeks 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 aircrew 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

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.

### PAY

Cadet retainer pay of \$50 per month is given for twenty months of the AFROTC program. Cadets receive approximately \$135 during the Field Training Unit and are reimbursed for the cost of travel to and from the unit.

### MINOR IN AEROSPACE STUDIES

The minor in aerospace studies consists of 15 to 22 units in aerospace studies, at least six units of which must be in upper division courses.

### COURSES

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







## COURSES AND CURRICULA

### COURSE NUMBERING

Courses numbered from 1 to 99 are lower division (freshman or sophomore) courses; those numbered 100 to 199 are upper division (junior or senior) courses; those numbered 200 to 299 are graduate courses; those numbered 300 to 399 are professional education courses to be taken at the graduate level.

### 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 of 18 weeks.

### PREREQUISITES FOR UNDERGRADUATE COURSES

Prerequisites for each course are stated in the course description. A student must not enroll in a course for which he is not eligible.

### PREREQUISITES FOR GRADUATE COURSES

Graduate level (200-numbered) courses require, as a general prerequisite, competence in the specific 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 Graduate Studies before they may enroll in a graduate level 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 is 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.

X- \_\_\_\_\_ An "X" preceding a course number indicates a course offered in extension only.

Although the college 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 Colleges may not be offered or may be postponed.

## Aerospace Studies

### EXPERIMENTAL TOPICS COURSES

Any department, school, or college may offer courses under the number 99, 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 applicable on a bachelor's degree; of which no more than three units may be applicable to general education requirements. Such courses applicable to the minor or to preparation for the major only by special action of the department.

### GENERAL COLLEGE COURSES

Students interested in enrolling in General College 99 or 199 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 99 and 199 in excess of six units may be counted for credit on a bachelor's degree program.

## AEROSPACE STUDIES

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Professor: Schwab (Chairman)  
Assistant Professors: French, Powers

#### Offered by the Department

ROTC curriculum. (Described in the section on Preprofessional and Nondegree Curricula.)

Minor in Aerospace Studies.

Field Training.

Flight instruction.

### AEROSPACE STUDIES MINOR

The minor in aerospace studies consists of 15 to 22 units in aerospace studies, at least six units of which must be in upper division courses.

#### UPPER DIVISION COURSES

#### 131A-131B. Growth and Development of Aerospace Power (3-3)

Three lectures and one hour of leadership laboratory.

Semester I: The nature of war; development of air power; and Air Force doctrine.

Semester II: Astronautics and space operations; United States space programs.

#### 141A-141B. The Professional Officer (3-3)

Three lectures and one hour of leadership laboratory.

Prerequisites: Air Science 131A and 131B.

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.

#### 151. Flight Instruction (2) I

Available only to qualified senior AFROTC students.

Ground school is provided by the Aerospace Studies Department. Flight instruction is given by a contracted civilian flying school. Students may qualify for the FAA private pilot certificate.

#### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of Aerospace Studies Department chairman.



## Anthropology

### EXTENSION COURSE

#### X-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.

## ANTHROPOLOGY

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Professors: Anderson, Ezell (Chairman), Goldkind, Rogers

Associate Professor: Whitney

Assistant Professors: Greenfield, Himes, Jones, Leach, Lippold, Pendleton, Rohrl, Sharpe, Shutler, Sonek, Staniford, Voorhies, Wagner, Watson.

#### Offered by the Department of Anthropology

Master of Arts degree in anthropology. (See also Master of Arts degree for teaching service in social science. Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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 82 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Anthropology 1A, 1B, and 1C. (9 units.)

**Major.** A minimum of 24 upper division units to include three units selected from Anthropology 102 or Biology 158; three units selected from 103, 170 or 174; six units selected from 152, 162, 171, 175, 177, or 178; six units selected from 150, 154, 156, 165, or 167; three units from 120, 122, or General Language 196; three units of Anthropology 197. (Anthropology 197 should be taken during senior year; 100A or 100B may not be counted in the upper division requirements for graduation.)

### ANTHROPOLOGY MINOR

The minor in anthropology consists of from 15 to 22 units in anthropology, nine units of which must be in upper division courses (except Anthropology 100A-100B).

### LOWER DIVISION COURSES

#### 1A. Introduction to Physical Anthropology (3) I, II

Man's place in nature; fossil evidences of early man; theories of human development; racial variability. Not open to students with credit in Anthropology 100A.

#### 1B. Introduction to Archaeology (3) I, II

May be taken before Anthropology 1A.

Prehistoric cultures of Europe and the Middle East; archaeological techniques; basic inventions and cultural innovations; language and culture. Not open to students with credit in Anthropology 100A.

#### 1C. Introduction to Ethnology (3) I, II

May be taken before Anthropology 1A or 1B.

Man's relationship to his environment; types of preliterate society; systems of family organization, government, and religion. Not open to students with credit in Anthropology 100B.

## Anthropology

#### 4. Archaeological Field Methods (3) I, II

May be taken before Anthropology 1A or 1B.

One lecture and six hours of laboratory.

Application of the methods and techniques of archeology through excavation, laboratory analysis, and preparation of reports. (Formerly numbered Anthropology 173A.)

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental topics on page 129. 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

#### 100A-100B. Principles of Anthropology (3-3)

Anthropology 100A: Human evolution as a biocultural process from the perspectives of human paleontology and prehistory. Anthropology 100B: Systems of cultural cognition, family organization, government, and religion in non-Western societies, comparison with analogous Western institutions. Anthropology 100A is not open to students with credit in Anthropology 1A or 1B. Anthropology 100B is not open to students with credit in 1C. Anthropology 100A-100B may not be used to fulfill minimal upper division requirements in the anthropology major or minor or the special major.

#### 101. Human Paleontology (3) II

Prerequisite: Anthropology 1A or 100A.

Comparative anatomy of fossil man and other primates; evolutionary relationships and cultural associations.

#### 102. Physical Anthropology (3) I

Prerequisite: Anthropology 1A or 100A.

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 medico-legal problems.

#### 103. Principles of Archaeology (3) II

Prerequisite: Anthropology 1B or 100B.

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.

#### 115. Primatology (3) I

Prerequisite: Anthropology 1A or 100A.

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.

#### 120. Introduction to Anthropological Linguistics (3) I

Prerequisite: Anthropology 1A or 1B or 1C or 100A or 100B.

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.

#### 122. Language in Culture (3) II

The full range of anthropological interests in the study of language, and of linguistic interests in the socio-cultural context of language. Designed for students in language and other departments as well as in anthropology.

#### 124. Descriptive Linguistics (3) II

Prerequisite: Anthropology 120.

Principles and techniques of descriptive linguistics. Problems and methods in the phonetic transcription and analysis of unwritten, non-Indo-European languages. Emphasis on articulatory phonetics, field techniques, and work with informants.



## Anthropology

### 149. Kinship and Social Organization (3) I

Prerequisite: Anthropology 1C or 100B.

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.

### 150. Ethnological Field Methods (3) I

Prerequisite: Anthropology 152.

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.

### 151S. Ethnographic Field Research Project (6) S

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.

### 152. World Ethnography (3) I, II

Prerequisite: Anthropology 1C or 100B.

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.

### 153. Primitive Religion (3) II

Prerequisite: Anthropology 1C or 100B.

Beliefs and ritual of primitive man. Magic and religion. Forms of animism and polytheism. Primitive mentality and the supernatural.

### 154. Social Anthropology (3) II

Prerequisite: Anthropology 152.

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.

### 155. Peasant Society and Culture (3) II

Prerequisite: Anthropology 1C or 100B.

The social organization and culture of present-day small agricultural communities with emphasis on changes brought about by modernization.

### 156. Cultural Change and Processes (3) I

Prerequisite: Anthropology 1C or 100B.

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.

### 157. Mesoamerican Ethnohistory (3) II

Prerequisite: Anthropology 1B or 1C or 100B.

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.

### 158. Economic Anthropology (3) II

Prerequisite: Anthropology 1C.

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.

### 159. Cultural Ecology (3) I

Prerequisite: Anthropology 1C.

Examination and comparison of the relationships which exist between the natural environment and the socio-cultural processes in non-literate and peasant communities.

## Anthropology

### 160. Primitive Technology (3) I

Prerequisite: Nine units of anthropology.

Techniques of tool manufacture, subsistence, shelter, clothing and arts and crafts of non-industrial peoples.

### 161. The California Indians (3) I

Prerequisite: Anthropology 1C.

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.

### 162. Cultures of South America (3) II

Prerequisite: Anthropology 1B or 1C or 100B.

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.

### 163. Contemporary Latin American Cultures (3) I

Prerequisite: Anthropology 1C.

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.

### 164. Urban Anthropology (3) I

Prerequisite: Anthropology 1C or 100B.

Cultural roles of urban centers and processes of urbanization in non-Western, non-industrial, societies of past and present. Urban influence on traditional peasant and primitive peoples of Africa, Asia, and Latin America.

### 165. Culture and Personality (3) I, II

Prerequisite: Anthropology 1C or 100B.

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.

### 166. Honors Course I, II (1-3)

Refer to the Honors Program.

### 167. History of Anthropological Theory (3) II

Prerequisite: Anthropology 1A or 1B or 1C or 100A or 100B.

The development of theories which lie behind the modern sciences of ethnology and archaeology. Applications of the theory of culture to field methods and interpretation of findings.

### 168. Evaluative Procedures in Culture and Personality (3) II

Prerequisite: Anthropology 165.

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.

### 169-S. Backgrounds of Mexican Civilization (3) S

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.

### 170. Archaeology of North America (3) I

Prerequisite: Anthropology 1B or 100A.

Origin of the American Indian and survey of the main prehistoric cultures of the North American continent.

### 171. Ethnology of North America (3) II

Prerequisite: Anthropology 1C or 100B.

Native cultures and the role of environmental and historical factors in North America.



## Anthropology

### 172A. Southwestern Prehistory (3) I

Prerequisite: Anthropology 1B or 100A.  
Prehistoric Indian cultures in the American Southwest; ecological adaptations and outside cultural influences.

### 172B. Southwestern Ethnology (3) II

Prerequisite: Anthropology 1C or 100B.  
Indian cultures of the American Southwest in historic times; ecological adaptations, responses to white contact, adaptations to modern American life.

### 173. Advanced Archaeological Field Methods (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Anthropology 4.  
Advanced projects in excavation and stabilization of ruins, archaeological surveys, laboratory analysis and preparation of reports. (Formerly numbered Anthropology 173B.)

### 174. Prehistoric Archaeology of Europe (3) II

Prerequisites: Anthropology 1A and 1B, or 100A and 100B.  
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.

### 175. Cultures of Southeast Asia (3) II

Prerequisite: Anthropology 1C or 100B.  
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.

### 176. Early Near and Middle Eastern Civilizations (3) I

Prerequisite: Anthropology 1B.  
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.

### 177. Cultures of East Asia (3) I

Prerequisite: Anthropology 1C or 100B.  
Peasant and primitive peoples of mainland and insular East Asia. A comparison of cultural traditions, social organization, and social trends in China, Japan, Okinawa, and Korea.

### 178. Cultures of Oceania (3) II

Prerequisites: Anthropology 1C or 100B.  
The aboriginal cultures and people of Melanesia, Australia, Micronesia, and Polynesia in pre-historic, historic, and modern times.

### 179. Applied Anthropology (3) II

Prerequisites: Anthropology 154 and 156, and consent of instructor.  
The application of anthropological concepts to the solution of practical problems of culture change in industry, corporate organization and community development.

### 180. Preclassic Cultures of Mesoamerica (3) II

Prerequisite: Anthropology 1B or 100B.  
The development of civilization in Pre-Columbian Mexico and Central America antecedent to the Tolteca, Classic Maya, and related cultures.

### 181. Classic Pre-Columbian Civilizations of Middle America (3) I

Prerequisite: Anthropology 1B or 100A.  
Aboriginal Mexican and Central American civilizations through the Age of Exploration and Conquest. Aztecs, Mixtecs, Zapotecs, Mayas, and related cultures.

### 182. Post-Conquest Cultures of Middle America (3) II

Prerequisite: Anthropology 1C or 100B.  
Aboriginal and mixed cultures of Mexico and Central America in Colonial and recent epochs. Aftermath of Conquest and exploitation.

## Anthropology

### 183. Archaic Hellenic, Aegean, and Italian Cultures (3) II

Prerequisite: Anthropology 1B or 100A.  
Anthropological foundations of primary civilizations of Greece, the Aegean, and Italy, in their prehistoric phases of development as revealed by archaeological and other sources.

### 184. Archaeology of Sub-Saharan Africa (3) I

Prerequisites: Anthropology 1A and 1B or 100A.  
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.

### 185. Cultures of Sub-Saharan Africa (3) I

Prerequisite: Anthropology 1C or 100B.  
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.

### 186. Cultures of India (3) II

Prerequisite: Anthropology 1C or 100B.  
Indigenous peoples and cultures of India and contiguous areas of South Asia. The development of cultural traditions; social organization; and modern trends.

### 187. Political Anthropology (3) II

Prerequisite: Anthropology 1C or 100B.  
Political processes, institutions, and ideologies in primitive and peasant societies.

### 188A-188B. Archaeological Laboratory Methods (3-3) I, II

Two lectures and three hours of laboratory.  
Prerequisites: Anthropology 173. Anthropology 188A is a prerequisite to 188B.  
Semester I: Application of palynology, paleontology and technologies. Semester II: Practical applications of materials from 188A. Individual laboratory research project required.

### 189. Topics in Arctic Archaeology (3) I

Prerequisites: Anthropology 1B and 103.  
Discussion of selected areas, periods or problems in the context of broad considerations of prehistoric cultural development and human ecology throughout the Arctic and subarctic regions of North America.

### 190. Archaeology of East Asia (3) II

Prerequisite: Anthropology 1B.  
A chronological review of prehistoric cultural development and human ecology in East Asia.

### 197. Investigation and Report (3) I, II

Prerequisite: Consent of instructor.  
Analysis of special topics in anthropology and preparation of reports on the results of the study.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.  
Prerequisite: Consent of instructor.

## GRADUATE COURSES

### 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.

### 201. Seminar in Physical Anthropology (3)

Prerequisites: Anthropology 1A or 100A and twelve 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.



## Anthropology

### 202. Seminar in Archaeology (3)

Prerequisites: Anthropology 1B or 100A and twelve upper division units in anthropology.

History and theory in archaeological data collection, analysis, and interpretation.

### 203. Seminar in Ethnology (3)

Prerequisites: Anthropology 1C or 100B and twelve 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 socio-cultural change.

### 204. Seminar in Linguistics (3)

Prerequisites: Anthropology 120 or 122 and twelve 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.

### 220. Seminar in Regional Anthropology (3)

Prerequisites: 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.

### 221. Seminar in Topical Anthropology (3)

Prerequisites: 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.

### 222. Historical Linguistics (3) I

Prerequisites: Anthropology 120 and 124.

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.

### 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; examination of theories and generalizations regarding the stability and integration of a wide variety of human societies.

### 255. Culture and Society in the Nahua Area (3)

Prerequisites: Anthropology 1B or 1C and twelve upper division units in anthropology.

Concentrated studies of the area and those related to it, based on archaeology, aboriginal records, colonial accounts, and modern studies; various approaches to such studies.

### 256. Cultures and Societies in Southern Mesoamerica and Central America (3)

Prerequisites: Anthropology 1B or 1C and twelve upper division units in anthropology.

Concentrated studies of ancient civilization in areas of higher development, based on archeology, aboriginal records, Colonial accounts, and recent studies; various approaches to such studies.

### 257. Classical Nahuatl (3) I

Prerequisite: Anthropology 1B or 1C and twelve upper division units in anthropology including Anthropology 157, or 180, or 181; reading knowledge of Spanish recommended.

Nahuatl language study and analysis for translation of 16th and 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.

### 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.

### 267. Contemporary Theory in Cultural Anthropology (3)

Prerequisite: Twelve upper division units in anthropology.

Contemporary theoretical developments in cultural anthropology; proposed conceptual frameworks, methodologies, hypotheses, and theories; analysis of recent literature, with evaluation oriented toward significance for research.

### 286. South Asian Society (3) I, II

Prerequisite: Anthropology 186 or substantial background in upper division courses in the social sciences dealing with South Asia.

The structure and dynamics of both rural and urban aspects of contemporary South Asian society and culture. Examination of their constituent elements and processes, e.g., social organization, religion, acculturation, and rural-urban differences.

### 297. Research (3)

Prerequisite: Advancement to candidacy.

Independent investigation in the general field of the thesis.

### 298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

Individual study directed toward the preparation of a paper upon a specific problem. Maximum credit six units applicable on a master's degree.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## ART

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Emeritus: Andrews, Jackson, Ruocco

Professors: Bigelow, Dirks (Chairman), Lingren, Longenecker, Swiggett, Tanzer, Wallace

Associate Professors: Baker, Baxter, Berg, Fisch, Higgins, Hopkins, Rogers

Assistant Professors: Bowne, Childress, Covington, Groover, Hunter, Miller, Moaney, Orth, Papworth, Peterson, Ray, Toyoshima

Lecturer: Hodge

#### Offered by the Department

Master of Arts degree in art; and a Master of Arts degree for teaching service with a concentration in art. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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, with specialization in both elementary and secondary teaching. Teaching majors in fine arts, fine arts and humanities, and fine arts



and social sciences, requiring a concentration in art, are also offered. (See the section of this catalog on the School of Education.)  
Teaching minor in art, with specialization in secondary teaching.

## 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 82 of this catalog.

A 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 1A, 1B, 2A, 2B, 5, 15A, 16A, 17A, 50A, 50B; Philosophy 1A. (31 units.)

**Major.** A minimum of 24 upper division units to include Art 100A, 115A, 116A, 156A, 190; Philosophy 141; and six units selected with the approval of the adviser from: Art 106A-106B, 112A-112B, 116B, 117A-117B, 117C, 120A-120B, 153, 154, 155A, 155B, and 99.

#### EMPHASIS IN ART HISTORY

**Preparation for the major.** Art 50A, 50B, 52A, 52B; Anthropology 1B; French; German or a reading knowledge of either language. (13 units.)

**Major.** A minimum of 24 upper division units to include Art 151, 153, 154, 155A, 155B, 156A, and 157 or 158; 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 76 of this catalog.

The major in art may be planned with an emphasis on art education, 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 ON CRAFTS

**Preparation for the major.** Art 1A, 1B, 2A, 2B, 50A, 50B, 61, and six units of art electives. (25 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 ON GRAPHIC COMMUNICATION

**Preparation for the major.** Art 1A, 1B, 2A, 2B, 14A, 50A, 50B; and six units selected from Art 7, 14B, 15A, 16A, 18A. (25 units.)

**Major.** A minimum of 24 upper division units in art to include Art 114A, 114B-114C, 156A; three additional units of art history; and nine units selected from Art 107, 114D, 191A, 191B, 193A-193B, 194A-194B, 196A-196B, and 197.

#### EMPHASIS ON ENVIRONMENTAL DESIGN

**Preparation for the major.** Art 1A, 1B, 2A, 2B, 8, 13, 33A, 33B, 50A, 50B, 95A. (31 units.) Recommended: Art 14A, 17A, 18A, 19A, 61, 80A.

**Major.** A minimum of 24 upper division units in art to include Art 156A; three additional units of art history; and 18 units selected from 135A-135B, 156B, 195A, 195B, 195C, 195D; and three units of electives.

#### EMPHASIS ON PAINTING AND PRINTMAKING

**Preparation for the major.** Art 1A, 1B, 2A, 2B, 50A, 50B; and nine units selected from Art 15A-15B, 16A, 16B. (25 units.)

**Major.** A minimum of 24 upper division units in art to include Art 156A; three additional units of art history; and 18 units selected in consultation with the adviser from Art 100A, 100B, 106A-106B, 112A-112B, 115A-115B-115C-115D, 116A-116B, 116C-116D, 118A-118B, 120A-120B, 126A, 126B, 136A, 136B.

#### EMPHASIS ON SCULPTURE

**Preparation for the major.** Art 1A, 1B, 2A, 2B, 17A-17B, 50A, 50B; and three units selected from Art 13, 15A, 16A, 19A, 61, 70, 80A. (25 units.)

**Major.** A minimum of 24 upper division units to include Art 117A or 127, 117B, 117C, 156A, 198; three additional units of art history; and six units selected from 100A, 113A, 115A, 116A, 170A.

#### EMPHASIS ON ART EDUCATION

(For students in Teacher Education)

This emphasis is available only to students who have been admitted to and continue in Teacher Education to time of graduation.

#### ELEMENTARY TEACHING

**Preparation for the major.** Art 1A, 1B, 2A, 2B, 50A, 50B, 61; and six units of art electives. (25 units.)

**Major.** A minimum of 24 upper division units in art to include 15 units selected from one emphasis area in consultation with the art education adviser; Art 105 or 175; 156A, and three units of art history.

#### SECONDARY TEACHING

**Preparation for the major.** Art 1A, 1B, 2A, 2B, 50A, 50B, 61; and six units of electives. (25 units.)

**Major.** A minimum of 24 upper division units in art to include Art 156A; three units of art history; and eighteen units from Group I or Group II in consultation with the art education adviser.

Group I. Fifteen units of one major emphasis area, including Art 175 and three units of one other major emphasis area. (18 units.)

Group II. Six units of drawing and painting; six units of crafts or sculpture; and three units of graphic communication or environmental design; and Art 175. (18 units.)

## ART MINOR

The minor in art consists of from 15 to 22 units in art, six units of which must be in upper division courses.

## ART MAJOR

### FOR THE STANDARD 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.

#### Specialization in Elementary Teaching

Requirements are the same as the requirements for the degree with an emphasis in art education for elementary teaching as outlined above.



**Specialization in Secondary Teaching**

Requirements are the same as the requirements for the degree with an emphasis in art education for secondary teaching as outlined above. In addition, students must complete, in their postgraduate year, a minimum of six units of upper division or graduate art electives including Art 222.

**ART MINOR****FOR THE STANDARD TEACHING CREDENTIAL****Specialization in Secondary Teaching**

The teaching minor in art for secondary teaching consists of the following: In the lower division, Art 1A, 1B, 2A, 2B, 50A, 50B; and in the upper division twelve units in one emphasis area including Art 156A. (28 units.)

The Department of Art reserves the right to retain for a limited period some of each student's work for purposes of exhibition and reference.

**LOWER DIVISION COURSES****1A. Drawing and Composition (3) I, II**

Six hours.

The ordering of two-dimensional space through drawing.

**1B. Drawing and Composition (3) I, II**

Six hours. Prerequisite: Art 1A.

Drawing of mechanical and natural forms by the use of line and value. Emphasis on proportion and structure. Some quick sketching, gesture and contour drawing.

**2A. Design and Aesthetics (3) I, II**

One lecture and six hours of laboratory.

Fundamentals of space and color design. Basic course used as a prerequisite for advanced work. Not open to students with credit in Art 6A or 9.

**2B. Design and Aesthetics (3) I, II**

One lecture and six hours of laboratory.

Prerequisite: Art 2A.

Continuation of Art 2A. Original work in creative design including projects in three dimensions. Not open to students with credit in Art 6B or 10.

**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.

**7. Visual Design (3) I, II**

Six hours.

Prerequisites: Art 2B and 14A.

The organizational concepts of design applied to environmental graphics and merchandising display.

**8. The House and Its Environment (3) I, II**

Architecture, interior design, landscape and city planning for forming man's physical and aesthetic environment.

**13. Furniture Design (3) I, II**

Six hours.

Prerequisite: Art 2A. Recommended: Industrial Arts 5.

Study of the principles of design through the making of furniture.

**14A. Beginning Graphic Communication (3) I, II**

Six hours.

Prerequisites: Art 1A and 2B.

Creative projects exploring the inter-relation of fundamental art principles and design using phonetic symbols and typography.

**14B. Intermediate Graphic Communication (3) I, II**

Six hours.

Prerequisite: Art 14A.

Typographic and design concepts applied to layout for contemporary media.

**15A-15B. Life Drawing (3-3) I, II**

Six hours.

Prerequisite: Art 1B. Art 15A is prerequisite to 15B.

Drawing from the nude model.

**16A. Painting (3) I, II**

Six hours.

Prerequisite: Art 1B.

Pictorial composition and techniques of painting.

**16B. Oil Painting (3) I, II**

Six hours.

Prerequisite: Art 16A.

Landscape and more advanced composition in color.

**17A-17B. Sculpture (3-3) I, II**

Six hours.

Prerequisite: Art 2B. Recommended: Industrial Arts 5. Art 17A is prerequisite to 17B.

Three dimensional design using varied materials.

**18A-18B. Watercolor Painting (3-3) I, II**

Six hours.

Prerequisites: Art 1A and 1B. Art 18A is prerequisite to 18B.

Composition of still-life and landscape in watercolor.

**19A. Ceramics (3) I, II**

Six hours.

Prerequisite: Art 2A.

Design and construction of hand-built ceramic forms.

**19B. Ceramics (3) I, II**

Six hours.

Prerequisite: Art 19A.

Continuation of Art 19A. Introduction to use of the potter's wheel and application of glaze for surface enrichment.

**27. Life Modeling-Sculpture (3) I, II**

Prerequisite: Art 17A.

Creative experimentation with sculptural forms from the human figure.

**33A-33B. Visual Presentation (3-3) I, II**

Six hours.

Prerequisites: Art 1B, 2A; 33A is prerequisite to 33B, and Art 18A recommended. Methods, materials, and tools of the professional environmental designer stressing art principles. (Formerly numbered Art 133A and 133B.)

**50A. Appreciation and History of Art (2) I, II**

Art development in painting, sculpture, architecture, and handicrafts from the dawn of art to the Renaissance. Illustrated.

**50B. Appreciation and History of Art (2) I, II**

The period from the Renaissance through the modern school treated in the same manner as in 50A.

**52A. Survey of Japanese Art (3) II**

A study of the arts of Japan.

**52B. Survey of Chinese Art (3) I**

A study of the arts of China.



## Art

- 61. Design in Crafts (3) I, II**  
Six hours.  
Prerequisite: Art 2A.  
Visual and structural form in crafts.
- 70. Beginning Jewelry Design (3) I, II**  
Six hours.  
Prerequisites: Art 2B and 61.  
Design and fashioning of jewelry.
- 80A-80B. Weaving (3-3) I, II**  
Six hours.  
Prerequisite: Art 61. Art 80A is prerequisite to 80B.  
Structure and design of woven fabrics.
- 94A-94B. Fashion Imagery (3-3) I, II**  
Six hours.  
Prerequisite: Art 2A. Art 94A is prerequisite to 94B.  
Design of original contemporary costumes and the drawing of the fashion image.
- 95A. The Contemporary House (3) I, II**  
Six hours.  
Prerequisites: Art 1A, 2A, and 8.  
Elementary problems in neighborhood planning, house design, interior design and landscaping.
- 95B. General Interior Design Theory (3) I, II**  
Six hours.  
Prerequisite: Art 95A.  
Concepts of space in architecture, landscape and interior design. Relationship of furniture, fabrics, light, color and art.
- 99. Experimental Topics (2-4)**  
Refer to the catalog statement on Experimental Topics on page 129. 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

- 100A. Advanced Drawing (3) I, II**  
Six hours.  
Prerequisites: Art 15A and 16A.  
Drawing with color wherein an objective attitude is taken toward the qualitative aspect of visual subject matter. Objects are studied and represented as visual stimuli rather than as stereotypes.
- 100B. Advanced Drawing (3) I, II**  
Six hours.  
Prerequisite: Art 100A.  
Drawing with color wherein objects are represented in such a manner as to include kinaesthetic responses. Aesthetic organization of materials is stressed.
- 105. Classroom Environmental Design (3) I, II**  
Six hours.  
Development of an understanding for aesthetic environmental concepts as related to the classroom.
- 106A-106B. Printmaking (3-3) I, II**  
Six hours.  
Prerequisite: Art 15A; 106A is prerequisite to 106B. Woodcut, wood engraving, gesso cut and linoleum.

## Art

- 107. Contemporary Environmental Graphics (3) I, II**  
Six hours.  
Prerequisites: Arts 2A. Art 2B and 14A are recommended.  
Study of creative design for contemporary architectural and motivational graphics.
- 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 8.
- 110. Advanced Crafts in the Elementary Schools (3) I, II**  
Six hours.  
Prerequisite: Art 2A.  
An advanced design-craft course in which the activities, materials and tools employed are appropriate for the elementary grades. Not open to students with credit in Art 61.
- 111A-111B. Industrial Design (3-3) I, II**  
Six hours.  
Prerequisites: Art 1A and 2B. Art 111A is prerequisite to 111B.  
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 in perspective and scale models.
- 112A-112B. Design and Composition (3-3) I, II**  
Six hours.  
Prerequisites: Art 1A, 1B, 2B, and 16A. Art 112A is prerequisite to 112B.  
Structure in picture making. The controlled use of line, value, color, and texture to organize the effect of depth, movement, volume, etc., in the recognizable image. Oil technique.
- 113A-113B. Advanced Furniture Design (3-3) I, II**  
Six hours. Total credit in Art 13, 113A, 113B, 113C, and 113D limited to eight units.  
Prerequisite: Art 13. Recommended: Industrial Arts 5. Art 113A is prerequisite to 113B.  
Principles of design through the making of furniture.
- 113C-113D. Advanced Furniture Design (3-3) I, II**  
Six hours. Total credit in Art 13, 113A, 113B, 113C, and 113D limited to eight units.  
Prerequisite: Art 113B. Art 113C is prerequisite to 113D.  
Advanced individual design; exploration of materials, process and function.
- 114A. Graphic Communication (3) I, II**  
Six hours.  
Prerequisite: Art 14B.  
Investigation of design concepts relating to advertising.
- 114B-114C. Advanced Graphic Communication (3-3) I, II**  
Six hours.  
Prerequisites: Art 114A. Art 114B is prerequisite to 114C.  
The relation of art structure and the aspects of visual communication.
- 114D. Problems in Graphic Communication (3) I, II**  
Six hours.  
Prerequisite: Art 114C.  
Refinement of personally developed design concepts for visual communication with emphasis on individually directed solutions. The development of a portfolio of professional quality. Maximum of six units selected from 114 series applicable on a master's degree.



## Art

- 115A-115B-115C-115D. Life Drawing and Painting (3-3-3-3) I, II**  
Six hours.  
Prerequisites: Art 15A and 16A. Art 115A is prerequisite to 115B; 115B to 115C; 115C to 115D.  
Drawing and painting from nude and costumed models.
- 116A-116B. Advanced Painting (3-3) I, II**  
Six hours.  
Prerequisite: Art 16A or 16B. Art 116A is prerequisite to 116B.  
Pictorial composition.
- 116C-116D. Advanced Painting (3-3) I, II**  
Six hours.  
Prerequisite: Art 116B. Art 116C is prerequisite to 116D.  
The influence of art media and picture plane on aesthetic organization in representational painting.
- 117A-117B. Advanced Sculpture (3-3) I, II**  
Six hours.  
Prerequisites: Art 2B and 17A or 17B. Art 117A is prerequisite to 117B.  
Creative design in diverse materials. Maximum of six units selected from 117 series applicable on a master's degree.
- 117C. Advanced Sculpture (3) I, II**  
Six hours.  
Prerequisite: Art 117B.  
The influence of art media and tools on aesthetic organization in sculpture in relief and in the round.
- 118A-118B. Advanced Watercolor Painting (3-3) I, II**  
Six hours.  
Prerequisite: Art 18B. Art 118A is prerequisite to 118B.  
Composition of still life and landscape in watercolor.
- 119A. Ceramics (3) I, II**  
Six hours.  
Prerequisite: Art 19B.  
Basic methods of forming, decorating, glazing and firing pottery forms with emphasis on the use of the potter's wheel.
- 119B. Ceramics (3) I, II**  
Six hours.  
Prerequisite: Art 119A.  
Continuation of Art 119A. Further development of knowledge, skills and philosophy of ceramics through individual creative projects.
- 119C. Ceramics (3) I, II**  
Six hours.  
Prerequisite: Art 119B.  
Continuation of Art 119B with advanced creative projects.
- 119D. Advanced Ceramics (3) I, II**  
Six hours.  
Prerequisites: Art 119C.  
Study of ceramic design through creative projects of clay forms.
- 120A-120B. Advanced Design (3-3) I, II**  
Six hours.  
Prerequisites: Art 1B and 2B. Art 120A is prerequisite to 120B.  
Advanced work in pure design, two and three dimensional. Re-examination of color theory and design principles.

## Art

- 126A. Intaglio Printmaking (3) I, II**  
Six hours.  
Prerequisites: Art 2A and 15A. Art 100A and 115A are recommended.  
Creative intaglio—etching, drypoint, aquatint, engraving and variations. Emphasis on fine print quality and technical development.
- 126B. Intaglio Printmaking (3) I, II**  
Six hours.  
Prerequisite: Art 126A.  
Advanced creative intaglio. Emphasis on fine print quality and the color process.
- 127. Advanced Figurative Sculpture (3) I, II**  
Six hours.  
Prerequisites: Art 17A and 27.  
Figurative study with emphasis on individual exploration.
- 129A-129B. History of Ceramics (3-3) I, II**  
Prerequisite: Art 129A is prerequisite to 129B.  
Philosophical approaches to design of pottery and techniques as related to contemporary ceramics. Field trips.
- 135A-135B-135C. History and Theory of Environmental Design (3-3-3) I, II**  
Prerequisites: Art 50A, 50B; Art 135A is prerequisite to 135B and 135B to 135C.  
Environmental arts. Semester I: From earliest times to the 15th Century. Semester II: 15th to the 19th Century. Semester III: 19th and 20th Centuries.
- 136A. Lithography Printmaking (3) I, II**  
Six hours.  
Prerequisites: Art 2A, 15A. Art 100A and 115A are recommended.  
Creative lithography—stone and plate planographic process. Emphasis upon fine print quality and technical development.
- 136B. Lithography Printmaking (3)**  
Six hours.  
Prerequisite: Art 136A.  
Advanced creative lithography—emphasis upon the color process and fine print quality.
- 151. Art of Middle America (3) Irregular**  
Middle American art from earliest time to the present (Formerly numbered 51.)
- 152A. The Art of India and Southeast Asia (3) Irregular**  
Prerequisites: Art 50A and 50B.  
History of the art, architecture, and sculpture of India and Southeast Asia.
- 152B. The Art of Persia and the Islamic World (3) Irregular**  
Prerequisites: Art 50A and 50B.  
History of the art, architecture, sculpture and minor arts of Persia and the Islamic World.
- 153. Ancient Art (3) I**  
Prerequisites: Art 50A and 50B.  
Development of painting, sculpture, architecture and crafts from prehistoric times to the fall of Rome.
- 154. Medieval Art (3) II**  
Prerequisites: Art 50A and 50B.  
Development of painting, sculpture and architecture from the time of Constantine through the Gothic period.
- 155A. Renaissance Art (3) I**  
Prerequisites: Art 50A and 50B.  
Architecture, sculpture and painting of the Renaissance.
- 155B. Baroque and Rococo Art (3) II**  
Prerequisite: Art 155A.  
Architecture, sculpture and painting of the Baroque and Rococo periods.



**156A. History of Modern Art (3) I, II**

Prerequisites: Art 50A and 50B.

Development of painting, sculpture, and architecture from the French Revolution to the 20th century.

**156B. Contemporary Art (3) Irregular**

Prerequisite: Art 156A.

Current movements in sculpture, painting, graphics, and architecture.

**157. The History of American Art (3) Irregular**

Prerequisites: Art 50A and 50B.

Development of painting, sculpture, and architecture from Colonial times to the present.

**158. Art of Primitive Peoples (3) Irregular**

Prerequisites: Art 50A and 50B.

Arts of primitive peoples of Africa, South Seas, and the North American Indians and their influence upon the art of the twentieth century.

**160. The History of Architecture (3) Irregular**

Prerequisites: Art 50A and 50B, or Art 5.

Architecture from primitive times to the present.

**161A-161B-161C-161D. Design in Enamels (3-3-3-3) I, II**

Six hours.

Prerequisite: Art 61; Art 161A is prerequisite to 161B, 161B to 161C, 161C to 161D.

Design and production of vitreous enamels. Maximum credit four units applicable on a master's degree.

**164. History of Costume (3) Irregular**

Prerequisites: Art 50A and 50B.

The historic origins of costume traced through aesthetic, social and political influences dominant during each period.

**166. Honors Course (1-3) I, II**

Refer to the Honors Program.

**170A. Beginning Jewelry Design (3) I, II**

Six hours.

Prerequisites: Art 2B and 61.

Design and fashioning of jewelry. Not open to students with credit in Art 70.

**170B. Jewelry and Metalwork (3) I, II**

Six hours.

Prerequisites: Art 70 or 170A.

Design and production of jewelry and hollow ware.

**170C-170D. Jewelry and Metalwork (3-3) I, II**

Six hours.

Prerequisite: Art 170C is prerequisite to 170D.

Advanced individual problems in jewelry.

**175. Problems in Art for Teachers (3) I, II**

Six hours.

Art principles and materials as related to teaching situations.

**180A-180B. Advanced Weaving (3-3) I, II**

Six hours. Total credit in Art 80A, 80B, 180A, 180B, 180C, and 180D limited to eight units.

Prerequisites: Art 80A and 80B. Art 180A is prerequisite to 180B.

Advanced problems in fabric design and weave construction including tapestry and rug weaving techniques.

**180C-180D. Advanced Weaving (3-3) I, II**

Six hours. Total credit in Art 80A, 80B, 180A, 180B, 180C, and 180D limited to eight units.

Prerequisite: Art 180B. Art 180C is prerequisite to 180D.

Advanced individual problems in weaving.

**181. Non Woven Textile Construction (3) I, II**

Six hours.

Prerequisites: Art 2B and 61.

Textile structures with an emphasis on non loom techniques.

**190. Principles and Elements of Visual Aesthetic Organization (3)**

Three hours.

Prerequisites: Senior standing and Art 5.

Visual aesthetic materials and the psychological principles involved in aesthetic organization.

**191A. Gallery Exhibition Design (3) I, II**

Six hours.

Prerequisite: 14 units of art.

Fundamental art elements and principles applied to the theories and techniques of gallery exhibition design.

**191B. Gallery Exhibition Design (3) I, II**

Six hours.

Prerequisite: Art 191A.

Advanced problems in the theories and techniques of gallery exhibition design.

**193A-193B. Drawing and Illustration for Graphic Communication (3-3) I**

Six hours.

Prerequisites: Art 1B, 2A, 115A. Art 193A is prerequisite to 193B.

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.

**194A-194B. Advanced Fashion Imagery (3-3) I, II**

Six hours.

Prerequisite: Art 94B is recommended. Art 194A is prerequisite to 194B.

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.

**195A. Interior Design (3) I, II**

Six hours.

Prerequisites: Art 95A and 95B.

Survey, analysis and design methods concerning problems of interior design of moderate scope, stressing the visual concept as part of the total planning process.

**195B. Environmental Design (3) I, II**

Six hours.

Prerequisite: Art 195A.

Survey, analysis and design synthesis of problems of more complexity, through interiors, to landscape, to architectural planning, and finally concern for city design.

**195C. Economics of Interior Design (3) I, II**

Six hours.

Prerequisite: Art 195B.

Techniques and analyses of specification writing, supervision and budget studies of interior design and its application to various projects.

**195D. Advanced Interior Design (3) I, II**

Six hours.

Prerequisite: Art 195C.

The complete conception and execution of all stages of a full-scale interior design project.



## Art

### 196A-196B. Visual Communication Media (3-3) I, II

Six hours.

Prerequisite: Art 14B. Art 196A is prerequisite to 196B.

Experimental, creative and practical exploration of contemporary communication as related to magazine and editorial layout. Production of a student designed limited edition.

### 197. Exploration in Visual Imagery (3)

Six hours.

Prerequisite: 14 units of art.

Investigation of experimental and technical reproductive media.

### 198. Senior Project (3) I, II

Prerequisite: Consent of instructor.

Investigation in art. Formal presentation of project.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of the instructor.

## GRADUATE COURSES

### 206A-206B. Creative Printmaking (1-3)

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.

### 214. Creative Graphic Communication (1-3)

Prerequisite: Art 114D.

Advanced individual study in graphic design. Maximum credit six units applicable on a master's degree.

### 216A-216B. Creative Painting (1-3)

Prerequisites: Art 112A, 112B, 116A, and 116B.

Aesthetic organization of selected visual subject matter in the medium of colors in oils. Maximum credit six units applicable on a master's degree.

### 217A-217B. Creative Sculpture (1-3)

Prerequisites: Art 117A, B, C, and D.

Aesthetic organization of selected subject matter in the media of sculpture. Maximum credit six units applicable on a master's degree.

### 219A-219B. Creative Crafts (1-3)

Prerequisites: 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.

### 222. Art Education Colloquium (3)

Prerequisite: Minimum of 14 units of upper division art.

Historic and current art education philosophies.

### 270. Seminar in Jewelry and Metalwork (3) I, II

Prerequisite: Art 170A.

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.

### 280. Seminar in Textile Design (3) I, II

Prerequisite: Art 180A.

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.

### 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.

## Astronomy

### 291. Seminar in Creative Art (3)

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 291 is 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

### 292A-292B. Seminar in Art History (3-3)

Prerequisites: Art 50A and 50B.

Study of the development of art styles in selected historical periods.

### 294A-294B. Seminar in the Principles of Design in the Space Arts (3-3)

Prerequisite: A semester course in art appreciation.

Study of the activity of creative expression and aesthetic appreciation in the area of visual experience. The aesthetic analysis of original works of art.

### 295. Creative Environmental Design (1-6) I, II

Prerequisite: Six units of upper division work 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.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of the staff; to be arranged with department chairman and the instructor.

### 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## ASTRONOMY

### IN THE COLLEGE OF SCIENCES

#### Faculty

Emeritus: Huffer, Smith, C.E.

Professors: Nelson (Chairman), Schopp

Associate Professor: Daub

Assistant Professors: Angione, Talbert, Young

#### Offered by the Department of Astronomy

Master of Science degree in astronomy. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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 82 of this catalog.

**Preparation for the major.** Astronomy 1, 9; and Physics 4A-4B-4C (16 units).

**Major.** A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B; and Physics 101, 105, 112, and three additional units of upper division physics. Recommended: Astronomy 170; Physics 103, 106, 110, 175, 190.



## Astronomy

**Minor in Mathematics.** Students majoring in astronomy must complete a minor in mathematics to include Mathematics 50, 51, 52 and either 118A-118B or 119, and three additional units of upper division mathematics. Recommended: Mathematics 135A, 135B, 175; Engineering 188.

### 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 listed on page 78 of this catalog.

**Preparation for the major.** Astronomy 1, 9; Physics 4A-4B-4C (16 units).

**Major.** A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B, 198A-198B; and Physics 101, 105, 112. Recommended: Astronomy 103, 180; Physics 103, 106, 110, 175, 190.

**Minor in Mathematics.** Students majoring in astronomy must complete a minor in mathematics, to include Mathematics 50, 51, 52, and either 118A-118B or 119, and three additional units of upper division mathematics. Recommended: Mathematics 7, 140A, 140B, Engineering 188.

### ASTRONOMY MINOR

The minor in astronomy consists of from 15 to 22 units in astronomy, nine units of which must be in upper division courses.

#### LOWER DIVISION COURSES

##### 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. Not open to students with credit in Astronomy 50.

##### 9. Practice in Observing (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Astronomy 1 or 50.

A course designed to supplement Astronomy 1. The course will include constellation study, use of astronomical co-ordinates, and descriptive observations of celestial objects with telescope.

##### 10. Advanced Observational Astronomy (1) II

Three hours of laboratory.

Prerequisite: Astronomy 9.

A continuation of Astronomy 9. More advanced problems in observing will be taken up such as the determination of latitude by observations of Polaris, transit observations, astronomical photography, etc.

##### 12. Elementary Navigation (3) I

Three hours of laboratory.

Recommended prerequisites: Astronomy 1 and 9.

Compass corrections, time, line of position, use of celestial co-ordinates, tables such as H.O. 214 for the solution of astronomical triangles, etc.

##### 30A-30B. Survey of Literature in Astronomy (1-1) I, II

Prerequisite: Astronomy 1.

Readings in current developments in astronomy; primarily for astronomy majors.

##### 50. Physics of the Solar System (3) I

Prerequisites: Credit or concurrent registration in Mathematics 50 and Physics 4A.

A mathematical treatment of the structure and composition of the Solar System. The physical nature of the sun, planets, satellites, comets, and meteors. Not open to students with credit in Astronomy 1.

## Astronomy

##### 51. Physics of the Stellar System (3) II

Prerequisites: Mathematics 50 and Physics 4A.

Application of mathematical and physical principles to stellar astronomy and the universe.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

##### 103. Astronomical Optics (3) II

Two lectures and three hours of laboratory.

Prerequisites: Astronomy 50, or Physics 4C, or Physics 2B and 3B.

Theory and applications of optical instruments used in astronomy. In the laboratory the students are required to complete an approved project in optical instrumentation.

##### 104A-104B. Advanced Astronomy (3-3)

Prerequisites: Astronomy 1 and 9 and credit or concurrent registration in both Mathematics 51 and Physics 4C.

Problems in practical astronomy, such as atmospheric refraction, proper motion, photographic and photoelectric photometry, solar system astrophysics, and stellar dynamics.

##### 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, etc.

##### 107. Method of Least Squares and Computing Practices (3) I

Prerequisite: Mathematics 52.

Fundamental principles with applications in the fields of astronomy, physics, and engineering.

##### 112A-112B. Astrophysics (3-3)

Prerequisites: Physics 4C and Astronomy 1. Astronomy 112A is prerequisite to 112B.

An application of modern physics to a study of the sun and the stellar system. A large part of this course will deal with the application of spectroscopy to the study of celestial objects.

##### 113. Surveyor's Course in Practical Astronomy (3) II

Two lectures and three hours of laboratory.

Prerequisite: Engineering 2 or consent of instructor. Astronomy 50 and 9 desirable.

The principles of spherical astronomy adapted to the needs of engineering students. Computation and observation.

##### 150. Introduction to Variable Stars and Peculiar Stars (3) II

Prerequisite: Astronomy 104A or 112A.

A study of variable stars: classification, periods, relation to other stars, methods of observation, and results; also a study of stars with unusual features in their spectra.

##### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

##### 170. Astrophysical Spectroscopy (3)

Prerequisite: Mathematics 52 and credit or concurrent registration in Astronomy 112A.

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.



## Astronomy

### 180. Celestial Mechanics (3) I, II

Prerequisite: Mathematics 52.

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.

### 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 material for a total of six units, upon approval of instructor.

### 198A. Senior Project (1) I

One lecture-discussion period.

Prerequisite: An acceptable master plan for graduation within one year.

Consists of the selection and design of individual projects; oral and written progress reports.

### 198B. Senior Project (2) II

Six hours of laboratory.

Prerequisite: Astronomy 198A.

Laboratory work, progress reports, oral and written reports.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisites: Three units in astronomy and consent of instructor.

## GRADUATE COURSES

### 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.

### 210. Binary Stars (3)

Prerequisite: Astronomy 112B.

An intensive study of visual, spectroscopic, and eclipsing binaries, including the determination of orbits.

### 220. Galactic and Extragalactic Structure (3)

Prerequisite: Astronomy 112B.

Types, movements and characteristics of stars in the galaxy and a similar study of extragalactic structure.

### 230. Stellar Interiors (3)

Prerequisite: Astronomy 112B.

Structure of the interior of stars including the details of the reactions by which energy is obtained and the evolution of stars.

### 240. Interstellar Matter (3)

Prerequisites: Mathematics 119, Astronomy 112B.

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.

### 250. Stellar Atmospheres (3)

Prerequisites: Astronomy 112A, and Physics 101 and 112.

Emission and absorption of radiation, continuous spectra, spectral lines, model stellar atmosphere calculations, and non-L.T.E. problems.

### 280. Orbit Theory and Computation (3)

Prerequisite: Astronomy 180.

A study of the derivation of the methods of determining orbits of comets, asteroids, and planets. The computation of an orbit will be required.

## Biology

### 297. Research (1-3)

Research in one of the fields of astronomy. Maximum credit six units applicable on a master's degree.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## BIOLOGY

### IN THE COLLEGE OF SCIENCES

#### Faculty

Emeritus: Johnson, Myrtle E.

Professors: Baer, Brandt, Cox, Farris, Hazen, Johnson, McBlair, Neel (Chairman), Ratty, Shepard, Sloan, Taylor

Associate Professors: Awbrey, Brookes, Collier, B., Ford, Miller, Parsons, Rinehart, Schapiro

Assistant Professors: Clark, Darby, Daugherty, Davis, Diehl, Ebert, Futch, Kleinbergs, Melchoir, Raidt, Thwaites, Timin, Zedler, P.

#### Offered by the Department

Doctor of Philosophy degree in genetics, offered jointly with the University of California, Berkeley, and a Doctor of Philosophy degree in ecology, offered jointly with the University of California, Riverside. (Described in the Graduate Bulletin. Also refer to the section of this catalog on the Graduate Division.)  
Master of Arts or Master of Science degree in biology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

Teaching minor in biology, with specialization in both elementary and secondary teaching.

#### BIOLOGY CURRICULA

The faculty looks at biological systems in an analytical, quantitative manner and hence encourages biology majors to develop competence in the physical sciences and mathematics. Courses are designed to present current concepts in areas such as cell and comparative physiology; radiation biology; developmental biology; cell and population genetics; population, community, and environmental 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 82 of this catalog. Students must choose French, German, or Russian to meet the foreign language requirement for graduation.

A minor is not required with this major.



## Biology

**Preparation for the major.** Biology 1, 2, and 15; Chemistry 1A-1B and 11 or 12; Mathematics 21 and 22; Physics 1A-1B or 2A-2B and 3A-3B. (35 or 37 units.)

**Major.** A minimum of 24 upper division units to include Biology 101, 110, and 155 (to be taken in the junior year); an advanced course in the biological sciences for which Biology 101, 110 or 155 is prerequisite; Biology 190, 191 or 195; and electives from natural science selected with the approval of the adviser.

### 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 78 of this catalog. In addition, students must complete twelve units of a single foreign language (chosen from French 1, 2, and 3 or 8A-8B; or German 1, 2, and 3 or 8A-8B; or Russian 1, 2, and 3 or 8A-8B), 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.

**Preparation for the major.** Biology 1, 2, and 15; Chemistry 1A-1B and 11 or 12; Mathematics 21 and 22; Physics 1A-1B or 2A-2B and 3A-3B or Physics 4A-4B-4C. (35-43 units.)

**Major.** A minimum of 24 upper division units to include Biology 101, 110, and 155 (to be taken in the junior year); an advanced course in the biological sciences for which Biology 101, 110 or 155 is prerequisite; Biology 190, 191 or 195; and electives from natural science selected with the approval of the adviser.

### 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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Biology 1, 2, and 15; Chemistry 1A-1B and 11 or 12; Mathematics 21 and 22; Physics 1A-1B or 2A-2B and 3A-3B or Physics 4A-4B-4C. (35-43 units.)

**Major.** A minimum of 36 upper division units to include Biology 101, 110, and 155 (to be taken in the junior year); an advanced course in the biological sciences for which Biology 101, 110 or 155 is prerequisite; Biology 190, 191 or 195; and electives from natural science selected with the approval of the adviser.

### BIOLOGY MINOR

The minor in biology consists of 16-22 units in biological sciences to include Biology 1 and 2, and a minimum of nine upper division units in biological sciences selected with approval of the biology adviser.

### BIOLOGICAL SCIENCES MAJOR

#### FOR THE STANDARD TEACHING CREDENTIAL

##### Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the Life Science Division adviser for biological sciences teaching programs.

**Postgraduate Year.** A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences and/or the teaching minor. Courses must have approval of the adviser for biology teaching programs.

### BIOLOGY MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

##### Specialization in Elementary Teaching

The minor in biology for elementary teaching consists of Chemistry 1A-1B or 2A-2B plus at least 20 units in the biological sciences to include Biology 1 and 2. Electives in the biological sciences must be chosen in consultation with the departmental adviser for teaching programs.

##### Specialization in Secondary Teaching

The minor in biology for secondary teaching consists of Chemistry 1A-1B, and 11 or 12, plus at least 20 units in the biological sciences to include, in the lower division, Biology 1, 2, and 15; in the upper division, Biology 101, 110, and 155.

#### HIGH SCHOOL PREPARATION

Students in high school planning to enter any of the biological sciences should include in the high school program the following subjects: Elementary algebra, plane geometry, intermediate algebra, trigonometry, biology, chemistry, and physics. Three years of French, German or Russian are recommended.

#### LOWER DIVISION COURSES

##### 1. General Biology (3) I, II

Prerequisites: None; concurrent registration in Biology 2 recommended.

A beginning course in biology stressing processes common to living organisms.

##### 2. General Biology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 1.

A laboratory course in biology stressing processes common to living organisms.

##### 4. Natural History of Plants and Animals (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Biology 1.

An introduction to plants and animals in relation to their environments and to one another, with emphasis on local forms and their habitats.

##### 9. Human Physiology (5) I, II

Three lectures and six hours of laboratory.

Prerequisites: Zoology 8 or 60; Chemistry 2A-2B.

Functions of the human body; emphasis on the circulatory, muscular, and nervous systems. Not open for credit to students with credit for Biology 22.

##### 15. Introduction to Quantitative Biology (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Biology 1, 2, and Mathematics 21.

Methods and experience in defining and solving quantitative problems in biology, including the design of experiments, and parametric and nonparametric statistical techniques.

##### 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.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

##### 101. Cellular Physiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; Chemistry 1A, 1B, and 11 or 12; Physics 2A, 2B, 3A, 3B or 4A-4B-4C.

Physiological processes at the cellular level.



## Biology

### 103. General Cytology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; and Chemistry 1A and 1B.

The structure and function of cells and cell inclusions of plants and animals, including the chemical and physical properties of protoplasm and cytological methods.

### 109. Regional Field Studies in Biology (1-3)

One- to three-week periods during vacations and summer sessions.

Prerequisites: At least 12 units in the biological sciences, including Biology 1 and 2, and consent of instructor.

Extended field studies of the flora, fauna, and biotic communities of major natural regions of western North America. May be repeated with new content to a maximum of six units.

### 110. Ecology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; and Chemistry 1A and 1B.

Relationships between organisms and the environment; field study in local marine, fresh water, mountain, chaparral, and desert habitats.

### 111. Aquatic Biology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; and Chemistry 1A and 1B.

Biological, chemical and physical considerations of inland waters.

### 112. Fisheries Biology (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Biology 110.

Fisheries of commercial importance. The dynamics of exploited populations.

### 113. Biological Oceanography (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 110, Zoology 50, Chemistry 1B, Physics 2.

Ecological concepts as applied to pelagic and benthic marine organisms and their environment. Field and laboratory experience in oceanographic techniques, particularly the coastal environment.

### 114. Advanced Ecology (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Biology 110.

The ecology of individuals, populations, or communities. May be repeated with new content. Maximum credit six units applicable on a master's degree.

### 115. Conservation of Wildlife (3) I, II

Prerequisite: Biology 1.

Plant and animal resources with emphasis on their conservation and intelligent use.

### 121. Systems Ecology (5) I, II

Four lectures and three hours of laboratory.

Prerequisites: Biology 110 and consent of instructor.

Provides a foundation in the theory and techniques necessary for a systems approach to ecology, including computer programming and topics in applied mathematics useful in systems analysis.

### 122. Environmental Measurement (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Biology 110 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.

## Biology

### 123. Simulation of Ecological Systems (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 121 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.

### 140. Principles of Human Physiology (3) I, II

Prerequisite: Biology 1 or Zoology 8.

Principles of human physiology. Body maintenance and nerve and muscle physiology. Not open to students with credit in Biology 9. (Formerly numbered Biology 22.)

### 141. Human Physiology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 140.

Laboratory work in human physiology. Not open to students with credit in Biology 9. (Formerly numbered Biology 23.)

### 142A-142B. Comparative Animal Physiology (4-4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Biology 101 and consent of instructor.

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. (Formerly numbered Biology 142.)

### 148. Photophysiology (3) II

Prerequisite: Biology 101.

Bioluminescence and the physiological effects of visible and ultraviolet radiations on plants and animals.

### 148L. Photophysiology Laboratory (1) II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 148.

The generation, measurement and control of visible and ultraviolet radiations, and the measurement and analysis of selected biological effects of these radiations.

### 150. Radiation Biology (3) I, II

Prerequisites: Biology 1 or equivalent and Physics 2A-2B, 3A-3B. Recommended: Chemistry 1A-1B, Biology 101, and Physics 121.

Principles underlying radiological reactions of ionizing radiations. Effects of ionizing radiations at the biochemical, cell, organ, and organism levels.

### 150L. Radiation Biology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 150.

The laboratory determination of the effects of ionizing radiation on biological systems.

### 151. Radioisotope Techniques in Biology (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; Chemistry 1A and 1B; Physics 2A, 2B, 3A and 3B. Recommended: Chemistry 4 or 5, and Biology 101.

The principles and application of radioisotopes in biology. Radionuclide measurement, safe handling, tracer and radioautography techniques.

### 155. Genetics (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15.

Principles of plant and animal genetics, with experiments and demonstrations illustrating the mechanisms of heredity.



## Biology

### 156. Developmental Biology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 155 and Chemistry 11 or 12. Recommended: Biology 101. Analysis of development with emphasis on embryonic differentiation.

### 157. Cytogenetics (4) I

Two lectures and six hours of laboratory.

Prerequisite: Biology 155.

The physical basis of heredity. Study of the chromosomes and chromosome behavior in relation to problems in heredity and evolution.

### 158. Human Genetics (4) II

Two lectures and six hours of laboratory.

Prerequisite: Biology 155.

Genetics as related to human biology, with consideration of the applied fields of medical genetics, genetic counseling, and population studies.

### 159. Human Heredity (3) I, II

Prerequisite: Biology 1.

Selected principles of human inheritance with emphasis on relationships to other fields of human studies. Not open to students with credit in Biology 155 or 158.

### 160. Experimental Evolution (3) I

Two lectures and three hours of laboratory.

Prerequisite: Biology 155.

The theories of evolution and speciation and the methods of study of modern problems.

### 161. History of Biology (3) I, II

Prerequisite: A college course in biology.

Lectures and reports tracing biological scientific development, 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.

### 162. Source Material in the History of Biology (3)

Prerequisite: Biology 161.

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.

### 163. Microbial Genetics (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Biology 155. Microbiology 101 is recommended.

The design, methods and execution of research in microbial genetics.

### 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.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 167A-167B. Biology for Teachers (4-4)

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Advanced study of biological principles including classification, physiology, morphology, and evolution. Designed primarily for those electing a biology minor for elementary or secondary teaching curricula. Not open to students majoring in the biological sciences.

### 169. Population Genetics (3) II

Two lectures and three hours of laboratory.

Prerequisites: Biology 15 and 155, Mathematics 22 or 50.

Discontinuous and continuous variation in natural populations.

## Biology

### 170-S. Contemporary Problems in Biology (1) S

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. May be repeated for a total of 3 units.

### 175. Statistical Methods in Biology (3) I

Two lectures and three hours of laboratory.

Prerequisite: Biology 101, 110 or 155.

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.

### 181. Advanced Cellular Physiology (3) I, II

Prerequisite: Biology 101.

Current topics in cellular physiology.

### 190. Senior Investigation and Report in Physiology (2) I, II

Prerequisites: Biology 101, senior standing and consent of instructor.

Investigation and reports on current physiological literature.

### 191. Senior Investigation and Report in Ecology (2) I, II

Prerequisites: Biology 110, senior standing and consent of instructor.

Investigation and reports on current ecological literature.

### 195. Senior Investigation and Report in Genetics (2) I, II

Prerequisites: Biology 155, senior standing and consent of instructor.

Investigation and reports on current genetic literature.

### 198. Methods of Investigation (2) I, II

One hour of discussion and three hours of laboratory.

Prerequisites: Junior standing and a major in the Division of the Life Sciences.

Individual and original investigations in biology; class reports. Four units maximum credit for Biology 198 or a combination of this course with Microbiology or Zoology 198.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisites: 15 units in biological science with grades of A or B and consent of instructor.

## GRADUATE COURSES

### 200. Seminar (2 or 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.

### 210. Seminar in Cellular Physiology (2)

Prerequisites: Biology 101 and consent of instructor. Maximum credit four units applicable on a master's degree.

### 220. Seminar in Developmental Biology (2)

Prerequisite: Biology 156.

May be repeated with new content. Maximum credit four units applicable on a master's degree.

### 221. Developmental Genetics (3)

Prerequisites: Biology 101 and 156.

Regulation of genetic information in developing systems.

### 222. Morphogenesis (3)

Prerequisites: Biology 101 and 156.

Regulation of pattern formation in developing systems; cell migration, cell division, cell death, dependent differentiation.

### 230. Speciation (3)

Prerequisites: Biology 110 and 155; or Biology 160.

Concepts and principles of the origin of species.



## Biology

- 231. Seminar in Ethology and Comparative Psychology (3)**  
(Same course as Psychology 231)  
Prerequisite: Psychology 114 or Biology 110, and consent of the graduate adviser.  
Current problems in ethology and comparative animal behavior. Maximum credit six units applicable on a master's degree.
- 240. Seminar in Terrestrial Ecology (2)**  
Prerequisite: Biology 110.  
Ecological concepts as applied to the terrestrial environment. May be repeated with new content. Maximum credit four units applicable on a master's degree.
- 241. Seminar in Aquatic Ecology (2)**  
Prerequisite: Biology 110.  
Ecological concepts as applied to the freshwater and marine environments. May be repeated with new content. Maximum credit four units applicable on a master's degree.
- 242. Population and Community Ecology (3)**  
Two lectures and three hours of laboratory.  
Prerequisite: Biology 110.  
Formulation, analysis, and experimental testing of the theories of the structure and dynamics of ecological systems at the population and community level.
- 243. Physiological Ecology (3) II**  
Two lectures and three hours of laboratory.  
Prerequisites: Biology 110 and consent of instructor.  
The comparative physiological characteristics of natural plant and animal populations in relation to their habitats and environments.
- 244. Physical Aspects of Ecology (3)**  
Prerequisite: Biology 110.  
Two lectures and three hours of laboratory.  
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.
- 245. Aquatic Ecology (3)**  
Prerequisites: Biology 110 and consent of instructor.  
Two lectures and three hours of laboratory.  
Ecological concepts as applied to benthic and pelagic population and communities in freshwater and marine environments.
- 246. Behavioral Ecology (3)**  
Two lectures and three hours of laboratory.  
Prerequisites: Biology 110 and consent of instructor.  
Recommended: Zoology 170 or Psychology 141.  
Behavioral mechanisms relating animals to their physical and biotic environment.
- 250. Biogeography (3)**  
Prerequisite: Biology 110 or 160.  
Concepts and principles of the distributional history of plant and animal groups, and the origins and dispersal of modern faunas and floras.
- 260. Seminar in General Physiology (2)**  
Prerequisite: Biology 101 or Botany 130.  
May be repeated with new content. Maximum credit four units applicable on a master's degree.
- 261. Seminar in Environmental Radiation (2)**  
Prerequisites: Biology 150 and 151.  
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.

## Biology

- 262. Cytoplasmic Inheritance (3)**  
Prerequisites: Biology 101, 155, and consent of instructor.  
Literature and techniques related to research in non-Mendelian genetics.
- 263. Seminar in Comparative Physiology (2)**  
Prerequisites: Biology 142A or 142B and consent of instructor.  
Comparative aspects of function at the molecular through organismal levels. Maximum credit four units applicable on a master's degree.
- 264. Methods in Physiology (2) I**  
Six hours of laboratory.  
Prerequisite: Biology 101.  
Current methods employed in physiological measurements. Maximum credit four units applicable on a master's degree.
- 265. Molecular Biophysics (3)**  
Prerequisites: Biology 101, Mathematics 21 and 22.  
The description and analysis of biological processes and systems in terms of the properties of molecules and of basic physical principles.
- 270. Seminar in Genetics (2)**  
Prerequisite: Biology 155.  
May be repeated with new content. Maximum credit four units applicable on a master's degree.
- 271. Radiation Genetics (3)**  
Two lectures and three hours of laboratory.  
Prerequisites: Biology 150, 155. Recommended: Physics 121.  
Basic principles of ionizing and nonionizing radiations with special emphasis on involvement of genetic systems at all levels of biological organization.
- 276. Physiological Genetics (3)**  
Prerequisites: Biology 155 or 158; Chemistry 12. Recommended: Chemistry 115A-115B.  
Biochemical aspects of the genetics of microbial and human systems.
- 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.
- 291. Investigation and Report (3)**  
Analysis and research techniques in biology.
- 297. Research (1-3)**  
Research in one of the fields of biology. Maximum credit six units applicable on a master's degree.
- 298. Special Study (1-3)**  
Individual study. Six units maximum credit.  
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
- 299. Thesis (3)**  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.



## BOTANY

## IN THE COLLEGE OF SCIENCES

## Faculty

Emeritus: Harvey  
 Professors: Gallup, Wedberg (Chairman)  
 Associate Professor: Preston  
 Assistant Professors: Alexander, Carmichael

## Offered by the Department

Master of Arts degree in biology and an emphasis in botany. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

## 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 82 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 1, 2, and 15; Chemistry 1A-1B, and 11 or 12; Mathematics 21 or 40; and Physics 1A-1B or 2A-2B and 3A-3B. (33 or 35 units.)

**Major.** A minimum of 24 upper division units to include Biology 101, 110, and 155; Botany 100 or 101 or 102 or 103, and 190A-190B. Botany 114, 130, and 140 and Microbiology 101 are recommended.

## 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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Biology 1, 2, and 15; Chemistry 1A-1B, and 11 or 12; Mathematics 21 or 40; and Physics 1A-1B or 2A-2B and 3A-3B. (33 or 35 units.) Recommended: German or French or Spanish; Geology 1A-1B or 2 and 3.

**Major.** A minimum of 36 upper division units in the biological sciences to include Biology 101, 110, and 155; Botany 100 or 101 or 102 or 103, 114, and 190A-190B; Microbiology 101. Botany 130 and 140 are recommended.

## BOTANY MINOR

The minor in botany consists of from 15 to 22 units in botany, six units of which must be in upper division courses.

## BIOLOGICAL SCIENCES MAJOR

## FOR THE STANDARD TEACHING CREDENTIAL

## Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the Life Science Division adviser for biological sciences teaching programs.

**Postgraduate Year.** A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences. Courses must have approval of the adviser for biology teaching programs. (Six units of graduate course work toward completion of a minor may be substituted for this requirement.)

## LOWER DIVISION COURSES

## 1. Plants and Man (3) I, II

Basic structure and function of plants with emphasis on the interrelationships of plants and man.

## 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

## 100. General Botany (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Biology 1 and 2.

Primarily for majors in the biological sciences. Structure, physiology, reproduction and evolution of the major plant groups.

## 101. Phycology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Morphology and phylogenetic relationships of the algae.

## 102. Mycology (4) II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

The structure, food relations, and classification of fungi.

## 103. Vascular Plants (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Structure, development and phylogenetic relationships of the Bryophytes and vascular plants.

## 112. Cultivated Trees and Shrubs (3) I

One lecture and six hours of laboratory and field work.

Prerequisites: Biology 1 and 2. Botany 114 is recommended.

Identification of the common cultivated trees and shrubs of the San Diego region. Trips to local parks and private gardens.

## 114. Systematic Botany (4) II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2; and either 110 or 155. Botany 103 recommended.

Kinds, relationships, systematic arrangement, and geographical distribution of vascular plants; collection and identification.

## 119-S. Field Botany (4) S

Two lectures and six hours of laboratory.

Prerequisite: A course in college biological science or consent of instructor.

Local native vegetation with emphasis on ecological units within floristic areas. Primarily for students not majoring in the Life Sciences Division.

## 126. Plant Pathology (4) I

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2. Botany 102 recommended.

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.



## Botany

### 130. Plant Physiology (4) II

Two lectures and six hours of laboratory.  
Prerequisites: Biology 1, 2, 15, 101; and Chemistry 1A and 1B.  
The activities of plants, including food manufacture, absorption, conduction, transportation, respiration, growth and movement.

### 140. Plant Anatomy (4) II

Two lectures and six hours of laboratory.  
Prerequisites: Biology 1 and 2. Botany 100 recommended.  
The arrangement of structural elements within plant organs, with emphasis on cell and tissue types.

### 162. Agricultural Botany (2) I

Field trips to be arranged.  
Prerequisites: Biology 1 and 2. Botany 100 or Zoology 121 recommended.  
California crop plants, their general identification, cultural methods, and regional distribution.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 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.

### 190A. Senior Investigation and Report (1) I

One discussion period and two additional hours to be arranged.  
Prerequisites: Botany 101 or 102 or 103, and senior standing.  
Selection and design of individual project; oral and written reports.

### 190B. Senior Investigation and Report (2) II

One discussion period and five additional hours to be arranged.  
Prerequisite: Botany 190A.  
Individual investigation, progress reports, oral and written final reports.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.  
Prerequisites: 15 units in botany with grades of A or B and consent of instructor.

## EXTENSION COURSE

### X-119. Plant Study of the California Deserts (3)

One lecture and six hours laboratory. Field trips arranged.  
Flowering plants of the desert region.

## GRADUATE COURSES

### 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.

### 201. Seminar in Phycology (2)

Prerequisite: Botany 101.  
Recent developments in phycology. Maximum credit four units applicable on a master's degree.

### 202. Seminar in Mycology (2)

Prerequisite: Botany 102.  
Current problems in the taxonomy, morphology or physiology of the fungi. Maximum credit four units applicable on a master's degree.

### 203. Seminar in Vascular Plants (2)

Prerequisite: Botany 103.  
Problems in the evolution of the vascular plants. Maximum credit four units applicable on a master's degree.

## Business Administration

### 214. Seminar in Systematic Botany (2)

Prerequisite: Botany 114.  
Current problems in the systematics of vascular plants. Maximum credit four units applicable on a master's degree.

### 226. Seminar in Plant Pathology (2)

Prerequisite: Botany 126.  
Advanced topics in the biology of plant pathogens. Maximum credit four units applicable on a master's degree.

### 230. Seminar in Plant Physiology (2)

Prerequisite: Botany 130.  
Current investigations in one of the areas in plant physiology. Maximum credit four units applicable on a master's degree.

### 240. Seminar in Plant Anatomy (2)

Prerequisite: Botany 140.  
Study of recent advances in the anatomy of vascular plants. Maximum credit four units applicable on a master's degree.

### 272. Seminar in Palynology (2)

Prerequisite: Botany 172.  
Study of recent advances in Palynology. Maximum credit four units applicable on a master's degree.

### 297. Research (1-3)

Research in one of the fields of botany.  
Maximum credit six units applicable on master's degree.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.  
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.

## BUSINESS ADMINISTRATION

### IN THE SCHOOL OF BUSINESS ADMINISTRATION

A member of the American Association of Collegiate Schools of Business

## FACULTY

### Department of Accounting

Emeritus: Brown, E., Wright  
Professors: Brodshatzer, Ferrel, Odmark, Snudden  
Associate Professors: Dodds, Harned (Chairman), Wade  
Assistant Professors: Bailey, Lightner, Purcell, Williamson

### Department of Finance

Professors: Hippaka, Nye (Chairman), Reznikoff  
Associate Professors: Chapman, Fisher, H., Reints, Wijnholds  
Assistant Professors: Block, Fisher, R., Hird, Hutchins, Neuberger, Schmier, Smith, Vandenberg, Yankey

### Department of Information Systems

Professors: Archer (Chairman), Crawford, Gibson, Langenbach, Lebarron, Pemberton, Straub  
Assistant Professors: Chrysler, Sponseller, Tilaro



## Business Administration

### Department of Management

Emeritus: Torbert  
Professors: Belcher, Peters (Chairman), Pierson, Srbich  
Associate Professors: Atchison, Galbraith, Ghorpade, Hampton, Mitton  
Assistant Professors: Gowing, Klinck, Sherrard  
Lecturer: Fenn

### Department of Marketing

Emeritus: De Julien  
Professors: Barber, Darley, Hale, Sharkey, Wotruba  
Associate Professors: Akers, Lindgren (Chairman)  
Assistant Professors: Haas, McFall, Ringbakk, Soldner, Vanier

### CURRICULA

#### Offered by the School of Business Administration

Master of Science degree in business administration with concentrations available in ten areas; and a Master Business Administration, a two-year degree. (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, insurance, management, marketing, information systems management, real estate. (Described in the section on the School of Business Administration.)

Minors in the following fields: accounting, business education, business management, employee relations, insurance, marketing, information systems management, production and operations management, real estate. (Described in the section on the School of Business Administration.)

Teaching major in Business Education with specialization in secondary teaching. (Described in the section on the School of Business Administration.)

Teaching minor in Business Education with specialization in secondary teaching. (Described in the section on the School of Business Administration.)

### COURSES IN BUSINESS ADMINISTRATION

#### LOWER DIVISION COURSES

##### 1A-1B. Accounting Fundamentals (2-2) or (4) I, II

Three hours of lecture and laboratory per two units of credit.  
Prerequisite: Business Administration 1A is prerequisite to 1B.  
Organizing, recording, and communicating economic information relating to the business entity.

##### 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.

##### 30B. Business Law (3) I, II

Prerequisite: Business Administration 30A.  
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 118 instead of 30B.

##### 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.

##### 71. Beginning Typewriting (2) I, II

Four hours.  
Fundamentals of typewriting. Development of personal-use skills. Not open to students with credit for high school typewriting.

## Business Administration

##### 72. Advanced Typewriting (2) I, II

Four hours.  
Application of typewriting skills in solution of typical business problems.

##### 73. Computational Machines Laboratory (1) I, II

Two hours of laboratory.  
Laboratory course in figuring and calculating machine principles and operation.

##### 74. Communicative Machines Laboratory (2) I, II

Four hours of laboratory.  
Prerequisite: Business Administration 71.  
Laboratory course in communication and duplicating machine principles and operation.

##### 75A-75B. Shorthand (3-3) I, II

Five hours of lecture and activity.  
Prerequisite: Business Administration 72; 75A is prerequisite to 75B.  
Gregg shorthand theory; dictation and transcription.

##### 76. Advanced Shorthand (3) I

Prerequisites: Business Administration 75A and 75B.  
Development of speed in writing and transcription.

##### 80. Written Communications in Business (3) I, II

Prerequisite: English 1A.  
Principles of effective writing applied to business and industrial situations and to the organization and presentation of reports.

##### 83. Information Processing and Computer Programming (3) I, II

Two lectures and three hours of laboratory.  
Introduction to concepts of information processing and computer programming.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

##### 100. Intermediate Accounting (4) I, II

Prerequisite: Business Administration 1B.  
Theories and principles underlying financial statements and determination of income of partnerships and corporations.

##### 101. Specialized Accounting Problems (4) I, II

Prerequisite: Business Administration 100.  
Problems involved in partnerships, consignments, consolidations, receiverships, foreign exchange, fund accounting, and other specialized areas.

##### 102. Managerial Cost Accounting (4) I, II

Prerequisite: Business Administration 1B.  
Management use of accounting data for planning and control; theories and practices of cost accounting, standard cost systems, distribution analysis, and capital budgeting.

##### 106. Income Tax Accounting (4) I, II

Prerequisites: Business Administration 1A and 1B.  
Theory and procedures in the preparation of federal and California income tax returns for individuals, partnerships and corporations.

##### 107. Advanced Income Tax Accounting (2) I, II

Prerequisite: Business Administration 106.  
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.



## Business Administration

### 108. Governmental Accounting (2) I, II

Prerequisite: Business Administration 100.

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.

### 112. Auditing (4) I, II

Prerequisites: Business Administration 101 and 102.

General principles and concepts of auditing; consideration of the design of accounting systems; duties, ethics, and responsibilities of the auditor; procedures for verification of financial statements; auditor's reports.

### 114. Accounting Systems (3) I, II

Prerequisite: Business Administration 100 and 102.

General system theory and system terminology. New mathematical and statistical techniques for solving special system problems. Planning, controlling, and reporting procedures will be developed for accounting systems employing the use of digital computers.

### 115. Accounting Theory (3) I, II

Prerequisites: Business Administration 100 and 102 and one other upper division course in accounting.

Critique of contemporary accounting theory; recommendation for improvement of financial accounting; research in accounting theory.

### 116. Controllership (3) II

Prerequisites: Business Administration 100 and 102.

The controllership function in policy decisions; organizations, techniques, and reports for financial and operating control.

### 118. Advanced Business Law (3) I, II

Prerequisites: Business Administration 30A and a major in accounting with at least 9 units in upper division 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 30B.

### 119. Advanced Accounting Problems (3) I, II

Prerequisite: Business Administration 112.

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.

### 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.

### 121. Property and Casualty Insurance (3) II

Prerequisite: Business Administration 120.

All standard forms of insurance except life; includes automobile, liability, workmen's compensation and disability, fire, marine, and inland marine. Legal interpretation of contract coverages; underwriting problems, marketing of insurance, government supervision and control.

### 124. Life Insurance Principles and Practices (3) I

Prerequisite: Business Administration 120.

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.

## Business Administration

### 125. Estate Planning (3) I, II

Programming fundamentals with emphasis upon 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.

### 127. Fundamentals of Finance (3) I, II

(Same course as Economics 133)

Prerequisites: Economics 1A and 1B or 103A and 103B, and Business Administration 1A and 1B.

Financing business enterprises. Capital and its role in production. The supply of and demand for capital. Financial intermediaries and government regulation of finance. The cost of capital.

### 128. Investments (3) I, II

Prerequisite: Business Administration 127.

Investment principles and practices with emphasis upon 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.

### 129. International Business Finance (3) I, II

Prerequisite: Business Administration 127.

The financing of international business transactions; international payments and their environment; international financial institutions.

### 130. Financial Analysis and Management (3) I, II

Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.

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.

### 131. Law in a Business Society (3) I, II

Prerequisite: Business Administration 30A.

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.

### 132. Fundamentals of Management (3) I, II

Prerequisite: Completion of lower division courses required in the major or minor.

What a manager does, how he selects objectives, organizes essential activities, plans, directs and controls operations; fundamentals which guide a manager's decisions.

### 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.

### 135. Fundamentals of Production and Operations Management (3)

Two lectures and three hours of laboratory.

Prerequisite: Business Administration 132.

Theory, concepts and decision analysis related to effective utilization of major factors of production in manufacturing and service industries. Study of production organizations, analytical models and methods, facilities, and design of control systems.

### 136. Production and Quality Control (3) I, II

Prerequisites: Business Administration 135 and 190.

Forecasting, planning and controlling production flow; techniques for planning and controlling quality of produced and purchased items; emphasis on modern quantitative methods particularly applicable to scheduling and control.



## Business Administration

### 137. Motion and Time Study (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Business Administration 135.

Work simplification through methods improvements; operations analysis; flow charts, calculation of time standards; work and speed analysis; new developments in job timing, standard setting and motion economy study.

### 138. Systems and Data Analysis (3) I, II

Prerequisites: Business Administration 83 and 132.

The methods and concepts of gathering information, analyzing and reducing data, and preparing accounts and timely reports to management. Unified operations management, employing extensive use of computer technology in the design and operation of systems for managerial efficiency. Not open to students with credit for Business Administration 185.

### 140. Employee Relations (3) I, II

Prerequisite: Business Administration 132.

Problems of business and industry in dealing with employees, special attention to company and public policy, staffing, employee development, labor relations and employee motivation. Comparisons of current practices to underlying problems and theories.

### 141. Employee Relations Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Business Administration 140 or Political Science 144, or consent of instructor.

Investigation of employee relations practices and policies. Practice in interviewing, role playing, or in conducting field studies and related personnel research.

### 142. Wage and Salary Administration (3) I, II

Prerequisite: Business Administration 140.

Major problems in the determination and control of compensation from employment. Comparison of underlying theory to current practice.

### 143. Problems in Employee Relations (3) II

Prerequisite: Business Administration 140.

The employee relations function. Analysis of current practices as effective solutions to problems in this area. Guided research into the nature of employment relations.

### 145. Human Factors in Management (3) I, II

Prerequisite: Business Administration 132 or Political Science 144.

Organizations as social systems; power and authority; communication, motivation and leadership; impacts of technology on management and workers, resistance to change; human needs and the imperatives of management.

### 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 over-all management viewpoint.

### 150. Marketing Principles (3) I, II

Prerequisites: Economics 1A and 1B.

Marketing functions, activities of producers, wholesalers, retailers and other middlemen; channels of distribution; integration of marketing activities; price policies; government regulation.

### 151. Marketing Management (3) I, II

Prerequisites: Business Administration 150 and 190.

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.

## Business Administration

### 152. Retailing Principles (3) I, II

Prerequisite: Business Administration 150.

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.

### 153. Advertising Principles (3) I, II

Prerequisite: Business Administration 150.

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.

### 154. Marketing Problems (3) I, II

Prerequisite: Business Administration 150.

Complex cases in marketing involving analysis of business situations.

### 156. Market Behavior (3) I, II

Prerequisite: Business Administration 150.

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.

### 157. Market Research (3) I, II

Prerequisites: Business Administration 150 and 190.

Formal research techniques and analysis for marketing decisions; principles of decision making.

### 158. Market Research Laboratory (1)

Three hours of laboratory.

Prerequisites: Business Administration 157.

Applications of market research techniques to selected topics. Uses and limitations of various methods of analysis. Orientation and use of computer center is included.

### 159. Analysis of Marketing Information (3) I, II

Prerequisites: Business Administration 150 and 190.

The analysis and interpretation of marketing and business information. Decision-making procedures used in conjunction with marketing information.

### 161. Traffic Management (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

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.

### 162. Industrial Marketing (3) I, II

Prerequisites: Business Administration 132 and 150.

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.

### 163. Sales Management (3) I, II

Prerequisites: Business Administration 150.

Consideration of the structure of sales organizations; 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; co-ordination of personal selling with other forms of sales effort.

### 164. Purchasing and Buying (3) I, II

Prerequisites: Business Administration 132 and 150.

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.



## Business Administration

### 165. International Marketing (3) II

Prerequisite: Business Administration 150.

Bases and promotion of foreign 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.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 170. Real Estate Principles and Practices (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

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.

### 171. Law of Real Property (3) I, II

Prerequisites: Business Administration 30A, 30B, and 170.

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; public land law.

### 172. Property Management (3) I, II

Prerequisite: Business Administration 170.

The rental markets, property management programs, collection procedures, lease forms, tenant and owner relations, rental techniques, maintenance and rehabilitation procedures, and accounts and records.

### 173. Real Estate Finance (3) I, II

Prerequisites: Economics 1A, 1B, (or 103A, 103B), Business Administration 30A, 30B, and 170.

Methods of financing real estate; sources of real estate credit; loan servicing; governmental financial agencies; acquisition and sale of mortgages and trust deeds.

### 174. Real Estate Appraisal Theory (3) I, II

Prerequisites: Business Administration 170.

Introduction to theories, functions, and purposes of appraisals of residential and income properties. Methods of valuation, techniques of market data analysis, rehabilitation estimates.

### 180. Workshop in Business Education (2) 5

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 subject matter to a total of eight units.

### 181. Administration and Supervision of Distributive Education (3) II

Objectives, duties, qualifications, and problems of supervisors and coordinators in organizing and administering distributive education programs.

### 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.

### 183. Executive Secretarial Management (3) II

Prerequisites: Business Administration 72, 74, and 75B.

Executive secretarial responsibilities and functions, including a review for the Certified Professional Secretary Examination.

### 184. Information Systems Management (3) I, II

Prerequisite: Business Administration 83.

Administrative theories as they apply to typical information systems; interrelationship of personnel, equipment, and services; emphasis on quantitative and qualitative aspects of information systems.

## Business Administration

### 185. Automated Management Information Systems (3) I, II

Prerequisite: Business Administration 83.

Concepts and techniques for the design, development, and implementation of EDP-based management information systems to improve decision making.

### 186. Information Storage and Retrieval Systems (3) II

Prerequisite: Business Administration 185.

Systems for abstracting, storing, and retrieving information with automated equipment. (Formerly numbered Business Administration 187.)

### 187. Advanced Programming Techniques (3) II

Prerequisite: Business Administration 186.

Software packages utilized in EDP systems in business. (Formerly numbered Business Administration 188.)

### 188. Data Processing Practicum (3) I, II

Prerequisite: Business Administration 187.

Fundamentals of systems flow charting and computer programming; computer applications to typical automated data processing problems. (Formerly numbered Business Administration 186.)

### 189. 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.

### 190. Quantitative Analysis for Business (3) I, II

Prerequisites: Mathematics 20; Mathematics 12 or Economics 2.

Quantitative methods applied to business decision making.

### 191. Quantitative Methods (3)

Prerequisite: Business Administration 190.

A study of various management science techniques such as simulation, transportation and simpler linear programming and queuing theory.

### 192. Advanced Quantitative Methods (3)

Prerequisite: Business Administration 191.

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.

### 197. Business Forecasting (3) I, II

Prerequisite: Business Administration 127.

Business fluctuations; forecasting, and related problems confronting the business firm; forecasting techniques; specific forecasts. The use of forecasts in the firm.

### 198. Investigation and Report (1-3) I, II

Prerequisites: Senior standing and consent of instructor.

May be repeated to a maximum of six units.

A comprehensive and an original study of a problem connected with business under the direction of one or more members of the business administration staff.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

## EXTENSION COURSES

### X-123A-123B. C.P.C.U. Preparation (3-3) Extension

Preparation for Chartered Property and Casualty Underwriter examination. Content to be selected by instructor from: Parts I and II—Insurance Principles and Practices; Part III—General Education; Part IV—Law; Part V—Accounting, Finance and Agency Management.

### X-126A-126B. C.L.U. Preparation (3-3) Extension

Preparation for Chartered Life Underwriter examination. Content to be selected by instructor from the following: Part I—Life Insurance Fundamentals; Part II—



## Business Administration

Business, Accident and Sickness, Group Insurance, and Pensions; Part III—Law, Trusts, and Taxes; Part IV—Economics and Finance; and Part V—Life Underwriting. Each part of this offering represents a two-semester course.

### GRADUATE COURSES

NOTE: Classified graduate standing is a prerequisite for all 200-numbered courses.

#### 200. Financial Accounting (3)

Basic concepts and principles of financial accounting; accounting as a data processing system; measurement of business income; financial statements.

#### 201A-201B. Business Organization and Management (3-3)

Functions, role, and relationships of business organizations; theories of management; decisions, dilemmas, and human values in industrial societies.

#### 202A-202B. Quantitative Methods (3-3)

In 202A: Measures 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. In 202B: The design of statistical experiments and various operations research techniques such as simulation, linear programming, queuing theory, and Markov chain analysis.

#### 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 150 or equivalent.

#### 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.

#### 205. Financial Principles and Policies (3)

Prerequisite: Business Administration 200.

Finance and financial institutions as they relate to the firm and the flow of funds. Emphasis upon the supply of and demand for capital; principles and tools of business finance; money and capital markets.

#### 206. Managerial Economics (3)

Prerequisite: Economics 203.

Role of economic theory in management analysis and decisions. Study of demand, cost, and supply theories from a business viewpoint.

#### 207. Research and Reporting (3)

Prerequisite: Business Administration 202A.

Principles of research design and data accumulation. The analysis and effective presentation of data related to business and industry.

#### 208. Managerial Accounting (3)

Prerequisite: Business Administration 200.

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.

#### 210. Theory and Analysis of Financial Statements (3)

Prerequisite: Business Administration 200.

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.

## Business Administration

#### 211. Advanced Accounting (3)

Prerequisite: Business Administration 210.

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.

#### 212. Income Tax Accounting (3)

Prerequisite: Business Administration 210.

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.

#### 213. Auditing (3)

Prerequisite: Business Administration 211.

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.

#### 214. Seminar in Accounting Information Systems (3)

Prerequisites: Business Administration 202B and 208.

Systems design and related controls. Emphasis on mathematics, statistics, and computers, in planning and reporting.

#### 219. Seminar in Accounting Theory (3)

Prerequisite: Business Administration 211.

Historical development of accounting principles and theory; problems in valuation, income determination, and statement presentation.

#### 220. Legal Aspects of Labor-Management Relations (3)

Legal aspects of union organizational activities, representation proceedings, unfair labor practices, collective bargaining and contracts, grievances and arbitration, strikes, picketing, boycotts and injunctions.

#### 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.

#### 222. 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.

#### 223. Seminar in Business Finance (3)

Prerequisite: Business Administration 205.

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.

#### 225. Seminar in Insurance (3)

Prerequisite: Business Administration 221.

Risk management in effective business operations. Programming of personal and business risk problems. Insurance institutions.

#### 226. Seminar in Real Estate (3)

Prerequisite: Business Administration 222.

Current problems in real property. Regional land use planning.

#### 228. Seminar in International Finance (3)

Prerequisite: Business Administration 205.

International finance applied to the business firm.



## Business Administration

### 229. Seminar in Financial Markets (3)

Prerequisite: Business Administration 205.

Analysis of money and capital markets. Emphasis on factors of influence and sources and uses of data. Survey of literature in the field.

### 230. Production and Operations Management (3)

Prerequisites: Business Administration 202B.

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.

### 231. Advanced Methods Engineering and Work Measurement (3)

Prerequisite: Business Administration 230.

Analysis and solution of plant management problems using multiple operation analysis and advanced work measurement techniques (M.T.M., Work Factor System, and others). Relation of production to other functions.

### 232. Quality Control (3)

Prerequisite: Business Administration 230.

Statistical techniques for controlling quality, reliability and maintainability, types of control and limit charts.

### 233. Inventory and Production Control (3)

Prerequisite: Business Administration 230.

The design and analysis of single and multi-product control systems.

### 234. Seminar in Production and Operations Management (3)

Prerequisite: Business Administration 231.

Industrial risk and forecasting; diagnosis of industrial problems; production policies and organization; determination of production methods; coordination of production activities. (Formerly numbered Business Administration 239A.)

### 236. Operations Research (3)

Prerequisites: Business Administration 202A and concurrent registration in 202B.

Network analysis, learning curves, PACE, line of balance, gamma and beta distributions and dynamic programming. (Formerly numbered Business Administration 232.)

### 237. Computer Implemented Optimum Seeking Methods (3)

Prerequisite: Business Administration 236.

Programming and simulation techniques for analysis of interlocking decision problems with and without the use of computers. Derivation of man, machine, and systems models. Design of steady state and dynamic stochastic models.

### 238. Management Systems and Simulation (3)

Prerequisite: Business Administration 236.

The testing and design of input-output management decision systems. Simulation and heuristic techniques are used to evaluate and improve the model. Empirical data will be used where possible.

### 239. Seminar in Management Science (3)

Prerequisite: Business Administration 236.

Analysis by quantitative techniques for managerial planning and decision making. Applications of operations research and other concepts to industrial situations. (Formerly numbered and entitled: Business Administration 239B, Seminar in Production Management.)

### 240. Employee Relations (3)

Prerequisite: Business Administration 201B.

Analysis of theories and factors underlying managerial policies and practices involving employees.

## Business Administration

### 241. Business and Labor (3)

Prerequisites: Business Administration 240.

Analysis of the role of unions in the modern business community with special attention to the impact of union policies on management.

### 242. Wage Theory and Administration (3)

Prerequisite: Business Administration 240.

Wage theory, factors, and criteria important in determination of wage rates. Wage structure, payment methods, and other compensation relating to the business firm.

### 243. Management Development (3)

Prerequisite: Business Administration 240.

Management development programs; organization, administration, development, and evaluation.

### 249. Seminar in Employee Relations (3)

Prerequisite: Business Administration 240.

Factors underlying managerial policies and programs in employee relations.

### 250. Seminar in Marketing and the Economy (3)

Prerequisite: Business Administration 203.

Advertising, selling, sales promotion, and merchandising as they relate to society, business and the economy.

### 251. Seminar in Marketing Theory (3)

Prerequisite: Business Administration 203.

Marketing theory and contributions of economics and behavioral sciences to marketing thought.

### 252. Marketing Institutions (3)

Prerequisite: Business Administration 203.

Analysis of development of wholesaling and retailing and of growth, change, and efficiency of these institutions in the American and other economies.

### 253. Seminar in Marketing Price Policy (3)

Prerequisite: Business Administration 203.

Study of pricing strategy and price determination in business organizations.

### 254. Seminar in Sales Management (3)

Prerequisite: Business Administration 203.

Sales management and personal selling decisions and strategies in business organizations.

### 259. Market Analysis and Research (3)

Prerequisite: Business Administration 203 and 202B.

Application of statistical and mathematical methods to market problems, consumer research, and product analysis.

### 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. May be repeated with new content. Maximum credit six units applicable on a master's degree.

### 273. Data Systems and Automation (3)

Prerequisite: Business Administration 202A.

Principles and techniques used in formulating, installing, and operating integrated and electronic data processing systems, including computer applications to typical automated data processing problems.

### 278. Seminar in Management of Information Systems (3)

Prerequisite: Business Administration 273.

Advanced information systems. Emphasis on current managerial trends and developments and on individual student research.



## Business Administration

### 279. Seminar in Data Systems Design (3)

Prerequisite: Business Administration 273.

Research in the analysis and design of data processing systems.

### 281. Behavioral Sciences for Management (3)

Prerequisite: Business Administration 201B.

Applications of findings from behavioral sciences to management problems and decisions. Study of organization cultures and subcultures. Impact of human behavior on the enterprise.

### 282. Group Processes and Leadership (3)

Prerequisite: Business Administration 201B.

Perceptions and processes in work groups. Experience in interpersonal networks, influence and rewards, stereotypes; managing differences and conflicts.

### 283. Origins and Nature of American Business Enterprise (3)

Prerequisite: Business Administration 201B.

Factors underlying the American system of business enterprise: modern corporations, the corporation man, technological change, the business community and politics, and other significant issues.

### 284. Policy Formulation (3)

Prerequisite: Business Administration 201B.

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.

### 285. Seminar in Business Planning (3)

Prerequisites: Business Administration 201A, 203, 205, and nine units in Business Administration courses numbered 210 or above.

Strategic decision-making, long-range forecasting, and corporate planning with major emphasis on product-market relationships.

### 289. Seminar in Organization and Management (3)

Prerequisite: Business Administration 201B.

Analysis of problems in business and other organizations. Organization and decision theory and contemporary developments in management science are emphasized.

### 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.

### 297. Research (3)

Prerequisite: Advancement to candidacy.

Research in one of the fields of Business Administration.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## Chemistry

## CHEMISTRY

### IN THE COLLEGE OF SCIENCES

The Department of Chemistry is on the approved list of the American Chemical Society.

#### Faculty

Professors: Grubbs, Harrington, Hellberg, Isensee, Jensen, Jones, Joseph, Landis, Malik, O'Neal, Ring, Robinson, Rowe, Sharts, Spangler, Stewart, Wadsworth (Chairman), Walba, Wick

Associate Professors: Abbott, Mathewson, Richardson, Woodson

Assistant Professors: Coffey, Roeder

#### Offered by the Department

Doctor of Philosophy degree in chemistry, offered jointly with the University of California, San Diego. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Master of Arts or Master of Science degree in chemistry. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in chemistry with the A.B. or B.S. degree in applied arts and sciences, available with or without the Certificate of the American Chemical Society.

Major in chemistry with the A.B. degree in liberal arts and sciences. May be taken with or without the Certificate of the American Chemical Society.

Minor in chemistry.

Teaching major in chemistry, with specialization in both elementary and secondary teaching.

Teaching minor in chemistry, with specialization in both elementary and secondary teaching.

### CHEMISTRY MAJORS

#### IN APPLIED ARTS AND THE 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 Pre-medical, Pre-dental, or Teacher Education 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.

#### FOREIGN LANGUAGE

German is required in all programs leading to the Certificate of the American Chemical Society.



## Chemistry

## CHEMISTRY MAJOR

**WITH THE B.S. DEGREE IN APPLIED ARTS AND THE 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 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52. (44 units.)

**Major.** A minimum of 36 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 127A, 155, one unit of 198; and 14 units of upper division electives in chemistry or in related subjects with approval of the department.

**Foreign language requirement.** German 8A.

## OUTLINE FOR THE B.S. DEGREE AND CERTIFICATE

[illegible]

\* Refer to Catalog section on General Education requirements.  
† Students eligible to take Mathematics 521.

† If this requirement is met by examination.

‡ If this requirement is met by examination the appropriate number of units should be added

§ Premedical and predental students will also take Biology 2 and decrease general elective units by 1.

CHEMISTRY MAJOR

## CHEMISTRY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND THE SCIENCES  
AND CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY

The curriculum outlined below is offered for students who wish to take the A.B. degree in applied arts and sciences and at the same time meet the recommendations of the American Chemical Society and the requirements of most universities for admission to graduate work in chemistry.

A minor is not required with this major.

**Preparation for the major.** Chemistry 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52. (44 units.)

## Chemistry

**Major.** A minimum of 24 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 127A, 155, one unit of 198; and two units of upper division electives in chemistry to be chosen from Chemistry 116A, 118, 127B, 131, 154, 156.

**Foreign language requirement.** German 8A.

### OUTLINE FOR A.B. DEGREE AND CERTIFICATE

[illegible]

\* Refer to Catalog section on General Education requirements.

† Students eligible to take Mathematics 50 in their first semester should do so and substitute for Mathematics 4 and/or 40 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 2 and decrease general elective units by 1.

## CHEMISTRY MAJOR

**WITH THE A.B. DEGREE IN APPLIED ARTS AND THE SCIENCES  
FOR RELATED PROFESSIONS**

This plan is designed for only those students who desire the training in a pre-medical and pre-dental curriculum or for secondary school teaching. 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 junior 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 College. With an appropriate choice of electives, graduates can meet the requirements for admission to medical, dental, and pharmaceutical schools. With a fifth year of graduate work, requirements for the secondary teaching credential can be met.

**Preparation for the major.** Chemistry 1A-1B, 4 (or 5), 12 and 13; Physics 4A-4B; Mathematics 4, 40, 50, 51, and Biology 1, 2. (45 units.)

**Major.** A minimum of 24 upper division units in chemistry to include Chemistry 109A, B, C (or 110A-110B, 111), 112, 155 (or 150), and eight units of upper division electives in chemistry. Chemistry 127A is recommended for all teaching majors. Chemistry 115A-115B or 116A-116B is recommended for all pre-medical students.



## Chemistry

**Minor.** A minor in biology or zoology is expected for pre-professional students. The minor required for a secondary school credential may be completed in the fifth year for teaching credential candidates.

**Foreign language requirement.** Recommended: German 8A.

### 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 82 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 on chemistry as part of a liberal arts and sciences education or as preparation for entering a related profession. By appropriate choice of electives, graduates can meet the requirements for admission to medical schools. By careful choice of courses and either appropriate high school preparation (with trigonometry and two or three years of German, or with Advanced Placement credit) or the equivalent in additional college courses (taking the required courses in chemistry, physics, and mathematics as specified in the outline for the A.B. degree and certificate, students may complete the requirements for both the liberal arts and sciences degree and the major in chemistry with the Certificate of the American Chemical Society, as preparation for graduate work in chemistry.

**Preparation for the major.** Chemistry 1A-1B, 4, and 12; Physics 1A-1B or 2A-2B and 3A-3B; and Mathematics 21 and 22. (32 or 34 units.)

**Major.** A minimum of 24 upper division units in Chemistry to include Chemistry 109A-109B, 109C, 112, 150; and eight units of upper division electives in chemistry.

### CHEMISTRY MINOR

The minor in chemistry consists of Chemistry 1A-1B, 4 or 5, 12 (or equivalents), and six units of upper division courses in chemistry. (24 units.)

### CHEMISTRY MAJOR

#### FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a credential must complete all other requirements for the credential, as outlined in the section of this catalog on the School of Education.

The major in chemistry for the standard teaching credential, with specialization in either elementary or secondary teaching, requires an undergraduate major in chemistry. All courses for the teaching major must be approved by the chemistry adviser for teaching programs. In addition, candidates for the credential with a specialization in secondary teaching must complete, in the postgraduate year, a minimum of six units of graduate work in chemistry.

### CHEMISTRY MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

The minor in chemistry for the standard teaching credential, with specialization in either elementary or secondary teaching, consists of not less than 20 units in chemistry, six units of which must be in upper division courses. If the major for secondary teaching is non-academic, at least 12 upper division units of chemistry must be taken. All courses must be approved by the chemistry adviser for teaching programs.

#### LOWER DIVISION COURSES

##### 1A-1B. General Chemistry (5-5) I, II

Three lectures and six hours of laboratory.

Prerequisites: High school chemistry and two years of college preparatory mathematics. Recommended: High school physics and two years additional mathematics.

General principles of chemistry with emphasis on inorganic materials. Qualitative analysis is included in the second semester. Duplicate credit will not be allowed

## Chemistry

for the corresponding course in Chemistry 10A, 10B, or 1E. Students with credit for Chemistry 2A will receive 2 units of credit for 1A.

##### 1E. General Chemistry for Engineers (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Chemistry 1A.

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 1B.

##### 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 1A.

##### 2B. Elementary Organic Chemistry (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Chemistry 2A or 1A.

Introduction to the compounds of carbon including both aliphatic and aromatic substances. Not open to students with credit in Chemistry 1B or 1E.

##### 3. Chemistry of Nutrition (3) I, II

Three lectures with demonstrations.

Prerequisites: Chemistry 2A-2B. This course intended primarily for majors in home economics, nursing, and related fields.

Digestion, metabolism and nutrition of foodstuffs and the role of vitamins, hormones and electrolytes in life processes.

##### 4. Elementary Quantitative Analysis (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Chemistry 1B or 2B.

Fundamentals of volumetric and gravimetric analysis. Not applicable to the B.S. and the A.B. degree and certificate for chemistry majors. Not open to students with credit in Chemistry 5.

##### 5. Analytical Chemistry (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 1B; and credit or concurrent registration in Mathematics 22 or 50.

Theory and practice of volumetric, gravimetric and electrical methods of analysis. Not open to students with credit in Chemistry 4. Duplicate credit will not be allowed for equivalent work in Chemistry 10A-10B.

##### 10A-10B. Chemical Principles and Techniques (Honors) (5-5)

Three lectures and six hours of laboratory.

Prerequisites: An outstanding record in high school chemistry, physics, and mathematics, accompanied by superior achievement on the College Aptitude Test and the college Mathematics Placement Examinations.

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 10A-10B takes the place of Chemistry 1A-1B and 5 for these students as prerequisites for further courses in chemistry.

##### 11. Introductory Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 1B.

Aliphatic and aromatic compounds including reaction mechanisms. For students needing only one semester of organic chemistry. Not open to students with credit in Chemistry 12.

##### 12. Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 1B.

Properties and synthesis of organic compounds including reaction mechanisms. First half of a year course.

Not open to students with credit in Chemistry 11.



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### 13. Organic Chemistry Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Open only to students enrolled concurrently in Chemistry 12.  
The theory and practice of laboratory operations.

### 22. Glass Blowing (1) I, II

Three hours of laboratory.

Prerequisite: Chemistry 1B.

Elementary training in the manipulation of glass.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 109A-109B. Fundamentals of Physical Chemistry (3-3)

Prerequisites for 109A: Chemistry 4, Mathematics 22, and Physics 2B and 3B. Not open to students with credit in Chemistry 110A.

Prerequisites for 109B: Chemistry 109A and credit or concurrent registration in Chemistry 150. Not open to students with credit in Chemistry 110B.

Fundamental principles of theoretical chemistry. This course cannot apply to the A.B. and certificate or B.S. major in chemistry.

### 109C. Fundamentals of Physical Chemistry Laboratory (2) II

Six hours of laboratory.

Prerequisite: Concurrent registration or credit in Chemistry 109B. Not open to students with credit or concurrent registration in Chemistry 111.

Physico-chemical experiments, errors of measurement and technical report writing.

### 110A-110B. Physical Chemistry (3-3) I, II

Prerequisites for 110A: Chemistry 5 and credit or concurrent registration in Physics 4C and Mathematics 52. Not open to students with credit in Chemistry 109A.

Prerequisites for Chemistry 110B: Chemistry 110A. Not open to students with credit in Chemistry 109B.

Theoretical principles of chemistry with emphasis on mathematical relations.

### 111. Physical Chemistry Laboratory (3) I, II

Nine hours of laboratory.

Prerequisite: Credit in Chemistry 110B or concurrent registration with consent of instructor. Not open to students with credit or concurrent registration in Chemistry 109C.

Physico-chemical apparatus and measurements, with emphasis on technical report writing.

### 112. Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 12.

A continuation of Chemistry 12.

### 113. Organic Chemistry Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Open only to students enrolled concurrently in Chemistry 112.  
Theory and practice of laboratory operations.

### 114A-114B. Clinical Biochemistry (4-4)

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 4 or 5 and 11 or 12.

Principles of biochemistry and analytical methods applied to blood, urine, and other body fluids. This course cannot apply to the major in chemistry.

## Chemistry

### 115A-115B. Fundamentals of Biochemistry (3-3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Chemistry 4 or 5 and 11 or 12.

The chemistry and metabolism of carbohydrates, fats, and proteins. Not open to students with credit in Chemistry 116A-116B.

### 116A-116B. General Biochemistry (3-3)

Prerequisites: Chemistry 109B or 110B, and 112.

The structure, function, metabolism, and thermodynamic relationships of chemical entities in living systems. Not open to students with credit in Chemistry 115A-115B.

### 118. Advanced Physical Chemistry (3) II

Prerequisite: Chemistry 110B.

Chemical statistics, solid state theory, transport phenomena, chemical kinetics in solution and additional selected topics in modern physical chemistry.

### 127A. Inorganic Chemistry (3) I, II

Prerequisite: Credit or concurrent registration in Chemistry 109B or 110B.

The physical basis of the periodic system, complex inorganic compounds, and the nature of the chemical bond.

### 127B. Inorganic Chemistry (3) I, II

Prerequisite: Chemistry 127A.

An advanced systematic study of representative and transition elements and their compounds.

### 127C. Inorganic Chemistry (1)

Three hours of laboratory.

Prerequisite: Chemistry 127A.

Laboratory work in synthetic inorganic chemistry.

### 130. Chemistry for Elementary Teachers (3)

Basic concepts, methods, and materials of chemistry used in the elementary school. Open only to elementary teacher candidates. Not applicable to the major.

### 131. Theoretical Organic Chemistry (3) I, II

Prerequisites: Chemistry 109A or 110A and 112.

The application of modern electronic theory to the physical and chemical properties of organic compounds.

### 135. CHEM Study (3) II

One lecture and six hours of laboratory.

Prerequisites: Chemistry 1B.

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.

### 150. Analytical Chemistry (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 4 or 5, 12, and 109A or 110A.

Advanced theory and practice of quantitative analysis and an introduction to instrumental methods of analysis.

### 154. Organic Qualitative Analysis (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Chemistry 112 and credit or concurrent registration in Chemistry 109A or 110A.

The identification of organic compounds and mixtures.

### 155. Advanced Instrumental Methods (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 5, 112, and credit or concurrent registration in 110B. Not open to students with credit for Chemistry 150.

Advanced theory and practice of chemical instrumentation.



## Chemistry

### 156. Quantitative Microanalysis (3)

One lecture and six hours of laboratory.

Prerequisites: Chemistry 112 and 150.

Techniques of microanalysis including carbon, hydrogen, nitrogen, halogen, sulfur, oxygen and metal analyses.

### 160A-160B. Principles of Chemical Engineering (3-3)

(Same course as Engineering 160A-160B)

Prerequisite: Credit or concurrent registration in Engineering 108 or Chemistry 109A or 110A.

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.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 170. Radiochemistry (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Chemistry 4 or 5.

Laboratory principles and techniques of radioactivity applied to the various fields of chemistry. Experimental methods used in tracer applications, activation analysis, chemical investigation of the actinides, study of nuclear reactions, and radiolysis.

### 191. Chemical Literature (1)

Prerequisite: Upper division standing in chemistry.

An introduction to the availability, scope and use of the chemical literature.

### 196. Selected Topics in Chemistry (1-3)

Prerequisite: Consent of instructor.

Selected topics in modern chemistry. May be repeated for additional credit with new subject matter for a total of six units.

### 198. Senior Project (1-3) I, II

Prerequisites: Three one-year courses in chemistry and senior standing.

An individual investigation and report on a problem. May be repeated to a maximum of six units.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor. Open only to students who have shown ability to do A or B work in chemistry.

## GRADUATE COURSES

### 200. Seminar (1 to 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.

### 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.

### 211. Chemical Thermodynamics (3)

Prerequisites: Mathematics 52 and Chemistry 110B.

Chemical thermodynamics and an introduction to statistical thermodynamics.

### 212. Chemical Kinetics (3)

Prerequisites: Mathematics 52 and Chemistry 110B.

Theory of rate processes; applications of kinetics to the study of reaction mechanisms.

### 213. Quantum Chemistry (3)

Prerequisites: Mathematics 52 and Chemistry 110B.

Quantum mechanics of atomic and molecular systems; applications to chemical bonding theory.

## Chemistry

### 214. Molecular Structure (3)

Prerequisites: Mathematics 52 and Chemistry 110B.

Theory and techniques used in the determination of molecular structure.

### 215. Chemical Statistical Mechanics (3)

Prerequisite: Chemistry 211.

Statistical mechanics as applied to chemical systems.

### 216. Physical Chemistry of Electrolytic Solutions (2)

Prerequisite: Chemistry 211.

Theory of ionic solutions: electrode potentials, activity coefficients, partial molal quantities, conductance and ion association.

### 220. Advanced Topics in Inorganic Chemistry (1-3)

Prerequisite: Chemistry 127A.

Selected topics in inorganic chemistry. Maximum credit six units applicable on a master's degree.

### 221. Mechanisms of Inorganic Reactions (3)

Prerequisite: Chemistry 127A.

Mechanisms in inorganic reactions with an emphasis on coordination chemistry.

### 222. Chemistry of the Nonmetals (2)

Prerequisite: Chemistry 127A.

An advanced systematic study of the nonmetallic elements and their compounds.

### 230. Advanced Topics in Organic Chemistry (1-3)

Prerequisite: Chemistry 112.

Selected topics in organic chemistry. Maximum credit six units applicable on a master's degree.

### 231. Mechanisms of Organic Reactions (3)

Prerequisites: Chemistry 110B and 112.

Reactivity and mechanism in organic reactions.

### 232. Advanced Organic Chemistry (3)

Prerequisite: Chemistry 112.

Applications and limitations of organic reactions from the viewpoint of synthesis.

### 250. Advanced Topics in Analytical Chemistry (1-3)

Prerequisite: Chemistry 110B.

Selected topics from the field of analytical chemistry. Maximum credit six units applicable on a master's degree.

### 260. Advanced Topics in Biochemistry (1-3)

Prerequisite: Chemistry 116B.

Selected topics in biochemistry. Maximum credit six units applicable on a master's degree.

### 261. Advanced Biochemical Techniques (2)

Six hours of laboratory.

Prerequisite: Chemistry 116A.

The laboratory application of biochemical techniques in manometry, chromatography, electrophoresis, and enzymology.

### 270. Nuclear Chemistry (2)

Prerequisite: Chemistry 110B.

Theoretical applications of radioactivity to chemistry, radiation chemistry, decay laws and processes, nuclear structure and reactions.

### 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.

### 291. Research Seminar (1)

Prerequisite: Consent of department chairman.

Discussions on current chemical research by students, faculty, and visiting scientists. Each student will make a presentation based on the current literature.



## Chinese

### CLASSICAL AND ORIENTAL LANGUAGES

#### 297. Research (1-3)

Prerequisite: Consent of instructor.

Research in one of the fields of chemistry. Maximum credit six units applicable on a master's degree.

#### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

#### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## CHINESE

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Faculty assigned to teach courses in Chinese are drawn from the Department of Classical and Oriental Languages.

#### Offered by the Department of Classical and Oriental Languages

Courses in Chinese.

Major or minor work in Chinese is not offered.

### LOWER DIVISION COURSES

#### 1. Elementary (4)

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Chinese culture and civilization, minimum essentials of grammar.

#### 2. Elementary (4)

Four lectures and one hour of laboratory.

Prerequisite: Chinese 1.

Continuation of Chinese 1.

#### 3. Intermediate (4)

Prerequisite: Chinese 2.

A practical application of the fundamental principles of grammar. Reading in Chinese of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

#### 4. Intermediate (4)

Prerequisite: Chinese 3.

Continuation of Chinese 3. Reading of selections from Chinese literature.

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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.

## CLASSICAL AND ORIENTAL LANGUAGES

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Emeritus: Burnett

Professor: Warren (Chairman)

Assistant Professor: Ingham

Lecturers: Kobayashi, Wesifeld, Woo

## Comparative Literature

### Offered by the Department

Minor in Classics.

Teaching Minor in Humanities. (Refer to the section in this catalog on the School of Education.)

Teaching Minor in Latin. (Refer to this section of the catalog under Latin.)

Courses in Chinese. (Refer to this section of the catalog under Chinese.)

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.)

(For courses in translation see Comparative Literature, History, and Philosophy.)

### CLASSICS MINOR

The minor in classics consists of 18 to 22 units, to include 12 units in Greek or 12 units in Latin (including high school equivalents), plus at least nine upper division units chosen from the following: Greek 103, 104, 105, 106, 199; Latin 104, 105, 106, 107, 199; Art 153; History 111A, 111B; Philosophy 101; Comparative Literature 102A, 102B. (Only units earned while in college may be applied toward the minimum of 18 units.)

## 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.

All reading assigned for classes in comparative literature is in English translations, and no knowledge of any foreign language is required.

#### 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 82 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Comparative Literature 52A-52B.

**Major.** A minimum of 24 upper division units to include at least 12 units in comparative literature courses, at least six units in a foreign literature (in original language), at least six units to be chosen, with adviser approval, from one of the following: comparative literature courses, foreign literature courses, and courses in related fields.

### COMPARATIVE LITERATURE MINOR

The minor in comparative literature consists of from 15 to 22 units in comparative literature, nine units of which must be in upper division courses.

### LOWER DIVISION COURSES

#### 52A-52B. Masterpieces of World Literature (3-3) I, II

A chronological survey from Homer to modern times. The first semester stresses the classical epic and tragedy. The second semester stresses more recent literature, including prose fiction, the drama, and the essay. Not open to students with credit in English 52A-52B.

#### 70A-70B. Introduction to Oriental Literature (3-3)

Major writings in translation, with emphasis each semester on the literature of one oriental country.



## Comparative Literature

### 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

### 101A-101B. Modern Continental Fiction (3-3)

Selected works by modern novelists and short story writers of continental Europe. First semester, the late nineteenth century; second semester, the twentieth century. Not open to students with credit in English 101A-101B.

### 102A-102B. Greek and Latin Literature (3-3)

Masterpieces of ancient Greek literature the first semester, Latin literature the second.

### 115. The Bible as Literature (3) I

(Same course as English 105)

Prose and poetry of the King James version.

### 138. Introduction to Aesthetic Appreciation (1) I

(Same course as Humanities 138)

Major forms of expression and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstrations, and panel discussions.

### 140A-140B. Masterpieces of French Literature (3)

A cultural course designed to be given in introduction to the great French works from the Song of Roland through Cyrano de Bergerac, with emphasis on the sixteenth, seventeenth, eighteenth and nineteenth century authors. The contributions to world thinking of Rabelais, Montaigne, Moliere, Racine, Descartes, Pascal, Montesquieu, Voltaire, Rousseau, Hugo, Balzac, Flaubert, Maupassant, Zola, will be studied through lectures and outside readings.

### 142. The Golden Age of German Literature (3) I, II

Masterpieces of German literature from the eighteenth and early nineteenth centuries.

### 143. Masterpieces of Modern German Literature (3) I, II

Selected works in English translation by outstanding German writers, poets, and thinkers of the 19th and 20th centuries. Included are contributions by Hölderlin, E.T.A. Hoffmann, Heine, Keller, Hebbel, Nietzsche, Hauptmann, Rilke, Hesse, Th. Mann, Kafka, Werfel, Benn, Brecht, and others.

### 144. Masterpieces of Spanish Literature (3) I, II

Reading selections from major Spanish authors.

### 145. Modern Latin American Literature (3) I, II

Reading selections from major Latin American authors.

### 150. The Epic (3)

Selected epic poems from world literature; emphasizes the Western epic tradition from Homer to the present.

### 152A-152B. World Drama (3-3)

Selected tragedies and comedies from Asiatic, European, English, and American literature, with emphasis upon the human problems depicted therein and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings.

### 153A-153B. World Poetry (3-3)

Selected lyric poets from world literature; first semester: prior to 19th century; second semester: 19th and 20th centuries.

### 155. Literature of the Middle Ages (3)

European medieval literature; includes English medieval literature exclusive of Chaucer.

## Drama

### 156. Continental Renaissance (3)

Representative selections from authors of the Renaissance period in Continental Europe.

### 170. Studies in Modern Oriental Literature (3)

Types of recent literature in translation, with emphasis on the writing of one oriental country. May be repeated once for additional credit with new material.

### 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.

### 190. Literary Movements (3)

A movement or theme in world literature—such as Symbolism, Realism, Existentialism, alienation, or revolution. May be repeated for a maximum of six units credit.

### 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.

### 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.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

## DRAMA

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Professors: Amble, Povenmire, Powell, Sellman (Chairman)

Associate Professor: Stephenson

Assistant Professors: Harvey, Howard, Owen

#### Offered by the Department

Master of Arts degree in drama. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in drama with the A.B. degree in applied arts and sciences.

Minor in drama.

Teaching major in drama with specialization in secondary teaching.

Teaching minor in drama with specialization in both elementary and secondary teaching.

### 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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Drama 30, 31, 40, 50, and Telecommunications and Film 1 or 70. (15 units.)

**Major.** A minimum of 24 upper division units in drama to include Drama 120, 127A, 128, 132, 140A, 160A, 160B, and five units of electives in drama (excepts Drama 142 and 199) 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**

A minor is not required with the drama major with this emphasis for the degree.

**Preparation for the major.** Drama 30 or 31, 40, 50, and Telecommunications and Film 3. (12 units.)

Note: Drama 5 and 10 should be taken as part of the General Education requirements.

**Major.** A minimum of 24 upper division units in drama to include Drama 127A, 140A, 140B, 145A, 148, 152A, 160A, 160B. In addition to course requirements the student must participate in a minimum of five Major Theater performances and three Studio or Experimental Theater activities.

**EMPHASIS IN DESIGN FOR TELECOMMUNICATIONS**

A minor is not required with the drama major with this emphasis for the degree.

**Preparation for the major.** Drama 40, 50, or Telecommunications and Film 20, Telecommunications and Film 3, 56, and 83. (15 units.)

**Major.** A minimum of 24 upper division units to include Drama 101, 140A, 140B, 148, 152A or Telecommunications and Film 180, Telecommunications and Film 150, 156, and 162 or 184.

**DRAMA MINOR**

The minor in drama consists of 21 units in drama to include Drama 5, 30 or 31, 40, 50 and nine units of upper division electives in drama.

**DRAMA MAJOR****FOR THE STANDARD 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, with specialization in secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in applied arts and sciences.

**SPECIALIZATION IN SECONDARY TEACHING**

**Preparation for the major.** Drama 30, 31, 40, 50, and Telecommunications and Film 1 or 70. (15 units.)

Note: Drama 5 and 10 should be taken as part of the General Education requirements.

**Teaching major (undergraduate).** A minimum of 24 upper division units to include Drama 120, 127A, 128, 132, 140A, 160A, 160B, and five units of electives in drama (except Drama 142 and 199) selected with the approval of the adviser.

**Postgraduate Year.** Six upper division or graduate units selected from the following: Drama 109, 121, 122, 131, 145A-145B, 148, 152A, or any 200-numbered course in drama with the approval of the adviser.

**DRAMA MINOR****FOR THE STANDARD TEACHING CREDENTIAL****Specialization in Elementary Teaching**

The minor in drama for elementary teaching consists of not less than 21 units in drama to include Drama 5, 30 or 31, 40, 50, and nine units of upper division electives in drama.

**Specialization in Secondary Teaching**

The minor in drama for secondary teaching consists of not less than 21 units in drama to include Drama 5, 30 or 31, 40, 50, and nine units of upper division electives in drama.

**LOWER DIVISION COURSES****5. Introduction to the Theatre (3) I, II**

A survey of theory and practice in the contemporary theatre, including its literary, critical, and technical aspects viewed against historical backgrounds. Attendance at selected rehearsals and performances required. (Formerly numbered Speech Arts 5.)

**8. Verse Choir (2) I, II**

Three hours.

Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and readings on the nature, artistic function and history of the Verse Choir. Maximum credit four units, including lower division and upper division courses 8 and 108. (Formerly numbered Speech Arts 63.)

**10. Voice and Diction (3) I, II**

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. (Formerly numbered Speech Arts 1.)

**30. Elementary Acting (3) I, II**

Three lectures per week and 30 hours of laboratory per semester.

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. (Formerly numbered Speech Arts 55A.)

**31. Intermediate Acting (3) I, II**

Three lecture-demonstrations per week and 30 hours of laboratory per semester.

Prerequisite: Drama 30.

Continuation of Drama 30, emphasizing the application of fundamental skills to the problems of emotion, timing, characterization, and ensemble acting. (Formerly numbered Speech Arts 55B.)

**32. Movement and Mime for the Theatre (3) I**

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. (Formerly numbered Speech Arts 32.)

**40. Dramatic Production (3) I, II**

Two lectures and three hours of laboratory.

Technical practices and organization of production for theatre and television. Practice in drafting and construction of scenery for the college productions. (Formerly numbered Speech Arts 56.)

**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. (Formerly numbered Speech Arts 57.)

**50. Elementary Stage Costume and Makeup (3) I**

Two lecture-demonstrations and three hours of activity.

Principles and application of makeup for stage, film, and television. Pattern drafting, draping, color harmony and use of fabrics for stage costuming. Practical training in the construction of stage costumes and application of makeup for departmental productions. (Formerly numbered Speech Arts 8.)

**99. Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 129. 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

**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. (Formerly numbered Speech Arts 101.)

**108. Advanced Verse Choir (2) I, II**

Three hours.

Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and reading on the nature, artistic function and history of the Verse Choir, with a written report or project. Maximum credit four units, including lower division and upper division courses, 8 and 108. (Formerly numbered Speech Arts 163.)

**109. Verse Choir Directing (2 or 3)**

Organizing a given group as a Verse Choir, considering age, voice quality, background, selection and arrangement of material, and techniques of directing. Demonstration and practice of techniques to improve speech through the Verse Choir. (Formerly numbered Speech Arts 164.)

**110. Creative Dramatics (2) I, II**

Practical 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. (Formerly numbered Speech Arts 110.)

**120. Play Analysis (3) I, II**

The structure and style of drama. Several short plays and one full-length play are read, discussed and analyzed. (Formerly numbered Speech Arts 118A.)

**121. Theatre Criticism (3) I**

Prerequisites: Drama 5 and 120.

A consideration of the problems and practices of dramatic criticism as applied to theatrical production in the past and present. (Formerly numbered Speech Arts 116.)

**122. Playwriting, the One-Act Play (3) I, II**

Lectures, discussion and reading of one-act plays written by the students. (Formerly numbered Speech Arts 118B.)

**123. Playwriting, the Long Play (3) II**

Prerequisite: Drama 122.

Lectures and analytical discussions of full-length plays written by students. (Formerly numbered Speech Arts 128.)

**124. Script Writing for the Musical Theatre (3) I**

Prerequisite: Drama 122.

Lectures, analytical discussions, and readings of one-act and full-length scripts written for the musical stage by students.

**125. Original Dramatic Works: Production Laboratory (3) II**

Nine hours of laboratory.

Prerequisites: Drama 30, 31, 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. (Formerly numbered Speech Arts 126.)

**126. Theory of Production for the Musical Stage (3) I**

Prerequisites: Drama 31 and consent of instructor. Theory and principles of production of modern musicals. (Formerly numbered Speech Arts 125.)

**127A-127B. Stage Direction (3-3) I, II**

Prerequisite: Drama 127A is prerequisite to 127B.

Planned for prospective directors of plays in schools, colleges and community theatres.

A. Composition, picturization and movement for the stage director.

B. Advanced problems of composition and motivations for movement.

(Formerly numbered Speech Arts 159A-159B.)

**128. Stage Direction Laboratory (1) I, II**

Prerequisites: Credit or current registration in Drama 127A or 127B.

Experience in directing a one-act play before a departmental or public audience. Maximum credit two units. (Formerly numbered Speech Arts 160.)

**130. Accents and Dialects for the Stage (3) II**

Prerequisite: Drama 30.

Various accents and dialects most frequently occurring in stage productions.

**131. Advanced Acting Theory (3) I, II**

Prerequisite: Drama 30 or 31.

The theories and principles of acting. (Formerly numbered Speech Arts 153.)

**132. Advanced Acting (3) I, II**

Prerequisite: Drama 31.

Problems in characterization: Acting styles of the great periods in theatre history. (Formerly numbered Speech Arts 155.)

**140A. Scenic Design (3) I**

Prerequisite: Drama 40.

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. (Formerly numbered Speech Arts 140A.)

**140B. Styles in Scenic Design (3) II**

Prerequisite: Drama 140A.

History of scenic design and the application of contemporary styles to various types of dramatic production for stage, television and cinema. (Formerly numbered Speech Arts 140B.)

**142. Theatre Workshop (2) I, II 5 (3 or 6)**

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. (Formerly numbered Speech Arts 142.)

**145A-145B. Stage Lighting (3-3) I, II**

Two lectures and three hours of laboratory.

Prerequisite: Drama 145A is prerequisite to 145B.

Light, color, lighting instruments, and control equipment, including the design and planning of lighting for plays. (Formerly numbered Speech Arts 145A-145B.)

**148. Advanced Dramatic Production (3)**

Two lectures and three hours of laboratory.

Prerequisite: Drama 40.

Scenery drafting and construction, with attention to the multiple-set play. Planning of scenery construction and rigging for stage and television productions. (Formerly numbered Speech Arts 156.)

**151. Costume, Movement, and Manners (3) I**

Prerequisite: Drama 50.

Interrelationship of period costumes on the movement and manners of the time and their application on the stage. (Formerly numbered Speech Arts 151.)



## Drama

### 152A-152B. History of Costume (3-3) I, II

Two lectures and three hours of laboratory.  
Costume from primitive times to the present; use of historical costumes on the stage. (Speech Arts 152B may be taken without 152A.)

A. From primitive times to 16th century.

B. 16th century to 20th century.

(Formerly numbered Speech Arts 152A-152B.)

### 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 160B may be taken without 160A. (Formerly numbered Speech Arts 154A-154B.)

### 165. History of American Theatre (3) I, II

Prerequisites: Drama 160A or 160B, and consent of instructor.

American theatre and drama from Colonial times to the present day. Readings of plays and primary documents. Social and cultural background. (Formerly numbered Speech Arts 158.)

### 166. Honors Course (1-3) I, II

Refer to Honors Program.

### 175. Theatre Management and Promotion (3) I, II

A practical and correlated study of the college and university theatre; principles of organization, programming, production, budgets, box office, and promotional procedures.

### 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.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

## GRADUATE COURSES

### 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 drama. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.

### 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 electro-mechanical devices to the scenic arts for theatre and television. (Formerly numbered Speech Arts 243.)

### 245. Seminar in Lighting for Stage and Television (3)

Prerequisite: Drama 145A or 145B.

Projects concerned with the aesthetic and the technical problems of lighting in stage. (Formerly numbered Speech Arts 245.)

### 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 152A or 152B.

B. Scenery Design

Prerequisites: Drama 140A, 140B, or 148.

(Formerly numbered Speech Arts 246.)

## Economics

### 247. Seminar in History of Theatre and Drama (3)

Prerequisites: Drama 120, 160A, and 160B.

A. British and Continental Theatre

B. American Theatre

(Formerly numbered Speech Arts 247.)

### 248. Seminar in Dramatic Theory (3)

Prerequisites: Drama 120, 160A, 160B, and 200.

Problems in producing works of such playwrights as Ibsen, Strindberg, Chekhov, Shaw. May be repeated once with new content for a maximum of six units. Maximum credit six units applicable on a master's degree. (Formerly numbered Speech Arts 248.)

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis or Project (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## ECONOMICS

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Emeritus: Cameron, Ryan

Professors: Anderson, Babilot, Barckley (Chairman), Bridenstine, Flagg, Gifford, Leasure, McClintic, Neuner, Turner, M.S.

Associate Professors: Chadwick, Jencks, Poroy

Assistant Professors: Clement, Hambleton, Hardesty, Kartman, Madhavan, Nam, Popp, Sebold, Venieris

Lecturer: Ellsworth

#### Offered by the Department

Master of Arts degree in economics. (See also Master of Arts degree for teaching service in social science. Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in economics with the A.B. degree in liberal arts and sciences.

Minor in economics.

Teaching major in economics, with specialization in secondary teaching.

Teaching minor in economics, with specialization in secondary teaching.

## ECONOMICS MAJOR

### WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All the candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 82 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 pre-legal education or a combined economics-business program.

#### PLAN A

Preparation for the major. Economics 1A-1B (or 103A-103B) and 2. Recommended courses in related fields: Mathematics 40 and 50.

Major. A minimum of 24 upper division units in economics to include Economics 104A, 104B, 107, 109, and 141. Economics 103A-103B may not be used to fulfill minimal upper division requirements. Students may not receive credit for more than 30 upper division units in economics (in addition to Economics 103A-103B).



## Economics

**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 40, 50, 51, 52, 121A-121B, 140A-140B, and 150A-150B.

### 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) pre-law majors; (b) a broad-ranging liberal arts interest; and (c) a combined economics and business interest.

**Preparation for the major.** Economics 1A-1B (or 103A-103B). 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 100A-100B. Six of the 24 units may be in a related field to be selected with the approval of the departmental Academic Requirements Committee. (Economics 103A-103B may not be used to fulfill minimal upper division requirements in the major.) Students may not receive credit for more than 30 upper division units in economics (in addition to Economics 103A-103B).

**Minor.** A minor is not required with this major.

## ECONOMICS MINOR

The minor in economics consists of from 15 to 22 units in economics, nine units of which must be in upper division courses (except Economics 103A-103B).

## ECONOMICS MAJOR

### FOR THE STANDARD 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.

#### Specialization in Secondary Teaching

**Preparation for the major.** Economics 1A-1B or 103A-103B, and 2. (9 units.)

**Teaching Major (Undergraduate).** A minimum of 24 upper division units in economics to include Economics 100A-100B. Economics 103A-103B may not be used to fulfill minimal upper division requirements in the major.

**Postgraduate Year.** Six units of graduate courses in economics to be selected with the approval of the department adviser.

## ECONOMICS MINOR

### FOR THE STANDARD TEACHING CREDENTIAL

#### Specialization in Secondary Teaching

The minor in economics for secondary teaching consists of not less than 21 units to include Economics 1A-1B or 103A-103B and 15 upper division units in economics courses except 103A-103B selected with approval of the departmental adviser.

### LOWER DIVISION COURSES

#### 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 macro-analysis including national income analysis, money and banking, business cycles, and economic stabilization. Not open to students with credit in Economics 103A.

## Economics

#### 1B. Principles of Economics (3) I, II

Prerequisite: Economics 1A.

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 (micro-analysis); and international economics. Not open to students with credit in Economics 103B.

#### 2. Statistical Methods (3) I, II

Prerequisite: Mathematics 3 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 for, or concurrent enrollment in, another course in statistics.

#### 3. Current Topics in Economics (3) I

A non-technical course covering selected current policy issues and problems such as poverty, war and defense, educational economics, urban problems, and economics of racial discrimination.

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

#### 100A. Intermediate Economic Theory (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic theory with special reference to the theory of the firm and the industry; value and distribution.

#### 100B. Intermediate Economic Theory (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic theory with special reference to national income analysis and the theory of investment.

#### 101. History of Economic Thought (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The development of economics. Contributions of schools of thought and individual writers are examined with regard to their influence on economic theory and policy.

#### 102. Comparative Economic Systems (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The economic aspects of laissez-faire and regulated capitalism, co-operatives, socialism, communism, nazism, fascism. Experience in Russia, Germany, United States, Great Britain. Criteria for evaluating economic systems. The individual and government in each system. Planning in a liberal capitalistic society.

#### 103A. Economic Principles, Institutions, and Policies (3) I, II

Prerequisite: Six units in political science, history, or sociology.

Income and employment theory and its applications. Not open to students with credit in Economics 1A. May not be used to fulfill minimal upper division requirements in the economics major or minor or special major.

#### 103B. Economic Principles, Institutions, and Policies (3) I, II

Prerequisite: Economics 103A or 1A.

Price theory and its applications. Not open to students with credit in Economics 1B. May not be used to fulfill minimal upper division requirements in the economics major or minor or special major.

#### 104A. Micro-Economic Analysis (3) I

Prerequisites: Economics 1A-1B (or 103A-103B) and Math 50.

Mathematical interpretation of micro-economic theory. Credit will not be given for both 100A and 104A.



## Economics

**104B. Macro-Economic Analysis (3) II**

Prerequisites: Economics 1A-1B (or 103A-103B) and Math 50.  
Mathematical interpretation of macro-economic theory. Credit will not be given for both 100B and 104B.

**105. Welfare Economics (3) II**

Prerequisites: Economics 1A and 1B, or 103A and 103B, and 100A.  
Economic welfare analysis; the economic and ethical conditions of optimum welfare arrangements; theoretical and empirical findings; social welfare functions and social planning.

**107. Quantitative Economics (3) I, II**

Prerequisites: Math 50 and Economics 1A-1B (or 103A-103B).  
The quantitative approach to economic problems. The use of mathematics in economic analysis.

**109. Advanced Economic Theory (3) II**

Prerequisites: Economics 107, and either 100A-100B or 104A-104B.  
Recent contributions to the advanced theory of the firm, consumer demand, employment and growth.

**110. Economic History of Europe (3) I**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
Economic development from the Middle Ages to the present. Particular attention is given to the impact of the Industrial Revolution on national economics, especially on England's commerce and industry.

**111A-111B. Economic History of the United States (3-3)**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
American economic development and national legislation in the fields of agriculture, industry, and commerce. Semester I: 1600-1865. Semester II: 1865 to the present.

**114. Economic Problems of Latin America (3) I**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
Economic development, institutions, and problems of Latin America.

**115. Economic Problems of South and East Asia (3) I**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
Economic development, institutions, and problems of China, India and Pakistan, Japan, and Southeast Asia.

**118. The Economy of the Soviet Union (3) II**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
The development, institutions, and problems of the Soviet economy.

**119. Economic Problems of Africa and the Middle East (3) II**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
Economic development, institutions, and problems of Africa and the Middle East.

**131. Public Finance (3) I, II**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
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.

**133. Fundamentals of Finance (3) I, II**

(Same course as Business Administration 127)  
Prerequisites: Economics 1A and 1B, or 103A and 103B, and Business Administration 1A and 1B.  
Financing business enterprises. Capital and its role in production. The supply of and demand for capital. Financial intermediaries. Government regulation of finance. The cost of capital.

**135. Money and Banking (3) I, II**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
The elements of monetary theory. History and principles of banking with special reference to the banking system of the United States.

**138. Urban and Regional Economics (3) I, II**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
Major influences affecting city location and growth; role of private and governmental institutions in influencing residential and other uses of land; major considerations in appraising, managing, financing, marketing, developing and taxation of urban property. Discussion of San Diego problems.

**139. Location Theory (3)**

Prerequisite: Economics 138.  
The optimal location of economic activities. The effects of spatial distribution of resources and markets on the locational equilibrium of the firm.

**141. Econometrics (3)**

Prerequisites: Economics 2 and 107.  
Measurement in economics. The construction and testing of simple economic hypotheses. Use of economic models involving multiple-regression analysis.

**142. Business Cycles (3) I**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
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.

**150. Labor Problems (3) I, II**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
Labor organizations and their policies, wages, strikes, unemployment, social insurance, child labor, labor legislation, plans for industrial peace, and other labor problems.

**152. Collective Bargaining (3) II**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
Structures of labor relations; management and union problems; public policy and collective bargaining; conditions of successful collective bargaining.

**153. Comparative Labor Problems (3) I**

Prerequisite: Economics 1A and 1B or 103A and 103B.  
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.

**166. Honors Course (1-3) I, II**

Refer to the Honors Program.

**167. Contemporary Issues (3-6) I, II**

Prerequisites: Economics 100A and 100B.  
Current policy issues and problems from an economic point of view. Maximum credit six units. An undergraduate seminar.

**170. Government and Business (3) I, II**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
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.

**171. Transportation Economics (3) I**

Prerequisites: Economics 1A and 1B or 103A and 103B.  
Economic impact of the availability and cost of transportation services. Organization, rate-making practices, financing and regulation of transportation agencies: air, surface, and water. Current issues of national transportation policy.



## Economics

### 172. Public Utilities (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economics and regulation of utility enterprises. Growth, pricing, demand and cost behavior, financing, regulatory principles and techniques. Public power and other current policy issues.

### 173. Economic Resources and Growth (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Resource requirements for continued growth in the American economy: Human resources; capital formation; energy, water and material resources. Effects of population increase. Factors determining resource growth and productivity. Impact of technological change. Current resource development policies.

### 174. Economic Concentration and Monopoly Power (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

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.

### 175. Industry Studies (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Evaluation of the structure, conduct and performance of selected industries in terms of social and economic goals.

### 185. Social Insurance (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Old age pensions, health insurance, unemployment insurance, and Social Security Act. Strength and weakness of existing systems.

### 189. Population and Economic Growth (3)

Prerequisites: Economics 1A-1B or 103A-103B.

Interrelationship between the components of population change (fertility, mortality, and migration) and economic growth in developed and underdeveloped areas.

### 190. International Economic Problems (3)

Prerequisites: Economics 1A-1B or 103A-103B. Not open to students with credit in Economics 191 or 192.

International problems, economic communities, organizations, and other selected topics. (Formerly numbered Economics 192.)

### 191. International Trade Theory (3)

Prerequisites: Economics 100A-100B or 104A-104B.

The pure theory of international trade and commercial policy. (Formerly numbered Economics 190.)

### 192. International Monetary Theory and Policy (3)

Prerequisites: Economics 100B or 104B or 135.

Balance of payments, international capital movements and foreign exchange in relation to current theories and policies. (Formerly numbered Economics 191.)

### 194. Capital and Growth Theory (3)

Prerequisites: Economics 100A-100B or 104A-104B.

Factors affecting the capital supply and the rate of growth of a developed economy.

### 195. Economics of Underdeveloped Areas (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The nature and causes of economic underdevelopment. Problems of and policies for the economic development of underdeveloped areas of the world. Formerly numbered Economics 196.

## Economics

### 197. Research Design and Method (3) II

Prerequisites: Economics 2 and 107.

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.

### 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 198 and 199 limited to six units.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

## GRADUATE COURSES

### 200A. Seminar in Advanced Economic Theory (3)

Prerequisites: Economics 104A and 104B, or 100A, 100B, and 107.

Theory of consumer and producer behavior. Determination of prices and resource allocation patterns in a market economy: partial and general equilibrium.

### 200B. Seminar in Advanced Economic Theory (3)

Prerequisites: Economics 104A and 104B, or 100A, 100B, and 107.

Theory of money, employment, and income determination. Alternative theories of consumption, investment, price level and rate of interest. Causes of instability in short run and long run.

### 201A-201B. Seminar in the Development of Economic Thought (3-3)

Prerequisites: Twelve units in economics.

A critical study of the development of economic thought.

### 202. Seminar in Comparative Economic Systems (3)

Prerequisites: Economics 102 or 115 or 118.

Topics in comparative economic systems; the Soviet economy, the economy of Communist China, and related subjects.

### 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 100A-100B; not applicable toward a master's degree in economics.

### 208. Development Planning (3)

Prerequisite: Economics 196.

Role of government in development. Choice of target and policy variables. Planning techniques and their application to national development problems.

### 210. Seminar in Economic History (3)

Prerequisite: Economics 110 or 111A or 111B.

Individual study and group discussion on selected topics in economic history.

### 231. Seminar in Public Finance (3)

Prerequisite: Economics 131.

Advanced study of public finance problems and literature; research.

### 235. Seminar in Money and Banking (3)

Prerequisite: Economics 135.

Individual research, seminar reports and group discussion of selected economic problems related to the structure and functioning of the financial system.

### 238. Seminar in Urban and Regional Economics (3)

Prerequisite: Economics 138.

Urban and regional economics; individual research and reports.



## Education

### 241. Seminar in Econometrics (3)

Prerequisite: Economics 141.

The construction of large economic models. Identification, casual ordering and estimation. Simultaneous-equation techniques and other selected topics.

### 250. Seminar in Labor Economics (3)

Prerequisites: Economics 150 or 151 or 152 or 153.

Individual study and group discussion of selected topics in labor economics.

### 253. Comparative Labor Seminar (3)

Prerequisite: Economics 150 or 153.

Research in comparative labor problems, including problems of labor and social legislation, medical economics, poverty problems, labor force structural problems, and international labor movements.

### 272. Seminar in Utilities and Water Resources (3)

Prerequisite: Economics 172 or Economics 173.

Selected topics in utility economics and regulation, and the economics of water resource development.

### 274. Seminar in Economic Concentration and Monopoly Power (3)

Prerequisites: Economics 174 or both Economics 170 and 100A.

Selected topics in the field of economic concentration and monopoly.

### 290. Bibliography (1)

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's thesis.

### 292. Seminar in International Economics (3)

Prerequisite: Economics 190.

Resource allocation, income distribution, commercial policies, capital movements, balance of payments, and international monetary institutions. (Formerly numbered 295.)

### 295. Seminar in the Economics of Underdeveloped Countries (3)

Prerequisite: Economics 196.

Theories regarding underdevelopment and policies for development of economically underdeveloped countries. Formerly numbered Economics 296.

### 297. Research (3)

Prerequisites: Classified graduate standing and consent of instructor.

Independent research project in an area of economics.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a thesis for the master's degree.

## EDUCATION

### IN THE SCHOOL OF EDUCATION

Member of the American Association of Colleges for Teacher Education

#### Faculty

Emeritus: Alcorn, Bacon, Corbett, Falk, Hammack, E., Hammack, I., Kinder, Madden, R., White  
Professors: Anderson, E., Anderson, P., Apple, Baker, Ballantine, Briggs, Bruce, Brydegaard, Charles, Crum, Fishburn, Fisher, Friedrich, Fulkerson, Gates, Gega, Gray, Groff, Halfaker, Hill, Holt, Huls, Hunter, Inskeep, Kendall, LaPray, Lienert, Linley, Malcolm, Nardelli, Person, Petteys, Platz, Prouty, Ross,

## Education

Rowland, Schmidt, Schrupp (Dean), Schunert, Servey, Singer, Smith, H., Smith, R., Strand, Strom, L., Tossas, Trimmer, Wetherill, Wilding

Associate Professors: Anthony, Blanc, Clark, Cummins, Erickson, Gast, LuPone, McClard, Miller, Mitchell, Stautland, Walsh, Warburton

Assistant Professors: Becker, Becklund, Bee, Birch, Bishop, Botkin, Bradley, Burian, Burnside, Chamley, Carnevale, Cochran, Duckworth, Elliott, Forbing, Fearn, Ford, Goodson, Hawley, Heusser, Holman, Kaatz, Kapcsos, Manjos, McCabe, McCoy, Meek, Melton, Mooers, Moreno, Morris, Murphy, Nagel, Pehrson, Retson, Richman, Sanner, Shaw, Steckbauer, Strom, D., Thompson, Vasquez, Yesselman

Lecturers: Anderson, G., Ashworth, Barnier, Beets, Berry, Brauer, Carrier, Chapparro, Coley, Curry, Davies, Evans, Farmer, Fawcett, Grant, Hammons, Harris, Limoli, Matthews, Maxwell, McIntyre, McMenamim, McNary, Michaelson, Payne, Renke, Rezek, Roach, Robersshaw, Roderis, Rood, Schmock, Schroeder, Shimmin, Spiegel, Taylor, Ulvestad, Vannet, Whittemore, Wilson

### IMPERIAL VALLEY CAMPUS

#### Faculty

Professors: Ikeda, Rodney (Director)

Associate Professors: Baldwin, Smith, A.

Assistant Professors: Ayala, Burton, Franklin, Harmon, Hill, Millhizer, Polich, Rice, Spencer, Story, Van Der Voort, Wilson, G.

Lecturers: Feldman, Hinshaw, King, Najarian, Wilson, P.

#### Offered by the School of Education

Master of Arts degree in education with concentrations in ten areas and a Master of Science in counseling. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate of Education.)

B.E. degree. (Described in the section 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.

### LOWER DIVISION COURSES

#### A. Review of Arithmetic (0) I, II

#### H. Review of Handwriting (0) I, II

#### R. Review of Reading (0) I, II

#### S. Review of Spelling (0) I, II

Noncredit courses designed to increase competence in the skill subjects. For students who do not qualify on the respective sections of the Fundamentals Test required of all applicants to elementary teacher education.

### UPPER DIVISION COURSES

#### Social Foundation

#### 100. The Secondary School (4) I, II

Prerequisite: To be taken concurrently with Education 180B.

American Education in its social and historical setting. The secondary school curriculum, the philosophies, issues, and social forces that influence the school. Not open to students with credit in Education 101 or 102.

#### 101. History and Philosophy of Education (2) I, II, S

Prerequisites: Senior standing and a minimum of 12 units in education.

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. Not open to students with credit in Education 100.

#### 102. Secondary Education (3) Irregular

An introduction to understanding the development of secondary education and its present status as a social institution. Not open to students with credit in Education 100.



## Education

### 104. European Education and Cultural Change (3) II

Tradition and change in contemporary European education with special reference to England, France, Germany, and the U.S.S.R.

### Psychological Foundations

### 110. Psychological Foundations of Education for Secondary Teachers (5) I, II

Five lectures and audio-visual laboratory.  
Prerequisites: Admission to Teacher Education and education program approved by the Coordinator of Secondary Education. To be taken concurrently with Education 180A and Audio-Visual laboratory checkout.

The nature of growth and development, principles and theories of learning, guidance practices, test and measurements. Not open to students with credit in Education 112 or 113.

### 111. The Learner in the Elementary School (3) I, II, Summer

Prerequisites: Psychology 1 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.

### 112. The Learning Process in the Elementary School (3) I, II, Summer

Prerequisite: Education 111.  
Psychological principles for effective classroom teaching; techniques of measurement and evaluation for the diagnosis and improvement of learning.

### 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. Not open to students with credit in Education 110.

### 114. Interpretation of Early Childhood Behavior (3) Irregular in Summer

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.

### 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.

### 118. Supervision of Child Welfare and Attendance (3) Irregular

Content includes laws relating to children, guidance principles, social casework, agency relationships, conference techniques, home visitation methods, employment supervision, attendance work, child accounting, familiarity with testing techniques.

### Methods—Secondary

### 120. The Teaching Process (3) I, II

To develop teacher competency at the secondary level in professional and community relationships; in general methods and materials; in planning for teaching; and in evaluating learning activities.

### 121. Methods and Materials of Instruction: Major (2) Minor (2) except Education 121Q (3)

Lecture courses, except that Education 121K and 121N meet for one lecture and three hours of laboratory.

Professional courses in specific teaching fields taken concurrently with directed teaching. Each course emphasizes the application of best practices with reference to each subject area named.

## Education

Subject fields for section 121 are as follows:

### Offered in the Fall Semester

- A. Methods in Art
- 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 Arts
- M. Methods in Social Science
- N. Methods in Life Science
- Q. Methods in Business Skills
- V. Methods in General Science

### Offered in the Spring Semester

- C. Methods in Home Economics
  - D. Methods in Industrial Arts
  - F. Methods in Mathematics
  - K. Methods in Physical Science
  - M. Methods in Social Science
  - N. Methods in Life 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)
  - R. Methods in Choral Music
  - S. Methods in Instrumental Music

### 122. Reading in Secondary Education (3) Irregular

The nature of the reading program, development of techniques and skills, vocabulary development, reading in the content fields, the differentiated attack, measurement, diagnosis, and remediation.

### 123. Organization and Operation of the Reading Laboratory (3) I, II

Lectures and laboratory to eight hours per week.  
Prerequisite: Education 122.  
Problems and techniques in organizing and operating the reading laboratory in secondary schools and colleges; current research and laboratory experiences.

### 126. Workshop in Secondary Education (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 college staff and the San Diego County Curriculum Staff.

### Methods—Elementary

### 130. First Elementary Education Practicum (2) I, II, (3) S

Four hours of activity for 130A; four hours of activity for 130B; six or more hours of activity and audio-visual laboratory for 130C.

Prerequisite: Concurrent registration in Education 111, or consent of Coordinator of Elementary Education.

Curriculum, principles, methods, and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed A through C below.

- A. Arithmetic
- B. Language Arts
- C. Student Teaching (Not offered in the summer)

### 131. Second Elementary Education Practicum (2) I, II, (3) S except 131C (2 to 4)

Four hours of activity for 131A; four hours of activity for 131B; six or more hours of activity and audio-visual laboratory for 131C.

Prerequisite: Education 111 and 130; concurrent registration in Education 112 or consent of Coordinator of Elementary Education.

Curriculum, principles, methods, and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed in A through C below.

- A. Reading
- B. Social Studies
- C. Student Teaching (Not offered in the summer)

### 132. Third Elementary Education Practicum (2) I, II, (3) S except 132D (4 to 8)

Four hours of activity for 132A; four hours of activity for 132B; four hours of activity for 132C; ten or more hours of activity for 132D.

Prerequisites: Education 112 and 131.



## Education

Curriculum, principles, methods, and materials of instruction (including audiovisual), and participation in elementary education, in the areas listed in A through D below.

- A. Science
- B. Art
- C. Music
- D. Student Teaching (Not offered in the summer)

### 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.

### 134. Laboratory in Elementary Education (3) S

A general course in observation and theory, including a study of arithmetic, reading, language, music, science, social studies, art, spelling. Students in this course will observe in the summer demonstration school and discuss with the staff the teaching procedures.

### 135. Workshop in Elementary Education (3 or 6) Irregular

To meet the needs of individual 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 correspond with the Coordinator of Elementary Education, San Diego State College.

### 136. Modern Foreign Languages in Elementary Education (3) Irregular

Prerequisites: French or German or Spanish: (1964-65) courses 1, 2, 10, 11, or equivalents; (1965-1966) courses 1, 2, 3, 10, 11, or equivalents; (1966-1967) courses 1, 2, 3, 4, 10, 11, or equivalents.

Methods of teaching modern foreign languages in the elementary school, emphasizing the audio lingual approach. Students will produce materials and learn to use tapes, film strips, records, films, language laboratories, and written materials.

### 137. Reading Difficulties (3) I, S

Prerequisites: Education 112 and 131A or 122.

Reading difficulties, their causes, prevention, and correction. Remedial practices in reading useful to the classroom teacher, school counselor, and reading specialist.

### 138. Curriculum in Elementary Education (3) Irregular

Emphasis upon 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.

### 139. Kindergarten-Primary Practicum (3) I, II, S

The theory of early childhood education and the materials and teaching techniques used in the kindergarten. This course must be taken concurrently with Education 132C when the student teaching assignment is in the kindergarten.

#### Audiovisual

### 140. Techniques of Media Utilization (3) I, II, S

Three lectures and two hours of laboratory.

Use in the teaching-learning process, including laboratory.

### 141. Producing Instructional Materials (3) Irregular

Prerequisite: Education 140.

Production and evaluation of instructional materials.

### 143-S. Workshop in Educational Television (6) S

(Same course as Telecommunications and Film 172)

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.

## Education

### 144. Application of Programed Instruction (3) Irregular

Prerequisite: Education 112 or 110, or Psychology 175.

Application of programed instructional materials to the teaching process, i.e., punch and strip devices, programed texts, teaching machines. Selection, evaluation, and utilization of programed materials in team-teaching and other new instructional systems. Individual preparation of instructional programs; laboratory practice.

### 151. Measurement and Evaluation in Elementary Education (3) I, II, S

Should follow Education 112 for elementary credential candidates.

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.

### 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. Not open to students with credit in Education 120.

### 153. Quantitative Methods in Educational Research (3) I, II

Prerequisite: Mathematics 12.

Basic tests of statistical significance with special reference to the interpretation of educational data.

#### Honors Course

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

#### Exceptional Children

### 161. Measurement and Evaluation in Special Education (4) II

Three lectures and 3 hours of laboratory.

Prerequisites: Education 120; 151 or 152; and Psychology 105.

Consideration of representative tests and evaluation procedures appropriate to the several areas of exceptionality; problems in psycho-educational diagnosis and appraisal; assembling and utilizing test results for the educational and/or rehabilitation program.

### 162. Emotionally Disturbed Children and Youth (3) I, S

Prerequisite: Education 167.

Nature, needs and problems of emotional deviates; survey of settings and roles of those who help, and ways they help.

### 163. Curriculum and Methods for Teaching Emotionally Disturbed Children and Youth (3) II or Irregular

Prerequisites: Education 162 or 167.

Selection, organization and presentation of curricular materials for emotionally disturbed children and youth.

### 164. Education of the Neurologically Handicapped (3) I

Prerequisites: Education 167 and Psychology 109.

Educational and psychological problems of brain-injured children and youth; identification procedures; educational programs, instructional methods, preparation of materials.

### 167. Exceptional Children (3) I, II, S

Characteristics and adjustment problems of mental, physical, and emotional deviates.

### 168. Curriculum and Methods for Teaching Mentally Retarded Children in the Elementary School (3) II, S

Prerequisite: Psychology 109 or Education 167.

Selection, organization, and presentation of curricular materials for mentally retarded children at all levels of the public schools. Concentration will be on the elementary level. (Recommended for students with specialization in Elementary Teaching.)



## Education

### 169. Curriculum and Methods for Teaching Mentally Retarded Children in the Secondary School (3) I, S

Prerequisite: Psychology 109 or Education 167.

Selection, organization, and presentation of curricular materials for mentally retarded children at all levels of the public schools. Concentration will be on the secondary level. (Recommended for students with specialization in Secondary Teaching.)

### 170. Workshop in Special Education (6) 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. Not more than six units may be used for any degree.

### 171. Practicum in Mental Retardation (2) II

Prerequisites: Admission to Special Education, and Psychology 109 or concurrent registration.

Supervised observation and participation in classroom and related school activities for mentally retarded. Course work includes discussion, analysis, and reports of observations.

### 172. Counseling Exceptional Children (3) I, S

Prerequisites: Education 110 or 112, and Education 167 or Psychology 109.

Educational, mental, social, and vocational counseling of exceptional individuals and their parents. Interrelationships of home, school, and community agencies.

### 173. Education of the Severely Mentally Retarded (3) II, S

Prerequisites: Education 167 and Psychology 109, 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.

### 174. Principles and Methods of Speech Correction (3) I

(Same course as Speech Pathology and Audiology 124)

Prerequisites: Speech Pathology and Audiology 120 and 121.

Etiology and treatment of the more common speech disorders, including physiology of speech, voice disorders, cleft palate, foreign dialect.

### 176. Stuttering and Neurological Disorders (3) I

(Same course as Speech Pathology and Audiology 125)

Prerequisites: Speech Pathology and Audiology 120 and 121.

Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy speech problems and aphasia in adults and children. Study of child or adult who presents multiple problems.

### 177. Audiometry: Principles (3) I

(Same course as Speech Pathology and Audiology 140)

Prerequisite: Psychology 50.

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.

### 178A. Communication Skills for the Deaf (3)

(Same course as Speech Pathology and Audiology 151)

Prerequisite: Speech Pathology and Audiology 140.

History, theory and methods of lipreading; auditory training.

### Student Teaching

### 180A-180B. Directed Participation, Secondary (1-1) I, II

Prerequisite: To be taken concurrently with Education 100 and Education 110.

A comprehensive orientation to a secondary school with directed observation and participation in the classroom.

## Education

### 180C-180D. Directed Teaching Secondary (3-3) I, II

Prerequisites: Admission to teacher education and concurrent registration in Education 252 is required for Education 180C. Education 180C is prerequisite to 180D.

Systematic observation, participation, and teaching under supervision in a junior or senior high school. A weekly seminar or conference is required. Education 180D is also offered in the summer.

### 181. Directed Teaching—Elementary (2-12) I, II

Prerequisites: Admission to teacher education and education program approved by the Coordinator of Elementary Education. Any grade below C is unacceptable for a credential.

Systematic observation, participation and teaching under supervision in the Campus Elementary School or affiliated elementary schools. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

### 182. Directed Teaching—Mentally Retarded (4) I, II

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.

### 183. Directed Teaching—Library Practice (2-4) I, II

Prerequisites: Admission to teacher education and concurrent completion of a teaching minor in library science.

Systematic observation and participation in library and audiovisual service under supervision in a school library and/or teaching materials center. During each semester of student library work a weekly conference period is required as indicated in the time schedule.

### 184. Directed Teaching—Speech Correction (4) I, II

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.

### 185. Directed Teaching—Hearing Impaired (4)

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.

### Conference and Special Courses

### 190. Conference on the Teaching of Mathematics (1) S

May be taken three times for credit.

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.

### 191. Guidance Conference (1) S

Prerequisite: Consent of director of the conference. Course may be taken three times for credit.

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.

### 192. Audiovisual Conference (1) S

May be taken three times for credit. 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.

### 199. Special Study (1-3) I, II, S

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor. Open only to senior and graduate students in education who have shown ability to work independently.



## Education

### EXTENSION COURSES

#### **X-116A—116B—116C. Child Study Laboratory (3-3-3) I, II**

Development of background and procedures for child study and their application to field situations. Field work required. For teachers in service. Education X-116A is prerequisite to X-116B, and X-116B is prerequisite to X-116C.

#### **X-197. Problems in Education (Credit to be arranged) Extension**

Prerequisite: Consent of instructor.

Class study of specially selected problems in education. Does not apply to pattern requirements for credentials. Offered only in extension.

### GRADUATE COURSES

#### **Prerequisites for All Graduate Courses**

For requirements for admission to graduate courses, refer to the section of this catalog on the Graduate Division. In addition to these general requirements, 12 units of professional education courses are prerequisite for enrollment in all graduate courses in education except Education 201, 223 and 251, which require special clearance from the Coordinator of Community College Programs; and courses in counselor education.

#### *Sociological Foundations*

##### **201. The Community College (2) I**

Fieldwork, including observation and audiovisual experiences required.

Overview of philosophy, history, aims, scope, function, outcomes, principles and problems of the community college. Relation of the community college to elementary and secondary schools and to four-year colleges.

##### **202. Social Foundation (2 or 3) I, II, S**

Prerequisite: Education 131C.

Sociological, historical, and philosophical foundations of American Education and their influences on present day educational practices.

##### **204. Comparative Education (3) I, S**

The contemporary educational ideas and practices of various countries of the world and their impact upon our culture and education.

##### **205. History of Education (3) Irregular**

Prerequisite: Education 100 or 101.

The history of education with emphasis on educational practices as related to present day problems.

##### **206. Philosophy of Education (3) Irregular**

Prerequisite: Education 100 or 101.

Study of philosophical backgrounds of educational thought; comparative philosophies; analysis of selected current trends and problems.

##### **207. Educational Sociology (3) Irregular**

Prerequisite: Education 100 or 101.

The social, economic, political and moral setting in which present day American education functions.

##### **208. Workshop in Community Influences on Learning and Curriculum Planning (3 or 6) S**

Prerequisite: Teaching experience.

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.

#### *Procedures of Investigation*

##### **211. Procedures of Investigation and Report (3) I, II, S**

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. (Formerly Education 290A-290B.)

## Education

##### **212. Educational Research Design (3)**

Prerequisite: Education 211.

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.

##### **213. Advanced Quantitative Methods in Educational Research (3)**

Prerequisite: Education 153.

Application of correlation and tests of significance, including nonparametric and multivariate techniques, to research designs in such areas as curriculum, human development, student learning, counseling, and administration.

#### *Educational Psychology*

##### **220. Advanced Educational Psychology (3) I, II, S**

Prerequisite: Education 110 or 112.

Advanced study of research and its application to learning and human growth.

##### **221. Seminar in Educational Measurement (3) S**

Prerequisite: One of the following: Education 150, 151, or 152.

Problems in educational testing. Emphasis upon construction, administration, and validation of teacher-made tests.

##### **222. The Gifted Child (3) I, S**

Prerequisites: Education 110, or 111 and 112.

The abilities and characteristics of the intellectually gifted or talented; related problems of curriculum, teaching, administration and guidance.

##### **223. Educational Psychology: Community College (2) I**

Prerequisite: Credit or concurrent registration in Education 201.

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.

#### *Guidance*

##### **224. Administration of Pupil Personnel Services (3) I, II, S**

Prerequisite: Education 230.

The organization and administration of school guidance services, including the use of community resources. Laws relating to children and child welfare.

##### **225A—225B. Determinants of Human Behavior (3-3) I, II, S**

Implications of theory and research in behavioral sciences for the understanding of human behavior. Education 225A deals with personality theories and psychological determinants of behavior; 225B with social and cultural determinants.

##### **226. Guidance Services in Public Education (3) I, II, S**

Prerequisite: Education 110, or Education 111 and 112.

Historical, philosophical, and legal bases of the pupil personnel services; staff roles and relationships in a variety of organizational patterns.

##### **229. Workshop in Counseling (3)**

Prerequisite: Consent of instructor of workshop.

Application of principles and procedures to specific situations for improvement of counseling services. Individual problems emphasized.

##### **230. Guidance Problems in Secondary Education (3) I, II, S**

Prerequisite: Education 110, and student teaching or teaching experience.

The theory and practice of guidance emphasizing advanced mental hygiene concepts needed by teachers and counselors.

##### **231. Theory and Process of Appraisal (4) I, II**

Three lectures and three hours of laboratory.

Measurement theory and procedures, including interpretation of test results. Not open to students with credit in Education 237. Offered during summer sessions only in combination with Education 232 as Education 237.



## Education

### **232. Theory and Process of Vocational Choice (4) I, II**

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 Education 237. Offered during summer sessions only in combination with Education 231 as Education 237.

### **233. Theory and Process of Counseling (4) I, II**

Three lectures and three hours of laboratory.  
Prerequisites: Education 225A and Education 231.  
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 Education 238 or Psychology 152 or Psychology 233. Offered during summer sessions only in combination with Education 234 as Education 238.

### **234. Theory and Process of Group Counseling (4) I, II**

Three lectures and three hours of laboratory.  
Prerequisites: Education 225B and 233.  
Group process and individual growth, theories of group interaction, sensitivity training and group leadership techniques. Not open to students with credit in Education 238. Offered during summer sessions only in combination with Education 233 as Education 238.

### **237. 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 Education 231 or 232. Application to take the course must be made early during the preceding semester. Offered only during summer sessions.

### **238. Counseling: Individual and Group (6) S**

Five lectures and three hours of laboratory.  
Prerequisite: Education 225A.  
Counseling theory and techniques, individual and group. Not open to students with credit in Education 233 or 234. Application to take course must be made early during the preceding semester. Offered only during summer sessions.

### **239A-239B. Professional Seminar in Guidance (3-3)**

Prerequisites: Education 211; six units from Education 231, 232, 233, and 234 or equivalent; and advancement to candidacy for the Master of Science degree in counseling.

Study of selected areas in counseling and guidance culminating in a written project with emphasis on research and on counseling as a profession.

#### *Elementary Education*

### **240. Curriculum Construction and Evaluation in Elementary Education (3) I, II, Summer**

Prerequisite: Credit or concurrent registration in Education 211.  
Advanced study of the research in curriculum development, construction, and evaluation.

### **241. Seminar in Arithmetic in Elementary Education (3)**

Prerequisite: Credit or concurrent registration in Education 211.  
A study of research and practice in the methods of teaching and in the curriculum of elementary and junior high school arithmetic.

### **242. Seminar in Reading in Elementary Education (3)**

Prerequisite: Credit or concurrent registration in Education 211.  
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.

### **243. Seminar in Social Studies in Elementary Education (3) Irregular**

Prerequisite: Credit or concurrent registration in Education 211.  
Problems in teaching social studies in the elementary school with emphasis on the study of the scientific research in the field.

## Education

### **244. Seminar in Language Arts in Elementary Education (3) Irregular**

Prerequisite: Credit or concurrent registration in Education 211.  
Problems in teaching language arts in the elementary school, including spelling, literature and written and oral communication. Emphasis will be on the study of scientific research in the field.

### **245. Seminar in Elementary Education (3) Irregular**

Prerequisite: Credit or concurrent registration in Education 211.  
A study of the methodology of research with particular reference to the basic research in the psychology and teaching of the elementary school subjects.

### **246. Advanced Diagnosis in Reading (3) I, S**

Prerequisites: Psychology 204 and Education 137.  
Principles and techniques of individual and group diagnosis of reading difficulties. Experience in administration and interpretation of individual and group instruments of diagnosis.

### **247. Advanced Diagnosis and Treatment of Learning Difficulties (3) II, S**

Prerequisites: A teaching credential and Education 151 or 152.  
Principles and techniques of diagnosis and treatment of difficulties in learning the school subjects. Supervised experience in working with individual pupils and their parents.

### **248. Seminar in Science in Elementary Education (3)**

Prerequisite: Credit or concurrent registration in Education 211.  
The problems of teaching science in the elementary school with emphasis on the literature of science education.

### **249A. Seminar in Art in Elementary Education (3) Irregular**

Prerequisite: Education 132B, credit or concurrent registration in Education 211.  
Curriculum, materials, and techniques of instruction, including supervision.

### **249B. Seminar in Music in Elementary Education (3) Irregular**

Prerequisite: Education 132C, credit or concurrent registration in Education 211.  
Methods, materials, and curriculum. For elementary classroom teachers.

#### *Secondary Education*

### **250. Curricular Problems in Secondary Education (3)**

Prerequisite: Student teaching or teaching experience.  
Present status and development of the secondary school curriculum with emphasis upon curriculum construction and curriculum evaluation. Opportunities provided for study of problems submitted by students.

### **251. Instructional Methods and Materials: Community College (2)**

Prerequisites: Education 223 and concurrent registration in Education 316.  
The teaching process at the community college level, including lesson planning, utilization of audiovisual and other instructional materials and procedures of evaluation.

### **252. Seminar for Student Teachers (3)**

Prerequisites: Education 110 and 100. To be taken concurrently with Education 180C.  
Advanced study in the application of principles and research related to planning instruction, selecting and using materials, evaluating instruction and pupil progress, maintaining class morale; school law and finance for classroom teachers.

### **253. Supervision of Student Teaching (2)**

Open to experienced teachers interested in the teacher education program.  
Study of selection, orientation, induction, counseling and evaluation of credential candidates and student teachers; and helping student teachers plan lessons, conduct classroom learning, analyze pupils' difficulties and achievement.

### **254. Advanced Problems in Secondary School Instruction (3) II, S**

Prerequisites: Teaching experience and consent of instructor.  
An analysis of the scientific research and philosophical principles in secondary school instruction.



## Education

### **255A. Advanced Curriculum and Instruction in Mathematics (3)**

Prerequisite: Education 121F and teaching experience.

Factors directing the changing mathematics curriculum; recent trends and current research in the teaching of secondary mathematics.

### **255B. Advanced Curriculum and Instruction in Social Science (3)**

Prerequisite: Education 121M and teaching experience.

Theories of content selection; social pressures which affect curriculum design; current research in curriculum development; trends in teaching techniques and materials.

### **255C. Advanced Curriculum and Instruction in English Language and Composition (3)**

Prerequisites: English 191, 192, 193, Education 121B, and teaching experience.

Problems in the teaching of English language structure and composition skills in secondary schools; recent trends and current research.

### **255D. Advanced Curriculum and Instruction in Literature (3)**

Prerequisites: Education 121B, 12 units of literature, and teaching experience.

Problems of selection, presentation, motivation, and evaluation in the teaching of literature in secondary schools; techniques of reading in the genres; recent trends and current research in the teaching of literature.

### **256. Recent Trends in Secondary Curriculum (3) Irregular**

Prerequisites: 12 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.

### **257. Workshop in Intercultural Education (4) S**

Enrollment only by application to the Dean of Education.

A cooperative workshop sponsored by the college and the San Diego City Schools to study trends in intercultural education in American schools, including units, curricula and instructional materials and techniques.

### **258. Research in Curricular Problems (1-3) Irregular**

Admission by consent of the Coordinator of Secondary Education and the instructor.

Individual study by graduate students who have demonstrated exceptional ability and a need for such work.

## *School Administration and Supervision*

### **260. Principles of School Administration (3) I, II, S**

Federal, state and local school administrative relationships including the financial and legal structure at these three levels.

### **261. Education Leadership (3) I, II, S**

Prerequisites: Standard Teaching Credential and consent of instructor.

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.

### **262. Legal and Financial Aspects of School District Policies (3)**

Prerequisites: Standard Teaching Credential

Relationship of the school district to attendance units. The legal basis for policy formation in the selection and retention of certificated personnel, in the admission and assignment of pupils, in the instructional programs and in related budgetary considerations.

### **263. Curriculum Development and Evaluation (3) I, II, S**

Prerequisites: Standard Teaching Credential and consent of instructor.

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.

## Education

### **264A-264B-264C. Seminar in Elementary School Administration and Supervision (2-2-2) I, II, S**

Prerequisites: Education 260, 261, 262, 263, consent of instructor, and admission to Program of Educational Administration.

Analysis of theories and practices in the administration and supervision of the elementary school.

### **265A-265B-265C. Seminar in Secondary School Administration and Supervision (2-2-2)**

Prerequisites: Education 260, 261, 262, 263, consent of instructor, and admission to Program of Educational Administration.

Analysis of theories and practices in the administration and supervision of the secondary school.

### **266A-266B-266C. Field Experience in Elementary School Administration and Supervision (1-1-1)**

Prerequisite: Concurrent registration required in Education 264A, 264B, 264C.

Field experience in the elementary schools. Approval of local school district required in the semester prior to registration.

### **267A-267B-267C. Field Experience in Secondary School Administration and Supervision (1-1-1)**

Prerequisite: Concurrent registration required in Education 265A, 265B, 265C.

Field experience in the secondary schools. Approval of local school district required in the semester prior to registration.

### **268. Seminar in School Administration and Supervision (3)**

Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, consent of instructor, and admission to Program of Educational Administration.

School administration and supervision in a specialized field, such as the junior college, a subject field, or designated services. Field experience required. May be substituted for Education 264C or 265C.

### **270. Seminar in Education of Exceptional Children (3)**

Prerequisite: Education 167.

Principles, trends and research in the education of exceptional children.

### **271. Seminar in Emotionally Disturbed Children and Youth (3)**

Prerequisites: Education 162 or 163, and 270.

Theories, principles and practices in working with emotionally handicapped.

### **272. Seminar in Education of the Gifted (3)**

Prerequisites: Education 222 and 270.

Review of studies and investigation in learning and adjustment of the gifted, including assessment, classification, curriculum provisions, and social and emotional adjustment.

### **273. Seminar in Education of the Mentally Retarded (3) II**

Prerequisites: Education 168 or 169 and 270.

Review of studies and investigation in learning and adjustment of retarded children including etiology, classification, diagnosis, and assessment.

### **274A. Seminar in Instructional Media Utilization (3) I, II, S**

Prerequisite: Education 140.

Review of research in instructional media utilization.

### **275. Seminar in the Administration of Instructional Media Centers (3) I, II, S**

Prerequisite: Education 140.

Organization, supervision, and coordination of instructional media centers.

### **276. Seminar in Programed Instruction (3 to 6) Irregular**

Prerequisite: Education 144.

Theories of programed instruction, with emphasis on construction of programs; application to teaching situations. Analysis and revision of programed projects.



## Education

### 280. Legal and Financial Aspects of School District Management (3) Irregular

Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.

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.

### 281. School-Community Relationships (3) Irregular

Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.

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.

### 282. School District Personnel Management (3) Irregular

Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.

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.

### 283. District Curriculum Development, Evaluation and Improvement (3) Irregular

Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.

School District curricular development from kindergarten through junior college, relationships of the superintendent and central administrative staff to regular staff and supervisory staff.

### 284. Advanced Seminar in School Administration and Supervision (3) Irregular

Prerequisites: Standard Teaching Credential, Education 280, 281, 282, 283, and consent of instructor.

An intensive study of a selected area in school administration and supervision. May be repeated with new content for additional credit to a maximum of nine units. Typical courses in this area are School Law, School Finance, School Supervision, Personnel Procedures.

### 286A-286B. Seminar in School Building Construction and Utilization (3-3) Irregular

Prerequisite: Possession of Standard Administration or Supervision Credential, or consent of instructor. Completion of or concurrent registration in Education 286A is prerequisite to 286B.

School building construction and utilization: the development of new facilities from the planning stage to complete utilization; remodeling.

#### Special Study and Research

### 295A-295B. Seminar (3-3) I, II, S

Prerequisites: Education 211 and advancement to candidacy for the master's 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.

### 298. Special Study (1-3) I, II, S

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3) I, II, S

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

#### Student Teaching and Internship

### 316. Directed Teaching: Community College (4) I, II

Prerequisites: Admission to Teacher Education and approval of the Community College program coordinator. Credit in Education 201 and 223 and concurrent registration in Education 251.

## Engineering

Systematic observation, participation, and teaching under supervision in a community college. Any grade below C is unacceptable. A weekly seminar or conference is required.

### 330. Internship (2-6) I, II

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.

### 331. Field Work in Counseling (2-6) I, II

Application of concepts and procedures of counseling services in appropriate school or agency setting. Daily observation and practice. Weekly seminar sessions with college staff.

Application to take 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.

### 332. Practicum in Counseling (3) I, II, S

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.

### 333. Advanced Seminar and Practicum in Counseling (3-6)

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.

### 360. Internship in School Administration and Supervision (3 to 6) I, II

Prerequisites: Standard Teaching Credential and consent of instructor.

Internship for prospective school administrators in the public schools. Released time, permission of school district, and pre-registration with Coordinator of Program of Educational Administration previous semester required.

### 371. Directed Internship—Mentally Retarded (4) I, II

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.

### 374. Directed Internship—Speech Correction (4) I, II

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.

### 375. Directed Internship for the Instructional Media Specialist (2-6) I, II, S

Supervised internship in an instructional media center (application must be made during preceding semester.)

## ENGINEERING

### IN THE SCHOOL OF ENGINEERING

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

#### Faculty

Emeritus: Walling  
Professors: Bauer, Bedore, Capp (Dean), Conly, Dharmarajan, Fitz, Johnson, Learned, Lodge, Morgan, Noorany, Quiett, Rao, Shutts, Stone, S.  
Associate Professors: Chan, Lin, Mann, Murphy, Skaar, Stone, H., Stratton  
Assistant Professors: Agarwal, Bilterman, Brown, Caton, Chang, Chou, Craig, Crooker, Harris, Hussain, Krishnamoorthy, Lahey, McGhie, Mansfield, Narang, Ohnysty, Panos, Stuart



## Engineering

### 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 electronic, and mechanical engineering. (Described in this section on the School of Engineering.)

Minor in engineering. (Described in the section on the School of Engineering.)

### LOWER DIVISION COURSES

#### A. Introduction to Engineering (1)

A survey of the fields of engineering, designed to familiarize the student with the nature, the requirements, the responsibilities, and the opportunities of the profession.

#### 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.

#### 2. Plane Surveying (3)

One lecture and six hours of laboratory.

Prerequisite: Mathematics 21 or 40.

Use, care, and adjustment of surveying equipment. Introduction to standard procedures, techniques of plane surveying, and plane table mapping.

#### 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.

#### 20. Engineering Graphics (2) I, II

Six hours of laboratory.

Prerequisites: Credit or concurrent registration in Mathematics 40 or equivalent, and either Engineering 1 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.

#### 25. Engineering Materials (3) I, II

Prerequisite: Chemistry 1A.

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.

#### 30. Engineering Measurement Analysis (2) I, II

Prerequisites: Mathematics 51 and Physics 4A.

Introduction to basic standards and units of engineering measurement. Analysis of errors in measurement and error propagation in calculation. Treatment of experimental data and evaluation of experimentally determined quantities. Design of engineering experiments.

#### 40. Engineering Problem Analysis I (2) I, II

One lecture and three hours of laboratory.

Prerequisite: Mathematics 50.

Analysis of engineering problems and solutions using the digital computer. Fundamentals of programing and programing language commands.

#### 50A. Engineering Mechanics I (3) I, II

Prerequisites: Physics 4A and credit or concurrent registration in Mathematics 51.

Static equilibrium of particles and rigid bodies; vector algebra and calculus; friction, virtual work; kinematics of a particle; kinetics of a particle; engineering applications.

## Engineering

#### 50B. Engineering Mechanics II (3) I, II

Prerequisites: Engineering 50A and credit or concurrent registration in Mathematics 52.

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.

#### 60. Electric Circuits (3) I, II

Prerequisites: Physics 4B and Mathematics 51.

Direct-current circuits, magnetic circuits, induced voltages, single-phase alternating-current circuits, coupled circuits, the transformer and introduction to network analysis. Not open to students with credit in Engineering 100A.

#### 65A-65B. Industrial Practice (2-2)

Prerequisite: Sophomore standing in engineering. Selection based on personal interview, following written application.

Supervised training in co-operating industrial organizations. First year of a three-year program providing the opportunity for selected students to correlate their formal college training with industrial experience at corresponding levels of responsibility and difficulty.

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

#### 100A. Electric Circuits (3) I, II

Prerequisites: Physics 4B and Mathematics 51.

Direct-current circuits, magnetic circuits, induced voltages, single-phase and poly-phase alternating-current circuits, coupled circuits, the transformer and introduction to network analysis. Not open to students with credit in Engineering 60.

#### 100B. Electrical Machinery (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Engineering 60 or 100A.

Theory of operation and the analysis of the characteristics of transformers, DC and AC motors and generators. Associated control devices.

#### 100C. Electric and Magnetic Fields (3) I, II

Prerequisite: Physics 4B and Mathematics 52.

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.

#### 101. Elements of Applied Electronics (2) I, II

Prerequisite: Engineering 60 or 100A.

Application of electron tubes, transistors in typical electronic circuits. Analysis of the operational characteristics of electron tubes and transistors. Emphasis on their utilization in engineering devices and systems.

#### 103. Electrical Engineering Laboratory (1) II

Three hours of laboratory.

Prerequisites: Engineering 100B and credit or concurrent registration in Engineering 101. Not open to students filing an electrical engineering master plan.

A laboratory course to include selected experiments in electrical circuits, electrical machinery, and electronics.

#### 107. Metallic Materials and Processes (4)

Three lectures and three hours of laboratory.

Prerequisites: Engineering 25 and Physics 4C.

Physical metallurgy and properties of metals. Influence of processing on the properties of metals. Design criteria for selection of materials. (Formerly numbered Engineering 106 and 109A.)



## Engineering

### 108. Thermodynamics (3) I, II

Prerequisite: Mathematics 52.  
Development of the basic laws of thermodynamics from the macroscopic and microscopic viewpoint and their application to engineering systems.

### 108L. Thermodynamics Laboratory (1) I, II

Three hours of laboratory.  
Prerequisite: Credit or concurrent registration in Engineering 108.  
Laboratory studies of the basic concepts of thermal science. (Formerly offered as an integral part of Engineering 108.)

### 109. Nonmetallic Materials (3) I

Two lectures and three hours of laboratory.  
Prerequisite: Engineering 107.  
Fundamentals of plastics, reinforced plastics, and ceramics. Analysis of effect of physical properties upon selection of a material for use in design.

### 115. Fluid Mechanics (3) I, II

Prerequisites: Engineering 50B, and credit or concurrent registration in Engineering 187A.

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.

### 115L. Fluid Mechanics Laboratory (1) I, II

Three hours of laboratory.  
Prerequisite: Credit or concurrent registration in Engineering 115.  
Flow measuring devices. Experimental applications of continuity, Bernoulli and momentum equations. Model studies. Pipe and channel flow. Flow visualization techniques. Operating characteristics of wind tunnel and water table. (Formerly offered as an integral part of Engineering 115.)

### 116. Introduction to Solid Mechanics (3) I, II

Prerequisites: Engineering 25 and 50B; and credit or concurrent registration in Engineering 187A.

Mechanics of solid deformable bodies involving analytical methods for determining the strength, stiffness, and stability of various load-carrying members.

### 116L. Solid Mechanics Laboratory (1) I, II

Three hours of laboratory.  
Prerequisite: Credit or concurrent registration in Engineering 116.  
Laboratory studies in solid mechanics. Experimental stress analysis. Experimental confirmation of theory. (Formerly offered as an integral part of Engineering 116.)

### 118. Transfer and Rate Processes (3) I, II

Prerequisite: Engineering 187A.  
Fundamentals of rates of change in enthalpy and composition of matter; heat and mass transfer and chemical reaction rates.

### 120A. Structural Analysis I (4) I, II

Prerequisite: Engineering 116.  
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.

### 120B. Structural Analysis II (3) I

Prerequisite: Engineering 120A.  
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.

### 121. Reinforced Concrete (3) II

Prerequisite: Engineering 120A.  
Properties and characteristics of reinforced concrete; design of structural components. Introduction to plastic theory and limit design.

## Engineering

### 122. Soil Mechanics (3) I

Two lectures and three hours of laboratory.  
Prerequisites: Geology 53, Engineering 116, and credit or concurrent registration in Engineering 115.

Mechanics of soils; physical and mechanical properties; soil classification, compaction, swelling, consolidation, and shear strength. Laboratory tests and related design problems.

### 123. Applied Hydraulics (3) I

Prerequisite: Engineering 115.  
Application of principles of fluid mechanics in the fields of hydrology, water supply, hydraulic machinery, drainage, and waste disposal.

### 124. Foundation Engineering (2) II

Prerequisite: Engineering 122.  
Soil mechanics theories applied to the design of shallow and deep foundations; lateral pressure of soils; design of retaining walls.

### 125. Sanitary Engineering (3) II

Prerequisite: Engineering 123.  
Unit processes used in water treatment and waste-water disposal; physical and chemical tests used in the analysis of water and waste-water.

### 126. Engineering Photogrammetry (3) I

Two lectures and three hours of laboratory.  
Prerequisite: Engineering 30.  
Principles of metrical photography as they apply to engineering. Use of aerial and terrestrial photographs for interpretation of topography, soil types and drainage conditions for engineering works. Stereoscopic compilation of maps from photographs.

### 127. Highway Engineering (3) I

Two lectures and three hours of laboratory.  
Prerequisites: Engineering 128A and credit or concurrent registration in Engineering 123.

Highway planning, economics, and administration; geometric design; traffic engineering; subgrade structure; bituminous and portland-cement concrete pavements.

### 128A. Surveying for Civil Engineers (3) II

Two lectures and three hours of laboratory.  
Prerequisite: Engineering 30.  
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.

### 128B. Advanced Surveying (3) I

Two lectures and three hours of laboratory.  
Prerequisite: Engineering 128A.  
Theory and application of precise control surveys; cadastral surveys; specialized surveying operations.

### 129. Highway Materials (2) II

One lecture and three hours of laboratory.  
Prerequisite: Credit or registration in Engineering 127 or Engineering 122.  
Selection, design, and control of mixes of various materials used in highway engineering practice. Emphasis on strength and properties of plain concrete and asphalts.

### 130. Network Analysis (4) I, II

Prerequisites: Engineering 60 or 100A and Mathematics 52.  
Analysis of complex direct-current and single-phase and poly-phase alternating-current networks. Four-terminal network theory.



## Engineering

### 131. Electromechanical Control Devices (3) II

Two lectures and three hours of laboratory.  
Prerequisites: Engineering 50B and 100B; and Engineering 187A or Mathematics 118A; and credit or concurrent registration in Engineering 101.  
Application of amplidyne, thymatrols, rototrols, synchros, and selsyns in servo-systems and other devices.

### 132. Time-Domain Analysis of Linear Networks (3) I, II

Prerequisites: Engineering 130, and 187A or Mathematics 118A.  
Transient analysis of circuits containing resistance, inductance, and capacitance with various input wave forms by means of the Laplace-transform method.

### 134A. Analysis and Design of Electronic Circuits (3) I, II

Prerequisites: Engineering 101, 130, and 187A or Mathematics 118A.  
A unified treatment of vacuum-tube and transistor voltage and power amplifiers utilizing graphical methods and equivalent circuits; feedback theory and tuned amplifiers.

### 134B. Analysis and Design of Electronic Circuits (3) I, II

Prerequisite: Engineering 134A.  
A continuation of Engineering 134A to include regulated power supplies, oscillators; theoretical analysis of amplitude, frequency, and phase modulation; modulator and detector circuits; switching circuits and transient response of amplifiers.

### 135A. Electronic Circuits Laboratory (1) I, II

Three hours of laboratory.  
Prerequisite: Credit or concurrent registration in Engineering 134A.  
Vacuum-tube and transistor dynamic characteristics; single stage and multistage amplifier circuits including feedback and tuned amplifiers.

### 135B. Electronic Circuits Laboratory (1) I

Three hours of laboratory.  
Prerequisite: Engineering 135A.  
Regulated power supply systems; oscillator, modulator, detector and switching circuits; superheterodyne receivers and television circuitry.

### 136. Electronic Instrumentation (2)

Prerequisite: Engineering 101.  
Application of electronics to the instrumentation of mechanical, hydraulic and electrical devices. Indicating and recording instruments.

### 137. Communication Networks (3) I

Prerequisites: Engineering 100C, 130, and 187A or Mathematics 118A.  
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.

### 138A. Feedback Control Systems (3) I

Prerequisites: Engineering 132 and 134A.  
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.

### 138B. Feedback Control Systems Laboratory (1) I

Three hours of laboratory.  
Prerequisites: Engineering 131, 135A and credit or concurrent registration in Engineering 138A.  
Analysis of steady-state and transient response of uncompensated and compensated feedback control systems using transfer functions and frequency response techniques.

## Engineering

### 139A. Advanced Field Theory (3) II

Prerequisites: Engineering 137 and credit or concurrent registration in Engineering 134B, and 187B or Mathematics 118B.  
Time-varying electric and magnetic fields. Application of Maxwell's equations to wave propagation; skin effect, circuit impedance elements; vector potential, and other time-varying electrical phenomena; waveguides and resonators, electromagnetic radiation.

### 139B. Microwave Measurements Laboratory (1) II

Three hours of laboratory.  
Prerequisites: Credit or concurrent registration in Engineering 135B and 139A.  
Experimental study of frequency generation including klystrons, magnetrons and signal generators. Impedance, attenuation, phase, frequency, and power measurements; coaxial lines and waveguides; propagation in air, resonant cavities and antennas.

### 140. Principles of Heat Transfer (3) II

Prerequisite: Engineering 118.  
Heat transfer by conduction, convection, radiation, and combinations thereof; introduction to aerodynamic heating and heat transfer by phase change.

### 141. Internal Combustion Engines (4) I

Three lectures and three hours of laboratory.  
Prerequisite: Engineering 148.  
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.

### 142. Fuels and Combustion (3) I

Prerequisite: Engineering 108.  
Types of fuels; stoichiometric and thermochemical analysis of combustion. Process of combustion. Physical properties of fuels. Applications to combustion in engines and furnaces.

### 143. Gas Dynamics (3) I

Prerequisite: Engineering 148.  
Thermodynamics of high velocity compressible fluid flow. Shock regions; adiabatic and diabatic flow. Applications to the propulsive duct and discharge nozzles.

### 144. Thermal Environmental Engineering (3)

Prerequisite: Engineering 118.  
Psychrometrics. Mass transfer. Two-phase flow. Heat transfer. Thermoelectric refrigeration. Change of phase.

### 145. Mechanics of Machinery (3) I

Prerequisite: Engineering 40 and 50B.  
An extension of the principles of statics and dynamics to mechanisms and to mechanical systems. Analysis of velocity and acceleration and the determination of static and dynamic forces. Evaluation of stability of systems.

### 146A. Elements of Machine Design (3) I, II

Prerequisite: Engineering 116.  
Application of mechanics, physical properties of materials, and strength of materials to the design of machine elements.

### 146B. Advanced Machine Design (3) II

Prerequisite: Engineering 146A.  
Advanced topics in strength of materials including energy methods, stress concentrations, curved beams, and thick-walled cylinders. Applications to design of machine elements.

### 147A. Introduction to Mechanical Vibrations (3) I

Prerequisites: Engineering 50B, 116, and 187A.  
Analysis of mechanical vibration; single- and multi-degree of freedom systems; free and forced vibrations; vibration isolation; vibration absorbers. Theory of vibration measuring instruments.



## Engineering

- 147B. Experimental Vibrations (3) II**  
Prerequisite: Engineering 147A.  
Experimental problems utilizing vibration excitation equipment, recording systems, transducers, digital and analog computers.
- 148. Engineering Thermodynamics (4) I**  
Three lectures and three hours of laboratory.  
Prerequisite: Engineering 115.  
Further development of the laws of classical thermodynamics. Applications to energy conversion devices.
- 149. Advanced Thermodynamics (3) I**  
Prerequisite: Engineering 148.  
Cyclic and analytical methods of thermodynamic analysis. Development of general thermodynamic equations and methods of solution. Introduction to microscopic thermodynamics with application to the study of transport properties.
- 150. Aerodynamics (3) I**  
Prerequisites: Engineering 115 and credit or concurrent registration in Engineering 187B or Mathematics 118B.  
Subsonic and supersonic flow, airfoil and wing theory, small perturbation method.
- 151A-151B. Aerospace Structural Analysis (3-3) I, II**  
Prerequisites: Engineering 116 and credit or concurrent registration in Engineering 187B or Mathematics 118B. Engineering 151A is prerequisite to 151B.  
Methods of structural analysis including both the static and dynamic aspects of problems encountered in the flight of aerospace vehicles.
- 152. Aircraft Propulsion Systems (3) II**  
Prerequisite: Engineering 148 or 150.  
Theory and performance characteristics of aircraft propulsion systems including reciprocating engines, turbo-jets, ram-jets, etc.
- 153. Aerospace Flight Mechanics (3) II**  
Prerequisites: Engineering 50B, and 187A or Mathematics 118A.  
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.
- 154. Experimental Aerodynamics (2) I, II**  
One lecture and three hours of laboratory.  
Prerequisites: Credit or concurrent registration in Engineering 150.  
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.
- 155. Matrix Methods in Aerospace Structures (3) II**  
Prerequisite: Engineering 151B.  
Static and dynamic analysis of aerospace structures utilizing matrix methods.
- 156. Intermediate Dynamics (3)**  
Prerequisites: Engineering 50B, 60, and Engineering 187A or Mathematics 118A.  
Kinematics and kinetics of systems of particles and rigid bodies. Dynamic analysis procedures for studying mechanical, electrical, and electromechanical systems. Variational methods.
- 157. Intermediate Fluid Mechanics (3)**  
Prerequisites: Credit or concurrent registration in Engineering 115, and Engineering 187B or Mathematics 118B.  
Kinematics of fluid motion. Conservation of mass, momentum, and energy. Ideal and viscous flows and applications. Boundary-layer approximations.

## Engineering

- 160A-160B. Principles of Chemical Engineering (3-3)**  
(Same course as Chemistry 160A-160B)  
Prerequisite: Credit or concurrent registration in Engineering 108 or Chemistry 109A or 110A, or equivalent.  
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.
- 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.
- 165A-165B-165C-165D. Industrial Practice (2-2-2-2)**  
Prerequisites: Engineering 65A and 65B.  
Supervised training in cooperative industrial organizations. Second and third years of a three-year program providing the opportunity for selected students to correlate their formal training with industrial experience at corresponding levels of responsibility and difficulty.
- 166. Honors Course (1-3)**  
Refer to the Honors Program.
- 180. Principles of Engineering Economy (3)**  
Prerequisite: Engineering 115.  
Analysis of the costs of development and promotion, construction, operation, depreciation and depletion. Capital recovery, income, return and yield. Valuations and appraisals, cost analysis and financial analysis. Application to engineering problems.
- 181. Hydrodynamics (3)**  
Prerequisites: Engineering 50B or Physics 105, and Engineering 187A or Mathematics 118A or 119 or 124.  
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.
- 182. Transistor Circuit Analysis (3) II**  
Prerequisite: Engineering 134A.  
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.
- 183. Simulation of Engineering Systems (3) I**  
Two lectures and three hours of laboratory.  
Prerequisites: Engineering 40 and 187A.  
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.
- 184. Experimental Strain Measurements and Analysis (3)**  
Two lectures and three hours of laboratory.  
Prerequisites: Engineering 60 or 100A, and 116.  
Laboratory methods for measuring deformation, strains, and forces. Emphasis on instrumentation.
- 185. Modulation Theory (3)**  
Prerequisite: Engineering 132.  
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.
- 186. Intermediate Solid Mechanics (3) II**  
Prerequisite: Engineering 116.  
Shear center, curved flexural members, beams on elastic foundation, flat plates, torsion of non-circular sections, thick-walled cylinders, stress concentrations, energy methods.



## Engineering

### 187A-187B. Methods of Analysis (3-3) I, II

Prerequisite: Mathematics 52; Engineering 187A is a prerequisite for Engineering 187B.

Solutions of advanced engineering problems in fluids, thermodynamics and electricity utilizing analytical methods, analogs, dimensional analysis and the theory of models.

### 188. Digital Solutions of Engineering Problems (3) I, II

Prerequisites: Engineering 40 or Mathematics 7, and Engineering 187A.

Digital solution of classes of engineering problems. Application of numerical methods with consideration of limitations imposed by computer and programming language characteristics.

### 189. Automatic Control Systems (3) II

Prerequisites: Engineering 50B, 100B, and 187A.

Not open to students filing an electrical engineering master plan.

Analysis of the output-input characteristics of linear, mechanical, electrical, hydraulic, and pneumatic control systems.

### 190A. Civil Engineering Structural Design (3) II

One lecture and six hours of laboratory.

Prerequisites: Engineering 120A and 122.

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.

### 190C-190D. Mechanical Engineering Applications (2-2) I, II

Six hours of laboratory.

Prerequisites for 190C: Engineering 106, 108, and 116.

Prerequisites for 190D: Engineering 145, 146A, 148, and 190C.

Applications of engineering principles to design of machinery and energy conversion systems. Individual student projects.

### 190G. Engineering Applications (Dynamic Stability and Control) (3) II

Two lectures and three hours of laboratory.

Prerequisites: Engineering 150, 151B, 154, and credit or concurrent registration in Engineering 152.

Fundamental engineering principles applied to the analysis and design of aircraft control systems. Control surface theory, stability (static and dynamic) and control, operational methods of solving problems, stability criteria, root-locus method, artificial stabilization, preliminary design of an aircraft.

### 190H. Engineering Applications (Aerospace Design) (3) II

Two lectures and three hours of laboratory.

Prerequisites: Engineering 150, 151B, 154, and credit or concurrent registration in Engineering 152.

Applications of engineering principles to a comprehensive problem in the analysis and design of an aircraft.

### 191. Microwave Devices (2)

Prerequisite: Credit or concurrent registration in Engineering 139A.

Microwave devices including klystrons, traveling wave tubes, and magnetrons; harmonic generators, frequency synthesizers, wave guide filters, and varactor applications. Masers.

### 192. Semiconductor Devices (2)

Prerequisite: Engineering 134A.

Tunnel diodes and backward diodes, breakdown diodes, multilayer diodes, varactor diodes, silicon controlled rectifiers and switches, unijunction transistors, field effect transistors, and hot electron devices.

### 193. Electronic Analog Systems (3)

Prerequisite: Engineering 134A.

Modern analog computers using electronic and electro-mechanical elements. Operational amplifiers, integrators, summing devices and non-linear elements.

## Engineering

### 194. Pulse and Digital Circuits (3) II

Prerequisite: Engineering 134A.

Analysis of multivibrators, time base generators, pulse transformers, blocking oscillators, delay lines, counting circuits, digital computing circuits, and transmission gates.

### 195. Logic Design and Switching Circuits (3) I

Prerequisite: Engineering 101.

Boolean algebra, minimization methods; multiple output functions, combinational logic applied to coding and decoding; gating elements. Asynchronous sequential logic; control and computer applications.

### 196A-196B. Advanced Engineering Topics (1-3, 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. Six units maximum credit for any combination of Engineering 196A, 196B, and 199. (Formerly numbered Engineering 196.)

### 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. Six units maximum credit for any combination of Engineering 196 and 199.

## GRADUATE COURSES IN AEROSPACE ENGINEERING

### AE 200. Seminar (1-3)

Prerequisite: Consent of the graduate adviser and instructor.

Intensive study of selected topics in aerospace engineering, topic to be announced in class schedule. Maximum credit 6 units applicable on a master's degree.

### AE 202. Aeroelasticity (3)

Prerequisites: EM 201 and credit or concurrent registration in Engineering 187B or Mathematics 118B.

Aircraft and missile structures deformed under static and dynamic loads; aeroelastic instability, vibration modes, divergence, loss of control and alteration of lift distribution; introduction to flutter analysis.

### AE 204. Flight Dynamics—Stability and Control (3)

Prerequisite: Credit or concurrent registration in EM 201.

Dynamic stability and control of aerospace vehicles. Stability derivatives, stability of uncontrolled motion, response to actuation of controls, automatic stability and control.

### AE 205. Flight Dynamics—Theory of Flight Paths (3)

Prerequisites: Engineering 150.

Analysis of trajectories of aircraft, missiles, satellites, and spacecraft subjected to uniform or central gravitational forces, aerodynamic forces, and thrust.

### AE 222. Aerothermal Structural Analysis (3)

Prerequisites: EM 221.

Stress analysis of structures at elevated temperatures.

### AE 241. Hydrodynamic Stability (3)

Prerequisite: EM 243.

Stability of boundary layers, superposed fluids, fluids with thermal gradients, hydromagnetic flow.

### AE 243. Supersonic Flow Theory (3)

Prerequisites: Engineering 150.

Theory of flow at supersonic speeds. Linearized theory, three-dimensional wings in steady flight, slender-body theory, methods of characteristics.



## Engineering

### AE 244. Hypersonic Flow Theory (3)

Prerequisite: AE 243.

Two- and three-dimensional hypersonic flows. Hypersonic similarity parameter, hypersonic small-disturbance theory; Newtonian flow, shock-layer, and other methods for blunt bodies.

### AE 245. Magnetofluidmechanics (3)

Prerequisite: EM 243.

The effects of interaction of an electromagnetic field with an electrically conducting fluid. Stability, boundary layers, shock waves, and other applications.

### AE 246. Rarefied and Real Gas Flows (3)

Prerequisite: Engineering 187B or Mathematics 118B.

Kinetic theory, the Boltzmann equation, the hydrodynamic equations, Chapman-Enskog Theory. Real gases and chemical reactions. Approximations: applications to shock structure, ultrasonics, heat transfer, and hypersonics. Free molecule flow.

### AE 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.

### AE 297 Research (1-3)

Prerequisite: Consent of graduate adviser.

Research in engineering. Maximum credit six units applicable on a master's degree.

## GRADUATE COURSES IN CIVIL ENGINEERING

### CE 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.

### CE 201. Advanced Theory of Structures (3)

Prerequisites: Engineering 120B and 187A.

Analysis of statically indeterminate structures based on principles of deflected structures. Approximate analysis of structures under lateral loads for rigid and shear wall structures.

### CE 202. Design of Thin Shell Structures (3)

Prerequisite: Engineering 120B.

Analysis and design of typical civil engineering thin shell structures.

### CE 203. Plastic Design in Steel (3)

Prerequisite: Engineering 120B.

Analysis and design of steel framed structures for ultimate load. Connections, secondary design problems, column stability, and repeated loading.

### CE 204. Advanced Problems in Structural Design (3)

Prerequisite: CE 201.

Design of buildings in steel and timber by elastic theory and limit design. Seismic resistant design.

### CE 205. Prestressed Concrete Structures (3)

Prerequisite: Engineering 120B.

Fundamental concepts of prestressed concrete theory. Design applications to various types of structures.

### CE 206. Matrix Analysis of Structures (3)

Prerequisite: Engineering 120B.

Development of matrix methods for the analysis of structural systems. Force methods, displacement methods. Application of the digital computer to structural analysis.

## Engineering

### CE 207. Dynamics of Structures (3)

Prerequisite: Engineering 120B.

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.

### CE 220. Traffic Engineering (3)

Prerequisite: Engineering 127.

Traffic characteristics and studies. Control and regulation of street and highway traffic. Parking facilities, mass transportation, traffic engineering administration.

### CE 221. Airport Engineering (3)

Prerequisite: Engineering 127.

Problems in airport planning and design. Site selection, general airport layout; safety, economy and community compatibility. Functional design of buildings. Lighting, navigational aids, approach protection.

### CE 230. Open Channel Hydraulics (3)

Prerequisite: Engineering 123.

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.

### CE 231. Engineering Hydrology (3)

Prerequisite: Engineering 123.

Measurement and interpretation of precipitation, evapotranspiration, stream flow and groundwater flow; hydrologic methodology and applications.

### CE 232. Fluvial Hydraulics (3)

Prerequisite: Engineering 123.

Characteristics of rivers; mechanics of sediment transport; hydraulics and design of alluvial channels; channel stability; model studies.

### CE 235. Water Quality Engineering (3)

Prerequisites: Engineering 123 and 125.

Development of water quality criteria. Survey of current methods of water treatment, wastewater treatment and water renovation. Economic considerations of water management.

### CE 236. Water Quality Processes I (3)

Two lectures and three hours of laboratory.

Prerequisite: Civil Engineering 235 or concurrent registration with consent of instructor.

Theoretical and laboratory study of the chemical and microbiological processes which govern modern water and wastewater treatment.

### CE 237. Water Quality Processes II (3)

Two lectures and three hours of laboratory.

Prerequisite: Civil Engineering 236.

Laboratory and pilot plant studies involving the application of physical, chemical and biological processes to the treatment of water, wastewater and industrial wastes.

### CE 240. Advanced Soil Mechanics (3)

Prerequisite: Engineering 122.

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.

### CE 241. Advanced Foundation Engineering (3)

Prerequisite: CE 240.

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.



## Engineering

### CE 242. Seepage and Earth Dams (3)

Prerequisite: CE 240.

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.

### CE 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.

### CE 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.

### CE 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.

### CE 283. Seminar in Hydraulic Engineering (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in hydraulic engineering. Maximum credit six units applicable on a master's degree.

### CE 284. Seminar in Sanitary Engineering (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in sanitary engineering. Maximum credit six units applicable on a master's degree.

### CE 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.

### CE 286. Seminar in Geometronics (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in geometronics. Maximum credit six units applicable on a master's degree.

### CE 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 of six units of course 296 applicable on a master's degree.

### CE 297. Research (1-3)

Prerequisite: Consent of graduate adviser.

Research in engineering. Maximum credit six units applicable on a master's degree.

## GRADUATE COURSES IN ELECTRICAL ENGINEERING

### EE 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.

### EE 201. Seminar in Electromagnetic Systems (1-3)

An intensive study in electromagnetic systems. Maximum credit six units applicable on a master's degree.

### EE 202. Seminar in Electronic Design (1-3)

An intensive study in electronic design. Maximum credit six units applicable on a master's degree.

### EE 203. Seminar in Digital Systems (1-3)

An intensive study in digital systems. Maximum credit six units applicable on a master's degree.

## Engineering

### EE 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.

### EE 210A. Linear System Analysis (3)

Prerequisites: Engineering 130 and credit or concurrent registration in Engineering 187B or Mathematics 118B.

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.

### EE 210B. Linear System Synthesis (3)

Prerequisite: EE 210A.

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.

### EE 212. Electrical Noise (2)

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.

### EE 220. Feedback Control Systems (3)

Prerequisite: Engineering 138A or 189.

Analysis and synthesis of feedback control systems using feedback compensation. Multiple-loop control systems; a-c feedback control systems; optimization.

### EE 222. Sampled-Data Systems (3)

Prerequisite: Engineering 138A.

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.

### EE 224. Non-Linear Feedback Control Systems (3)

Prerequisite: EE 220.

Design and analysis of control systems which contain non-linearities, types of non-linearities, integrable systems, phase-plane analysis, describing functions and frequency analysis; compensation for unwanted non-linearities and application of compensating non-linearities.

### EE 226. Optimal Control Systems (3)

Prerequisite: EE 220.

Optimal control theory through use of calculus of variations; dynamic programming, Pontryagin's maximum principle for optimizing trajectories and control processes. Analysis and design of adaptive control systems.

### EE 230. Advanced Logic Design and Switching Circuits (3)

Prerequisite: Engineering 195.

Synchronous sequential logic; design of typical computer circuits such as counters, shift registers and error detecting circuits. Logical properties of memory elements, memory element state assignment methods.

### EE 232. Transistor Circuit Design (3)

Prerequisite: Engineering 182.

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.

### EE 234. Semiconductor RF Circuit Design (3)

Prerequisite: Engineering 134B.

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.



## Engineering

### EE 236. Electronic Digital Systems (3)

Prerequisite: Engineering 134B.

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.

### EE 240. Radiation and Propagation (3)

Prerequisite: Engineering 139A.

Impedance characteristics and radiation patterns of thin linear antenna elements; field intensity calculations. Tropospheric and ionospheric propagation; propagation anomalies.

### EE 242. Microwave Networks (3)

Prerequisite: Engineering 139A.

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.

### EE 244. Microwave Antennas (2)

Prerequisite: EE 242.

Radiation from current distributions; design of microwave antennas; scattering and diffraction of electromagnetic waves. (Formerly EE 246, Microwave Antennas.)

### EE 246. Radar Systems (3)

The radar equation; characteristics of CW, FM, MTI, pulse-doppler and tracking radar systems; transmitters, antennas and receivers; detection of signals in noise, extraction of information; propagation effects; system engineering and design.

### EE 250. Quantum Electronics (3)

Quantum mechanics for engineers concerned with its application to solid-state devices and optical communication systems.

### EE 252. Optical Communications (3)

Prerequisite: EE 250.

Fundamentals of electro-optical technology from ultraviolet through infrared. Characteristics of thermal and laser radiation including generation, transmission, detection, data processing and display.

### EE 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.

### EE 297. Research (1-3)

Prerequisite: Consent of graduate adviser.

Research in engineering. Maximum credit six units applicable on a master's degree.

## GRADUATE COURSES IN ENGINEERING MECHANICS

### EM 200. Seminar (2 or 3)

Advanced study of, or within, one phase of engineering mechanics, such as elasticity, plasticity, rheology, and micromeritics; buckling, vibration, and stability phenomena; hydrodynamics and magnetohydrodynamics; incompressible, compressible, and non-newtonian flow. May be repeated with new content. Maximum credit six units applicable on a master's degree.

### EM 201. Advanced Dynamics (3)

Prerequisites: Engineering 50B and 187A or Mathematics 118A.

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.

### EM 203. Theory of Vibrations (3)

Prerequisites: EM 201 and credit or concurrent registration in Engineering 187B or Mathematics 118B.

Linear and non-linear periodic phenomena as applied to discrete systems and continuous media with application to physical problems.

## Engineering

### EM 204. Theory of Nonlinear Vibrations (3)

Prerequisite: EM 201.

Analysis of discrete systems with one or more degrees of freedom. Phase plane, harmonic balance, and other methods. Stability.

### EM 205. Theory of Random Vibrations (3)

Prerequisite: EM 203.

Random processes with applications to vibration of discrete and continuous systems.

### EM 210. Continuum Mechanics (3)

Prerequisite: Engineering 187B or Mathematics 118B.

Equations for the stress, deformation, and motion in a continuous medium; application in fluid and solid mechanics.

### EM 221. Theory of Elasticity (3)

Prerequisites: Engineering 116 and credit or concurrent registration in Engineering 187B or Mathematics 118B. Engineering 186 is recommended.

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.

### EM 223. Energy Methods in Mechanics (3)

Prerequisite: EM 221.

Variational energy principles applied to the dynamics of rigid bodies, analysis of elastic frames; theories of plates and shells, buckling, and vibrations.

### EM 225. Theory of Plates (3)

Prerequisite: EM 221.

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.

### EM 226. Theory of Shells (3)

Prerequisite: EM 221.

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.

### EM 227. Theory of Elastic Stability (3)

Prerequisite: EM 221.

Stability of elastic systems. Differential equations of stability by summation of forces and moments, and by the variational method. Applications.

### EM 233. Theory of Plasticity (3)

Prerequisite: EM 221.

Inelastic stress-strain relations. Solutions to engineering problems with ideally-plastic, strain-hardening, and visco-elastic materials.

### EM 243. Advanced Fluid Mechanics I (3)

Prerequisites: Engineering 115 and credit or concurrent registration in Engineering 187B or Mathematics 118B.

Fluid kinematics and kinetics. Conservation of mass, energy, and momentum, applied to Newtonian fluids. Navier-Stokes equations, Couette and Poiseuille flow. Potential flow. Introduction to turbulence and boundary layer theory. Vector and tensor notation will be used.

### EM 244. Advanced Fluid Mechanics II (3)

Prerequisite: EM 243.

A continuation of Engineering Mechanics 243. Further work in laminar and turbulent flow, and boundary layer theory. Diffusion. Applications to engineering problems.

### EM 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.



## Engineering

### EM 297. Research (1-3)

Prerequisite: Consent of graduate adviser.  
Research in engineering. Maximum credit six units applicable on a master's degree.

### GRADUATE COURSES IN MECHANICAL ENGINEERING

#### ME 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.

#### ME 201. Seminar in Thermodynamics and Fluid Flow (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.  
An intensive study in thermodynamics and fluid flow. Maximum credit six units applicable on a master's degree.

#### ME 202. Seminar in Cryogenics (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.  
An intensive study in cryogenics. Maximum credit six units applicable on a master's degree.

#### ME 203. Seminar in Engineering Materials (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.  
An intensive study in engineering materials. Maximum credit six units applicable on a master's degree.

#### ME 204. Seminar in Engineering Systems (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.  
An intensive study in engineering systems. Maximum credit six units applicable on a master's degree.

#### ME 205. Seminar in Operations Research in Engineering (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.  
An intensive study in operations research in engineering. Maximum credit six units applicable on a master's degree.

#### ME 206. Seminar in Nuclear Engineering (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.  
An intensive study in nuclear engineering. Maximum credit six units applicable on a master's degree.

#### ME 207. Seminar in Mechanical Design (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.  
An intensive study in mechanical design. Maximum credit six units applicable on a master's degree.

#### ME 220A-220B. Mechanical Vibrations (3-3)

Prerequisites: Engineering 147B, 183, and 187B.  
Topics in vibration relating to mechanical design such as non-linear vibrations, distributed mass systems, random vibrations, mobility analysis, isolator design.

#### ME 221. Stress Analysis (3)

Prerequisites: Engineering 146B, 186, and 187B.  
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.

#### ME 222A-222B. Synthesis of Machines (3-3)

Prerequisites: Engineering 183, and 187B.  
Problems in mechanical design involving synthesis of mechanisms wherein displacement, velocity, acceleration and jerk are paramount considerations.

## Engineering

#### ME 224. Fluid Power and Control Systems (3)

Prerequisite: Engineering 189.  
Analysis of dynamic performance of physical systems such as pneumatic, hydraulic and hot-gas. Transient forces and valve instability. Servo characteristics.

#### ME 231A. Advanced Science of Materials I (3)

Prerequisite: Engineering 107.  
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.

#### ME 231B. Advanced Science of Materials II (3)

Prerequisite: M.E. 231A.  
Phase equilibria, metastability, rate and growth processes in solids. Principles of alloying and thermal treatments.

#### ME 233. Reactor Materials (3)

Prerequisite: Engineering 107.  
Metallurgical processing, corrosion, and radiation effects of nuclear materials. Selection of reactor materials.

#### ME 234. High Temperature Materials (3)

Prerequisite: Engineering 107.  
Behavior of metals, cermets, and nonmetallic materials at high temperatures. Effect of environment and service conditions on composition, structure, and physical properties.

#### ME 246. Advanced Topics in Automatic Controls (3)

Prerequisites: Engineering 187A and 189.  
Synthesis of linear control systems. Analysis of non-linear systems by describing function and phase plane methods. Sampled data systems analysis; statistical design techniques and adaptive control.

#### ME 250. Analytical Thermodynamics (3)

Prerequisite: Engineering 187A.  
Advanced concepts of macroscopic thermodynamics. Application of thermodynamics to special systems. (Formerly numbered ME 214.)

#### ME 260. Conduction Heat Transfer (3)

Prerequisites: Engineering 140 and 187B.  
Conduction heat, transfer, multidimensional conduction processes, transient analysis. (Formerly numbered ME 215A.)

#### ME 262. Convection Heat Transfer (3)

Prerequisite: ME 260.  
Convection heat transfer. Advanced theories of forced and free convection. (Formerly numbered ME 215B.)

#### ME 264. Radiation Heat Transfer (3)

Radiation heat transfer. Solid body and gaseous radiation. (Formerly numbered ME 215C.)

#### ME 267. Cryogenic Engineering (3)

Prerequisite: Engineering 148.  
Analysis of low-temperature processes and equipment. Physical properties of structural and other materials used in producing, maintaining, and using low temperatures. (Formerly numbered ME 210.)

#### ME 270. Gas Dynamics (3)

Prerequisites: Engineering 143, and 187B.  
Further consideration of the flow of compressible fluids in conduits. Shock fronts, unsteady flow and real gases. (Formerly numbered ME 212.)

#### ME 274. Boundary Layers in Internal Flows (3)

Prerequisites: Engineering 118 and 187B.  
Conservation laws applied to boundary layers in viscous, heat conducting fluids; analysis of the boundary layer equations: applications to internal flows.



## English

### ME 276. Bearing Design and Lubrication (3)

Prerequisite: Engineering 187B.

Friction and wear of materials. Boundary and thick film lubrication. Design of incompressible and compressible fluid bearings; rolling-element bearings.

### ME 280. Aircraft and Missile Propulsion (3)

Prerequisites: Engineering 142, 143, and 187B.

Analysis of ideal gas turbine cycles. Principles of regeneration, reheat and inter-cooling. 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. (Formerly numbered ME 213.)

### ME 284. Theory of Turbomachines (3)

Prerequisites: Engineering 143 or 150.

Application of the fundamental laws of fluid mechanics to the problems of energy transfer between fluid and rotor. Performance characteristics of turbomachines. Study of loss mechanisms. (Formerly numbered ME 216.)

### ME 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.

### ME 297. Research (1-3)

Prerequisite: Consent of graduate adviser.

Research in engineering. Maximum credit six units applicable on a master's degree.

## GRADUATE COURSES IN ENGINEERING

### E 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.

### E 298. Special Study (1-3)

Individual study. Three units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### E 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## ENGLISH

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Emeritus: Adams, J. R., Burnett, Dickhaut, Gulick, Johnson, F., Keeney, Kennedy, C., Marchand, Theobald, Trail

Professors: Baker, Frey, Gellens, Gross, Haskell, Monteverde, Perkins, Phillips, Sanderlin, Sandstrom, Shouse, Tidwell, Tozer (Acting Chairman), Vanderbilt, Wanlass, Widmer

Associate Professors: Benson, Dickinson, Hendrickson, Keller, Redding, M., Santangelo, Seright

Assistant Professors: Aninger, Barry, Black, Boe, Brashers, Butler, Chater, Davis, Donahue, Drake, Forrey, Gervais, Henig, Hinkle, Karnarth, Kehler, Kohler, McCoy, McLeod, Moramarco, Nelson, Nichols, Patterson, Rauber, Redding, R., Rogers, Rother, Sarfatt, Savvas, Stiehl, Sullivan, Taft, Taylor, Thrane, Tunberg, Wheeler

Lecturers: DeMarinis, Farber

## English

### Offered by the Department

Master of Arts degree in English. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in English with the A.B. degree in liberal arts and sciences.

Minor in English.

Teaching major in English, with specialization in both elementary and secondary teaching.

Teaching minor in English, with specialization in both elementary and secondary teaching.

### 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 82 of this catalog. 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 1, 51A-51B; six units selected from English 52A, 52B, 53A, and 53B; and three units of electives in English excluding 1X, 1Y, or 1Z. (18 units.)

**Major.** A minimum of 24 upper division units in English, selected with the approval of the adviser, to include (a) English 101 (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 102, 103, 104, 111, 112, 113A, 113B, 121A, 122A, 122B, and Comparative Literature 155.

British Literature after 1800: English 114A, 114B, 115, 116, 117, 118, and 121B.

American Literature: English 130, 131, 133, 134, 135, and 136.

Modern Literature: English 116, 117, 118, 134, 135, and 136.

Literary Types, Theory, and Criticism: English 140, 142, 144, 150, 153, and Comparative Literature 101A, 101B, 152A, and 152B.

Creative Writing: English 170, 171, and 172.

English Linguistics: English 175, 180, 181, 182, 183, and General Language 196.

**NOTE:** In addition to the courses listed above, appropriate sections of English 129, 138, 139, 149, 190, and 199 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 college regulations (see Credit for Upper Division Courses in the section of the 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 1) 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 from 15 to 22 units in English, nine units of which must be in upper division courses.



## ENGLISH MAJOR

## FOR THE STANDARD 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, with specialization in either elementary or secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

**Specialization in Elementary Teaching**

**Preparation for the major.** English 1, 51A-51B; six units selected from English 52A, 52B, 53A, and 53B; and three units of electives in English excluding 1X, 1Y, or 1Z. (18 units.)

**Teaching Major.** A minimum of 24 upper division units in English selected with the approval of the adviser, to include (a) English 101; (b) at least one course from English 102, 103, 104, 111, 112, 113A, 113B, 121A, 122A, 122B, and Comparative Literature 155; (c) at least one course from English 114A, 114B, 115, 116, 117, 118, and 121B; (d) at least one course from English 130, 131, 133, 134, 135, and 136; (e) at least one course from English 175, 180, 181; (f) at least three courses (which may include courses taken under b, c, d, and e above) in one of the seven areas of study listed above for the English Major with the A.B. degree in Liberal Arts and Sciences.

Education 133 is required in addition to the major.

**Specialization in Secondary Teaching**

**Preparation for the major.** English 1, 51A-51B; six units selected from English 52A, 52B, 53A, and 53B; and three units of electives in English excluding 1X, 1Y, or 1Z. (18 units.)

**Teaching Major. (Undergraduate).** A minimum of 24 upper division units in English selected with the approval of the adviser, to include (a) English 101; (b) at least one course from English 102, 103, 104, 111, 112, 113A, 113B, 121A, 122A, 122B, and Comparative Literature 155; (c) at least one course from English 114A, 114B, 115, 116, 117, 118, and 121B; (d) at least one course from English 130, 131, 133, 134, 135, and 136; (e) at least one course from English 175, 180, 181; (f) at least three courses (which may include courses taken under b, c, d, and e above) in one of the seven areas of study listed above for the English Major with the A.B. degree in Liberal Arts and Sciences.

In addition to the major, Education 122 and English 170, 180 or 181 must be taken before or after graduation as requirements for the credential but not the degree.

**Postgraduate Year.** Nine units, to include English 290 (Bibliography), at least one seminar, and an upper division or graduate course in literature (which may be another seminar). At least three units of the nine must be in British literature.

## ENGLISH MINOR

## FOR THE STANDARD TEACHING CREDENTIAL

**Specialization in Elementary Teaching**

The minor in English for elementary teaching consists of not less than 20 units in English, at least nine units of which must be in upper division courses.

**Specialization in Secondary Teaching**

The minor in English for secondary teaching consists of not less than 21 units to include, in the lower division, six units selected from English 51A, 51B, 52A, 52B, 53A, 53B, 54, and 65; and in the upper division, six units selected from English 175, 180, 181, and nine units in literature courses (English 101-173.) Education 122 is required in addition to the minor.

**CREDIT IN COURSE SEQUENCES**

All year courses in English (e.g., English 51A-51B, 122A-122B) may be begun in either semester, and either semester may be taken singly for credit.

## ENGLISH FOR FOREIGN STUDENTS

Foreign students will be assigned to English 1X, 1Y, 1Z or to English 1 or 3 on the basis of their performance on the English examination for foreign students and an oral interview. 1X, 1Y, and 1Z do not satisfy the college general education requirements, but unit credit is granted for these courses.

## LOWER DIVISION COURSES

**R. Reading Laboratory (0) I, II**

A semitutorial service for students wishing to improve reading ability or secure individual help with study problems. Open to students at any level of college work.

**S. Spelling (0) I, II**

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.

**W. Writing Laboratory (0) I, II**

A semitutorial service for students wishing assistance in composition, either remedial or advanced. Open to students at any level of college work.

**1X. Fundamentals of English for Foreign or Bilingual Students (3) I, II**

A first course in English grammar and composition with intensive practice in the Language Laboratory. Satisfactory completion of this course qualifies a student to take English 1Y or, at the discretion of the instructor, English 1Z, 1, or 3.

**1Y. English for Foreign or Bilingual Students (3) I, II**

Prerequisite: English 1X.

English grammar and composition. Satisfactory completion of this course qualifies a student to take English 1Z or, at the discretion of the instructor, English 1 or 3.

**1Z. English for Foreign or Bilingual Students (3) I, II**

Prerequisite: English 1Y.

English grammar and composition. A continuation of English 1Y for students who need additional instruction and writing practice. Satisfactory completion of this course qualifies a student to take English 1 or 3.

**1. 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. (Formerly numbered and entitled: English 1B, First Year Reading and Composition.)

**3. 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 2B. (Formerly numbered and entitled: English 1A, First Year Reading and Composition.)

**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 neo-classical period. Semester II: Begins with the Romantic writers. (Formerly numbered English 56A-56B.)

**52A-52B. World Literature (3-3) I, II**

Major works from Homer to modern times. Semester I: Classical and medieval literature. Semester II: The Renaissance to modern times. Not open to students with credit in Comparative Literature 52A-52B.

**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. (Formerly numbered English 50A-50B.)



**54. Literary Theory and Criticism (3) I, II**

Introduction to the various theories of literature and approaches to literary creation and criticism.

**65. Language Study (3) II**

Introduction to the principles and practice of modern linguistics as applied to the study of English.

**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. (Formerly numbered and entitled: English 61, Sophomore Composition.)

**71. Creative Writing: Selected Genres (3) I, II**

Prerequisite: English 70.

Guidance and extensive practice in writing in one or more of the major genres: poetry, drama, fiction, or the essay. (Formerly numbered and entitled: English 62, Directed Writing.)

**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. (Formerly numbered and entitled: English 10, Individual Reading.)

**99. Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 129. 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****101. Shakespeare (3) I, II**

An introduction to the writings of Shakespeare. (Formerly numbered English 117A-117B.)

**102. Study of Shakespeare (3) II**

Prerequisite: English 101.

Advanced study of Shakespeare's achievement as a poet and playwright.

**103. Chaucer (3) I, II**

Chaucer's works, with emphasis on *The Canterbury Tales* and *Troilus and Criseyde*. (Formerly numbered English 151.)

**104. Milton (3) II**

Milton's writings, with emphasis on *Paradise Lost*. (Formerly numbered and entitled: English 120A, The Seventeenth Century: Milton.)

**105. The Bible as Literature (3) I, II**

(Same course as Comparative Literature 115)

Prose and poetry of the King James version. (Formerly numbered English 115.)

**111. Renaissance Literature (3) I, II**

English poetry and prose from 1485 to 1603. (Formerly numbered and entitled: English 116A, The Age of Elizabeth.)

**112. Seventeenth Century Literature (3) II**

English poetry and prose from 1603 to 1660. (Formerly numbered and entitled: English 120B, The Seventeenth Century: Metaphysical and Cavalier Poets.)

**113A-113B. Restoration and Eighteenth Century Literature (3-3) I, II**

English literature in the neo-classical era. Semester I: Dryden, Swift, Pope, and their contemporaries. Semester II: Writers of the middle and late eighteenth century. (Formerly numbered English 118A-118B.)

**114A-114B. Nineteenth Century British Poetry (3-3) I, II**

Semester I: The Romantic movement. Semester II: The Victorian period. (Formerly numbered and entitled, English 119A, English Romantic Poetry; English 119B, Victorian Poetry.)

**115. Nineteenth Century British Prose (3) I, II**

Non-fictional prose of the Romantic and Victorian periods. (Formerly numbered and entitled: English 126A, Romantic and Victorian Prose; and English 126B, Late Nineteenth Century British Prose.)

**116. Modern British Poetry (3) I, II**

British poetry since 1900.

**117. Modern British Fiction (3) I, II**

British fiction since 1900.

**118. Modern British Drama (3) I, II**

British drama since 1890.

**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. (Formerly numbered and entitled: English 143A-143B, The English Novel.)

**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 re-opening of the theatres in 1660.

**129. Topics in English Literature (3) I, II**

The Works of Spenser, The Metaphysical School of Poetry, The English Satirists, and Major Movements in Contemporary English Fiction, and the like. May be repeated with new content. Maximum credit six units.

**130. Early American Literature (3) I**

American Literature from its beginning to 1830.

**131. The American Renaissance (3) I, II**

Major American writers and their works in the period 1830-1865.

**133. American Realism and Naturalism (3) I, II**

American fiction from the Civil War to 1920.

**134. Modern American Fiction (3) I, II**

American fiction from 1920 to the present.

**135. Modern American Poetry (3) I, II**

American poetry from 1865 to the present.

**136. American Drama (3) I, II**

Dramatic literature by American writers from its beginnings to the present.

**138. Topics in American Studies (3) I, II**

American Folklore, The Literature of Social Protest, The Intellectual History of American Literature, and the like. May be repeated once with new content, and more than once by American Studies majors with the approval of their advisers.

**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.

**140. Poetry (3) I, II**

The study of poetry as a genre; theory and practical criticism. (Formerly numbered English 149.)

**142. Fiction (3) I, II**

The study of fiction as a genre; theory and practical criticism. (Formerly numbered English 148.)

**144. Drama (3) I**

The study of drama as a genre; theory and practical criticism.



## English

### 149. Topics in the Study of Literary Genres (3) I, II

The study of particular aspects, techniques, or themes in one or more literary genres, such as Myth and Symbol in Poetry, The Nature of Tragedy, The Theater of the Absurd, The Hero in Fiction, Ideas and Forms in Modern Non-Fictional Prose, and the like. May be repeated with new content. Maximum credit six units.

### 150. The History of Literary Criticism (3) I

Principles and practices of literary criticism from Greek times to the nineteenth century. (Formerly numbered English 195A.)

### 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. (Formerly numbered and entitled: English 195B, Theory and Practice of Modern Criticism.)

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 170. The Writing of Poetry (3) I, II

Prerequisite: English 70.  
A writing workshop in poetry. May be repeated with new content. Maximum credit six units.

### 171. The Writing of Fiction (3) I, II

Prerequisite: English 70.  
A writing workshop in fiction. May be repeated with new content. Maximum credit six units.

### 172. The Writing of Non-Fiction (3) I

Prerequisite: English 70.  
A writing workshop in non-fictional prose. May be repeated with new content. Maximum credit six units.

### 175. Advanced Composition (3) I, II

The theory and practice of expository writing, including the contributions of semantics, rhetoric, and logic. (Formerly numbered English 191.)

### 180. The English Language (3) I, II

The history of English and its present-day use. (Formerly numbered English 192.)

### 181. The Structure of English (3) I, II

The structure of modern English, including the various approaches to linguistic analysis. (Formerly numbered English 193.)

### 182. American English (3) I

The development of American English; regional and cultural differences in pronunciation, grammar, and vocabulary. (Formerly numbered English 113.)

### 183. English Linguistics (3) II

Prerequisite: Open only to seniors and graduate students who have had English 180, or 181, or General Language 196.  
Advanced study of linguistic theory and its application to the analysis of English. (Formerly numbered English 197.)

### 190. Selected Topics in English (2-3) I, II

Specialized study of a selected topic in literature or linguistics. May be repeated with new content. Maximum credit six units.

### 194. Individual Reading (1) I, II

Selected works by a major author. May be repeated with new content. Maximum credit two units. (Formerly numbered English 110.)

## English

### 198. Comprehensive Reading and Survey (3) II

Prerequisite: Nine units of upper division work in English.  
A study of major movements in English literature through a review of important writers and key works. Individual programs of readings to fill the needs of each student.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.  
Prerequisite: Consent of instructor.

## GRADUATE COURSES

### 220. Indo-European (3)

Prerequisite: Anthropology 120 or English 183.  
Phonology, morphology, and syntax of the Indo-European language community, with special attention to "Centum" and "Satem" relationships.

### 223. Old English (3)

Prerequisite: Twelve units of upper division work in English.  
Elementary grammar and reading in Old English prose and poetry; introduction to *Beowulf*.

### 224. Middle English (3)

Readings in Middle English prose and poetry exclusive of Chaucer.

### 239. Twentieth Century Literature (3)

Prerequisite: Twelve units of upper division work in English.  
Selected major works in the literature of the modern period. Special emphasis on "Modernism" as a literary movement.

### 241. A Literary Era (3)

Prerequisite: Twelve units of upper division English.  
A major era in English or American literature, such as the Elizabethan age, the neo-classical age, the American Romantic period. Maximum credit six units applicable on a master's degree.

### 242. A Literary Genre (3)

Prerequisite: Twelve units of upper division English.  
A major literary genre, such as lyric poetry, drama and the novel. Maximum credit six units applicable on a master's degree.

### 260. Workshop in Creative Writing (3)

Prerequisite: Twelve units of upper division English.  
Criticism and coaching in the larger forms. Maximum credit six units applicable on a master's degree.

### 290. Bibliography and Methods of Literary Research (3)

Prerequisite: Twelve units of upper division English.  
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. Prerequisite to graduate seminar.

### 291. Seminar: A Major Author (3)

Prerequisites: An appropriate upper division or graduate level background course, and English 290.  
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.

### 292. Seminar: A Cultural Period (3)

Prerequisites: An appropriate upper division or graduate level background course, and English 290.  
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.



## French

### 293. Seminar: A Literary Problem (3)

Prerequisite: English 290.

Advanced study of a literary problem, such as Regionalism in America, or European influences on American literature. May be repeated with new content. Maximum credit six units applicable on a master's degree.

### 294. Seminar: A Literary Type (3)

Prerequisite: English 290.

Advanced study of a literary type, such as the Personal Essay, Epic, and Tragedy. May be repeated with new content. Maximum credit six units applicable on a master's degree.

### 295. Seminar in Linguistics (3)

Prerequisite: Completion of 3 units of 200 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.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## FRENCH

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Emeritus: Brown

Professors: Messier, Piffard

Associate Professors: Glasgow, Max, Turner (Chairman)

Assistant Professors: Altamura, Branan, Dunhouse, Ghilbert, Jackson, Nelson, Palmer, Woodle

Instructor: Crouse

#### Offered by the Department of French and Italian

Master of Arts degree in French. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in French with the A.B. degree in liberal arts and sciences.

Minor in French.

Teaching major in French with specialization in both elementary and secondary teaching.

Teaching minor in French with specialization in both elementary and secondary teaching.

## 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 82 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 1, 2, 3, 4, 10, and 11. (20 units.) Recommended: History 4A-4B.

**Major.** A minimum of 24 upper division units in French to include French 101A-101B, 102A-102B, and 12 units in the period literature of the language.

## French

## FRENCH MINOR

The minor in French consists of from 15 to 22 units in French, six units of which must be in upper division courses.

## FRENCH MAJOR

### FOR THE STANDARD 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, with specialization in either elementary or secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

#### Specialization in Elementary Teaching

**Preparation for the major.** French 1, 2, 3, 4 (or equivalents), 10, 11. (20 units.)

**Teaching Major.** Twenty-four upper division units to include French 101A, 101B, 102A, 102B, 122, 140, 141, 150, and three upper division units of electives in French. In addition to the major, credential candidates must complete Education 136.

**Proficiency Examination:** Before taking a student teaching assignment in the language, the candidate for the credential must pass an oral examination in the language administered by the Department of French and Italian. The candidate must consult with the chairman of the Department of French and Italian for permission to take this examination.

#### Specialization in Secondary Teaching

**Preparation for the major.** French 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

**Teaching Major (Undergraduate).** A minimum of 24 upper division units in French to include French 101A, 101B, 102A, 102B, 122, 140, 141, and six upper division units of French in the period literature of the language.

**Postgraduate Year.** Six units of graduate courses in French.

**Proficiency Examinations:** Before taking a student teaching assignment in the language, the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of French and Italian, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of French and Italian for permission to take these examinations.

## FRENCH MINOR

### FOR THE STANDARD TEACHING CREDENTIAL

#### Specialization in Elementary Teaching

The minor in French for elementary teaching consists of not less than 20 units in French, six units of which must be in upper division courses.

**Proficiency Examination:** Before taking a student teaching assignment in the language, the candidate for the credential must pass an oral examination in the language administered by the Department of French and Italian. The candidate must consult with the chairman of the Department of French and Italian for permission to take this examination.

#### Specialization in Secondary Teaching

The minor in French for secondary teaching consists of not less than 20 units in French, exclusive of course equivalents, to include in the lower division, French 1, 2, 3, 4, 10, and 11 (or equivalents); and in the upper division, French 101A, 101B, 102A, 102B, and 122.

**Proficiency Examinations:** Before taking a student teaching assignment in the language, the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of French and Italian, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of French and Italian for permission to take these examinations.



## 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 1; three years the equivalent of French 2; and four years the equivalent of French 3. 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

## 1. Elementary (4) I, II

Four lectures and one hour of laboratory.  
Pronunciation, oral practice, readings on French culture and civilization, minimum essentials of grammar.

## 2. Elementary (4) I, II

Four lectures and one hour of laboratory.  
Prerequisite: French 1 or two years of high school French.  
Continuation of French 1.

## 3. Intermediate (4) I, II

Prerequisite: French 2 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 practice.

## 4. Intermediate (4) I, II

Prerequisite: French 3 or four years of high school French.  
Continuation of French 3; outside reading with oral and written reports.

## 7A-7B. Intensive Reading Course in French (2-2)

Prerequisites: French 1 and 2 or three years of high school French. French 7A is prerequisite to French 7B.

Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in French. Open only to students preparing for departmental reading examinations. Not open to students with credit in French 3 or 8A-8B.

## 8A-8B. Scientific Reading (2-2)

Prerequisites: French 2 with a grade of C or better, or three years of high school French. French 8A is prerequisite to French 8B.

Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc. Outside reading of books and periodicals, with written reports. Not open to students with credit in French 3 or 7A-7B.

## 10. Conversation (2) I, II

Prerequisite: French 2 or three years of high school French.  
Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

## 11. Conversation (2) I, II

Prerequisite: French 10 or French 3, or four years of high school French.  
Continuation of French 10.

## 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topic on page 129. 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

All upper division courses in French are taught in French unless otherwise noted.

## 101A-101B. Advanced Oral and Written Composition (3-3)

Prerequisites: French 4 and 11.

Translation into French from moderately difficult English prose. Outside reading of modern French prose, with written reports in French monthly. Readings and oral discussions in French of various facets of French life and culture.

## 102A-102B. Survey Course in French Literature (3-3)

Prerequisite: French 4.

Important movements, authors, and works in French literature from the Middle Ages to the present. French 10 and 11 strongly recommended for liberal arts minor.

## 105. Nineteenth Century French Theatre (3)

Prerequisites: French 4 and 11.

Classroom reading and discussion of plays from Victor Hugo through Edmond Rostand. Outside reading and reports.

## 107A-107B. Eighteenth Century French Literature (3-3)

Prerequisites: French 4 and 11.

The works of Montesquieu, Voltaire, Rousseau, the Encyclopédistes, as well as the theater and novel of the period. Outside reading and reports.

## 110A-110B. Nineteenth Century French Novel (3-3)

Prerequisites: French 4 and 11.

The French novel from Victor Hugo through Anatole France. Class reading, outside reading, reports.

## 111A-111B. Seventeenth Century French Literature (3-3)

Prerequisites: French 4 and 11.

Introduction to the main writers of the Golden Age of French Literature with emphasis on Corneille, Molière, Racine. Lectures, class discussions, outside readings and reports.

## 112A-112B. French Lyric Poetry (3-3)

Prerequisite: French 102A-102B.

The French lyric tradition and its development from the introduction of the genre in the Middle Ages to the contemporary period.

## 114. Twentieth Century French Novel (3)

Prerequisites: French 4 and 11.

Major novelists of twentieth century France.

## 115. Twentieth Century French Theatre (3)

Prerequisites: French 4 and 11.

Major dramatists of twentieth century France.

## 117. Renaissance and Baroque Literature (3)

Prerequisites: French 4 and 11.

Readings from the major writers of the Renaissance and Baroque periods.

## 122. The Foreign Language Laboratory (2)

Conducted in English.

Prerequisite: Admission to Teacher Education.

Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in German, Italian, Russian, or Spanish 122.

## 140. French Civilization (2)

Prerequisites: French 4 and 11.

French culture of the past and present, with emphasis on the arts, philosophy and literature.



## French

- 141. French Civilization (2)**  
Prerequisites: French 4 and 11.  
Continuation of French 140.

- 148. Applied French Linguistics (3)**  
Prerequisite: French 101A-101B.  
The differences and similarities between the spoken and written forms of present-day French; analysis of its sounds, morphological and syntactic structure. Designed especially for prospective teachers who expect to use an audio-lingual approach.

- 150. Advanced Phonetics and Diction (3) Irregular**  
Prerequisites: French 1, 2, 3, 4, or equivalents, 10 and 11.  
For students and teachers of French wishing to perfect their pronunciation and diction. Correct formation of French sounds in isolation and combination. Class exercises, individual drill, and use of special discs and tape recording.

- 166. Honors Course (1-3) I, II**  
Refer to the Honors Program.

- 199. Special Study (1-3) I, II**  
Individual study. Six units maximum credit. 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.

### GRADUATE COURSES

- 201. History of the French Language (3)**  
Prerequisite: 18 units of upper division French.  
The history of the French language from the beginnings through sixteenth century.
- 202. Medieval French Literature (3)**  
(Offered alternate years)  
Prerequisite: 18 units of upper division French and French 201.  
Readings in the principal monuments, trends and genres of medieval French literature from the beginnings through Francois Villon.
- 203. Literature of the French Renaissance (3)**  
(Offered alternate years)  
Prerequisite: 18 units of upper division French.  
Literature and thought of the 16th century as represented in the works of Rabelais, Montaigne, Ronsard, DuBellay, etc.
- 214. The Novel in France in the 20th Century (3)**  
Prerequisite: 18 units of upper division French.  
Current movements and techniques in the novel in France from 1900 to the present, with concentration on the leading novelists of the period.
- 215. The Theater in France in the 20th Century (3)**  
Prerequisite: 18 units of upper division French.  
Movements and techniques in the French dramatic literature from 1900 to the present, with concentration on the leading dramatists of the period.
- 220. Explication de Textes (3)**  
Prerequisite: 18 units of upper division French.  
An introduction to the analytical French approach to the detailed study of literature. Demonstrations by instructor and students. This course aims to give teachers of French a greater mastery of French language and literature.
- 230. Methods of Literary Criticism (3)**  
Prerequisite: 18 units of upper division French.  
Theory and practice of various traditional and modern critical approaches to specific literary texts.

## French

- 250. Seminar in Seventeenth-Century Literature (3)**  
Prerequisite: 18 units of upper division French.  
Directed research in the works of a representative author (such as Corneille, Molière, or Racine), or in a genre or movement. Maximum credit six units applicable on a master's degree.
- 260. Seminar in Eighteenth-Century Literature (3)**  
Prerequisite: 18 units of upper division French.  
Directed research in the works of a representative author (such as Voltaire, Diderot, or Rousseau), or in a genre or movement. Maximum credit six units applicable on a master's degree.
- 270. Seminar in Nineteenth-Century Literature (3)**  
Prerequisite: 18 units of upper division French.  
Directed research in the works of a representative author (such as Hugo, Balzac, Stendahl, or Zola), or in a genre or movement. Maximum credit six units applicable on a master's degree.
- 290. Research and Bibliography (3)**  
Prerequisite: 18 units of upper division 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. Recommended for the first semester of graduate work.
- 294. Comprehensive Reading and Survey Course (3)**  
Prerequisites: 18 units of upper division French and consent of graduate adviser and department chairman.  
Important movements, authors, and works in French literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the M.A. degree.

### GENERAL COLLEGE COURSES

- 99. Selected Activities (1-3)**  
Supervised experience in college or community activities. Prerequisites: Twelve units of college credit and a minimum grade point average of 2.0. No combination of General College 99 and General College 199 in excess of six units may be counted for credit in a bachelor's degree program.  
Refer to the catalog statement on General College courses on page 129.
- 199. Selected Activities (1-3)**  
Supervised experience in college and/or community activities. Prerequisite: A minimum grade point average of 2.0. No combination of General College 99 and General College 199 in excess of six units may be counted for credit in a bachelor's degree program.  
Refer to the catalog statement on General College courses on page 129.
- 298. Special Study (1-3)**  
Individual study. Six units maximum credit.  
Prerequisites: 18 units of upper division French and consent of staff; to be arranged with department chairman and instructor.
- 299. Thesis (3)**  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.



## General Language/Geography

### GENERAL LANGUAGE

#### IN THE COLLEGE OF ARTS AND LETTERS

##### Faculty

Faculty assigned to teach courses in general language are drawn from departments in the College of Arts and Letters.

Major or minor work is not offered in general language.

#### LOWER DIVISION COURSES

##### 20. Latin and Greek Word Derivation (3) I, II

A general and elementary course in philosophy. A study of Latin and Greek stems of most frequent occurrence in English, and of the English words derived from them.

#### UPPER DIVISION COURSES

##### 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.

##### 199. Special Study (1-3) I, II

Individual study. Maximum credit six units.

Prerequisite: Consent of instructor.

### GEOGRAPHY

#### IN THE COLLEGE OF ARTS AND LETTERS

##### Faculty

Emeritus: Blake, Molitor, Post, Storm

Professors: Eidemiller, Richardson, Taylor, Yahr

Associate Professors: Blick, Finch, Greenwood, Kiewiet de Jonge, O'Brien, Wright (Chairman)

Assistant Professors: Colombo, Ford, Heiges, Johnson, Keen, Pryde, Quastler

##### Offered by the Department

Master of Arts degree in geography. (See also Master of Arts degree for teaching service in social science. Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in geography with the A.B. degree in liberal arts and sciences.

Minor in geography.

Teaching major in geography with specialization in secondary teaching.

Teaching minor in geography with specialization in both elementary and secondary teaching.

#### 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 82 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 1 and 2. (6 units.)

**Major.** A minimum of 24 upper division units in geography to include three units from courses numbered 100-109, three units from courses numbered 110-111 and 150-159 and 170-179, three additional units from either of the above groups, three

## Geography

units from courses numbered 119-139, three units from 180, 182 or 185, three units from 181A or 183, three units from 198 taken from three different instructors, and three units of electives.

#### GEOGRAPHY MINOR

The minor in geography consists of from 15 to 22 units in geography, nine units of which must be in upper division courses.

#### GEOGRAPHY MAJOR

##### FOR THE STANDARD 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.

##### Specialization in Secondary Teaching

**Preparation for the major.** Geography 1 and 2. (6 units.)

**Teaching major.** A minimum of 24 upper division units in geography to include nine units in courses numbered 100-111 and 150-159, six units in courses numbered 119-139, six units in courses numbered 180-189, and three units of electives.

**Postgraduate Year.** Six upper division or graduate units acceptable toward the credential, to be selected with the help of the departmental adviser.

#### GEOGRAPHY MINOR

##### FOR THE STANDARD TEACHING CREDENTIAL

The minor in geography for the standard teaching credential with specialization in either elementary or secondary teaching consists of not less than 20 units in geography to include Geography 1 and 2, and a minimum of 9 units of upper division courses (12 units if major is a non-academic major) in geography. Additional geography electives must be taken to complete the minimum of 20 units.

#### LOWER DIVISION COURSES

##### 1. Introduction to Geography: Physical Elements (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.

##### 2. Introduction to Geography: Cultural Regions (3) I, II

The regional differentiation of the world by human activity; areal bases of economy and nationality. Not open to students with credit in either 12A or 12B. A maximum of six units will be allowed for Geography 2 and 112A or 112B.

##### 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 4.

##### 4. Introduction to Meteorology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geography 3.

Theory of meteorological instruments and observations. Practical exercise in surface and upper air observations, weather codes, and elementary weather map analysis.

##### 5. Physical Geography Laboratory (1)

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geography 1.

Practical exercise and observation in map analysis, weather elements, climatic regions, and the earth's landform features. Designed to supplement Geography 1.



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### 60. Economic Geography (3) I, II

Prerequisite: Geography 1 or 2.

Man's economic activities over the earth's surface. Principles of agricultural production, extractive industries, manufacturing regions, industrial location, and transportation and trade.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 100A. Physical Climatology (3)

Prerequisite: Geography 3.

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.

### 100B. Regional Climatology (3)

Prerequisite: Geography 3.

The causes of climatic types as they occur throughout the world. Principles of several climatic classifications.

### 101. Climatic Physiography (3)

Prerequisites: Geography 1, Geology 1A or 2.

The origin and morphology of landforms with emphasis on the external forces.

### 102. Structural Physiography (3)

Prerequisites: Geography 1, and Geology 1A or 2.

Origin and morphology of landforms with emphasis on internal forces.

### 103. Fluvial and Eolian Physiography (3)

Prerequisites: Geography 1, Geology 1A or 2.

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.

### 104. Coastal and Submarine Physiography (3)

Prerequisites: Geography 1, Geology 1A or 2.

Marine physiographic processes and their effects on developing the landforms of coasts, continental shelves, and ocean floors.

### 105. Geography of Soils (3) II

Prerequisite: Geography 1.

The nature, properties and distribution of soils and their relationships to the influence of climates, landforms, and human activity.

### 107. Geography of Natural Vegetation (3)

Prerequisite: Geography 1.

The natural vegetation associations of the world their distribution, classification and development, including relationship to human activities.

### 110. Historical Geography (3) II

Prerequisite: Geography 1 or 2.

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.

### 111. Principles of Geographical Analysis (3)

Prerequisites: Geography 1 and 2.

Major concepts and techniques of the field of geography.

### 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

## Geography

in the alteration of the natural landscape. This year course not open to students with credit in both 12A and 12B. A maximum of six units will be allowed for one of the following combinations of courses: Geography 2 and 112A or 112B; Geography 12A and 112B; Geography 12B and 112A.

### 119. Geography of San Diego County (3) II

Saturday field trips to be arranged.

Prerequisites: Geography 1 and 2.

Analysis of the physical and cultural geographic aspects of San Diego County. Completion of Geography 100, 101, 105 will be helpful to students enrolling in this course. (Formerly numbered Geography 184.)

### 120. California (3) I, II

Prerequisite: Geography 1 or 2.

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.

### 121. United States (3) I, II

Prerequisite: Geography 1 or 2.

The natural regions of the United States, their formation and economic and historical development.

### 122. Canada and Alaska (3) II

Prerequisite: Geography 1 or 2.

The physical and historical bases of Canadian and Alaskan regionalism; the economic and strategic importance of these two areas.

### 123. Middle America (3) II

Prerequisite: Geography 1 or 2.

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.

### 124. South America (3) I

Prerequisite: Geography 1 or 2.

The physical regions and human geography of South America, including the history of colonization and the exploitation of resources.

### 125. North Africa and the Near East (3) II

Prerequisite: Geography 1 or 2.

The geographic bases for the political heritage, economies and peoples of North Africa, including the Sahara, and the Near East.

### 126. Europe (3) I, II

Prerequisite: Geography 1 or 2.

Systematic analysis of the geographic bases of modern European life. Regional investigation of countries of Europe except the Soviet Union.

### 127. Soviet Union (3) I, II

Prerequisite: Geography 1 or 2.

Natural resources, agricultural production, industrial growth, and transportation.

### 129. Oceania (3) II

Prerequisite: Geography 1 or 2.

The physical geography, peoples, economies, and trade of Oceania, Australia, and New Zealand.

### 130. Central and Southern Africa (3) I

Prerequisite: Geography 1 or 2.

A regional geography of Africa south of the Sahara; the physical geographic base for the peoples and their economic activities.

### 131. Eastern Asia (3) I

Prerequisite: Geography 1 or 2.

The geographic bases for the political heritage, economies, and people of Eastern Asia.



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**133. Southeastern Asia (3)**

Prerequisite: Geography 1 or 2.  
The geographic bases for the political heritage, economies, and peoples of Southeastern Asia.

**134. Southern Asia (3)**

Prerequisite: Geography 1 or 2.  
The geographic bases for the political heritage, economies, and peoples of Southern Asia.

**150. Political Geography (3) I**

Geography as it relates to the strength of nations and international relations.

**151. Economic Geography: Primary Production (3) I**

Prerequisite: Geography 1 or 2.  
The geography of agricultural production and the extractive industries in relation to world commerce.

**152. Industrial Geography (3) II**

Prerequisite: Geography 1 or 2.  
Principles of industrial location, with emphasis on the distribution of the world's major manufacturing regions.

**153. Location Analysis and Geographic Theory (3)**

Prerequisite: Geography 111.  
Spatial arrangement and interrelationships of resources, production, exchange and consumption of goods and services and a study of location theory in economic geography.

**154. Geography of Cities (3)**

Prerequisite: Geography 2.  
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.

**155. Urban Location and Settlement Geography (3)**

Prerequisite: Geography 154.  
Analysis of urban and other agglomerated settlements in terms of their spatial arrangement, principal functions, economic base, and supporting areas.

**156. Internal Spatial Structure of Cities (3)**

Prerequisite: Geography 154.  
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".

**157. Quantitative Methods of Urban Analysis (3)**

Prerequisite: Geography 155 or 156 and 185.  
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.

**158. Transportation Geography (3)**

Prerequisite: Geography 1 or 2.  
The spatial distribution of transportation networks and commodity movement and their relationship to the distribution of economic activity.

**159. Urban Transportation Geography (3)**

Prerequisite: Geography 155 or 158.  
Urban transportation networks and their effects, past, present, and future on the economy and physical structure of the urban region.

**166. Honors Course (1-3) I, II**

Refer to the Honors Program.

**170. Conservation of Environmental Quality (3)**

Prerequisite: Geography 1 or 2.  
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.

**171. Conservation of Natural Resources (3) I, II**

Prerequisite: Geography 1 or 2.  
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. (Formerly numbered Geography 153.)

**173. Geography as Human Ecology (3)**

Prerequisite: Geography 170.  
Human ecology related to resource geography.

**174. Water Resources (3) II**

Prerequisite: Geography 1 or 2.  
Occurrence and utilization of water resources and the problems of water resource development. (Formerly numbered Geography 154.)

**175. Geography of Recreational Land Use (3)**

Prerequisite: Geography 170 or 171.  
Importance of location and environment in the use, management, and quality of recreation areas.

**176. Geography of Marine Resources (3)**

Prerequisites: Geography 1 or 2.  
Economic geography of use of marine biotic and mineral resources.

**180. Field Geography (3) II**

Prerequisites: Senior or graduate standing and the completion of at least 12 units in geography, including Geography 1 and 2, and consent of instructor.  
Directed fieldwork in physical and cultural geography.

**181A-181B. Maps and Graphic Methods (3-3)**

Prerequisite: Geography 1 or 2; Geography 181A is prerequisite to 181B.  
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.

**182. Use and Interpretation of Aerial Photographs (3) II**

Two lectures and three hours of laboratory.  
Prerequisites: Geography 1 and consent of instructor.  
Stereoscopic interpretation and cartographic representation of landforms, vegetation, and land use. Emphasis on practical exercises.

**183. Map Investigation (3) I**

Prerequisite: Geography 1 or 2.  
Interpretation and evaluation of maps. History of developments in cartography. Study of major mapping organizations of the world and examination of their products.

**184. Field Geography of the Arid Southwestern United States (3) II**

Prerequisites: Geography 1 and 2.  
An orientation to the Southwestern United States; emphasis upon field observation and interpretation of the cultural and physical landscape. A minimum of fifteen days will be spent in the field.

**185. Quantitative Methods in Geographic Research (3)**

Prerequisites: Two geography courses including one in upper division; Mathematics 12, and Mathematics 18 or a higher numbered course.  
Use of quantitative methods in geographic research.



# Geography

## 187. Remote Sensing of the Environment (3)

Two lectures and three hours of laboratory.  
Prerequisites: Geography 1, 2, 182 and consent of instructor.  
Multiband spectral reconnaissance of the environment. Emphasis on multi-spectral photography, infrared, microwave scanning systems and multifrequency radar systems and their uses in the study of cultural and bio-physical phenomena.

## 188. Advanced Remote Sensing of the Environment (3)

Prerequisites: Geography 187 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 bio-physical environment. Practice in planning, design, execution and interpretation of remote sensing studies.

## 196. Geographic Internship (3)

Students will be assigned to various government agencies and industry, and will work under joint supervision of agency heads and the course instructor.

## 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.

## 198. Directed Readings in Geographic Literature (1)

Prerequisite: Credit or concurrent enrollment in the upper division geography course in the subject matter area in which the readings are to be undertaken.  
Individually directed readings in geographic literature. May be repeated for a maximum of three units, taken each time from a different instructor.

## 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.  
Prerequisites: At least 15 units of A or B work in geography and consent of instructor.

## GRADUATE COURSES

### 200A. Seminar in Advanced Physical Climatology (3)

Prerequisites: Geography 100A and approval of the departmental advisory committee.  
Intensive study of the characteristics of climatic elements for a selected area or climatic type, and a statistical analysis of the elements studies. Maximum credit six units applicable on a master's degree.

### 200B. Seminar in Advanced Regional Climatology (3)

Prerequisites: Geography 100B and approval of the departmental advisory committee.  
Selected regions. An interpretation of regional variations of world climatic patterns. Maximum credit six units applicable on a master's degree.

### 210. History of Geography (3)

Prerequisite: Approval of graduate adviser.  
The evolution of concepts concerning the nature, scope, and methodology of geography.

### 220. Seminar in Regional Geography (3)

Prerequisite: Approval of departmental advisory committee.  
Intensive study of a major world region, such as South America, Southeast Asia and Northern Europe. Maximum credit six units applicable on a master's degree.

### 250. Seminar in Systematic Geography (3)

Prerequisite: Approval of departmental advisory committee.  
Intensive study of an aspect of systematic geography, such as climatology, economic geography, and graphic presentation. Maximum credit six units applicable on a master's degree.

### 255. Seminar in Urban and Settlement Geography (3)

Prerequisite: Geography 155 or 156 and approval of the departmental advisory committee.  
Selected topics in urban geography. Field reconnaissance in the local urban "laboratory" is essential part of the research undertaken.

### 270. Seminar in Theory of Resource Use (3)

Prerequisites: Geography 170 and 171 and the approval of the departmental advisory committee.  
Selected theories in resource use. Emphasis on conflicts between resource systems and conservation philosophy.

### 272. Seminar in Environmental Quality (3)

Prerequisite: Geography 170 and the approval of the departmental advisory committee.  
Geographic factors affecting environmental quality, such as congestion, crowding, and pollution.

### 275. Seminar in Recreational Geography (3)

Prerequisite: Geography 175 and consent of departmental advisory committee. Geography 170 and 171 are recommended.  
Analysis and management of recreational areas. Emphasis on man-land relationship in natural parks of San Diego County.

### 280. Techniques of Field Research (3)

Prerequisites: Geography 180 and approval of departmental 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.

### 281. Seminar in Cartography (3)

Prerequisites: One course in cartography and approval of departmental 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.

### 285. Seminar in the Use of Quantitative Methods (3)

Prerequisites: Mathematics 18 or a higher numbered course in mathematics, Geography 185 or any upper division course in statistics, and approval of departmental advisory committee.  
Application of quantitative methods to problems in human and physical geography. Maximum credit six units applicable on a master's degree.

### 288. Seminar in Remote Sensing of the Environment (3)

The use of remote sensing techniques in the study of man's cultural and bio-physical environment.

### 295. Geographic Research and Techniques of Presentation (3)

Prerequisite: Approval of departmental 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.

### 296. Geographic Internship (3)

Prerequisite: Approval of the departmental graduate advisory committee, and consent of the instructor.  
Students will be assigned to various government agencies and industry, and will work under joint supervision of agency heads and the course instructor.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.  
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.



## Geology

### GEOLOGY

#### IN THE COLLEGE OF SCIENCES

##### Faculty

Emeritus: Brooks  
Professors: Allison, Bassett, Gastil (Chairman), Peterson, Roberts, Thomas, Threet  
Associate Professors: Berry, Krummenacher, McEuen, Ptacek  
Assistant Professors: Frederiksen, Kern, Libby  
Lecturers: Dill, Phillips, Theismeyer

##### Offered by the Department

Master of Science degree in geology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in geology with the A.B. degree in liberal arts and sciences.

Major in geology with the B.S. degree in applied arts and sciences.

Minor in geology.

#### GEOLOGY 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 82 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Geology 1A, or 2 and 3, 1B, 21, and 24; Chemistry 1A-1B; Engineering 2; Mathematics 22 or 50; and Physics 2A-2B and 3A-3B, or 4A-4B-4C. (39-45 units.) Recommended: Chemistry 4 or 5 or Geology 130, Mathematics 51, and a course in mechanical drawing if not completed in high school.

**Major.** A minimum of 24 upper division units in geology to include Geology 100, 106, 108A-108B, and 198A-198B. For the *geophysics* fields, the following courses should be taken in addition to the major: Mathematics 118A, Physics 103, 120A, and Geology 112.

#### 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 78 of this catalog.

A minor is not required with this major.

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 Physical or Economic Geology, (b) Paleontology and Stratigraphy, (c) Geophysics, and (d) Geochemistry.

##### BASIC REQUIREMENTS FOR ALL STUDENTS

**Preparation for the major.** Geology 1A, or 2 and 3, 1B, 21, 24; Chemistry 1A-1B; Engineering 2; and Biology 1 and 2. (32 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 the following: Geology 100, 108A-108B, 124, 198A-198B, and 120 or 121 (20 units); plus the courses in one of the following options:

##### OPTIONS

In addition to the basic requirements, the student must complete the requirements in one of the following options:

##### (a) General Physical or Economic Geology

**Additional preparation for the major.** Mathematics 12 (or equivalent) and 50; Physics 2A-2B and 3A-B or Physics 1A-1B; and Chemistry 4 or 5 or Geology 130. (19-20 units.) Recommended: Mathematics 7.

## Geology

**Major (continued).** Geology 106; and two of the following courses: Geology 105, 107, 110, 125; and electives approved by the departmental adviser to complete 36 upper division units.

##### (b) Paleontology and Stratigraphy

**Additional preparation for the major.** Biology 15; Mathematics 50, or 21 and 22 (Mathematics 21 and 22 should be taken only by students planning to pursue no academic work beyond the B.S. degree); Physics 2A-2B and 3A-3B or Physics 1A-1B. (16-17 units.)

**Major (continued).** Geology 106, 107, and 116; Biology 110 and two courses chosen from the following list, provided at least three units are chosen from upper division courses: Zoology 50 or 112, 60, 106, 114; Biology 113; Botany 172.

##### (c) Geophysics

**Additional preparation for the major.** Mathematics 50, 51, and 52; and Physics 4A-4B-4C. (25 units.) Recommended: Mathematics 7.

**Major (continued).** Mathematics 118A; Physics 101, 103, 105, and 110; Geology 110 and 112. (21 units.) Recommended: Mathematics 118B, Physics 114.

##### (d) Geochemistry

**Additional preparation for the major.** Chemistry 5 and 11 or 12; Physics 4A-4B-4C; Mathematics 50, 51, and 52. (33 units.) Recommended: Mathematics 7.

**Major (continued).** Geology 106, 125, 130; Chemistry 110A, and electives approved by the departmental adviser to complete 36 upper division units.

#### GEOLOGY MINOR

The minor in geology consists of from 15 to 22 units in geology, six units of which must be in upper division courses.

##### LOWER DIVISION COURSES

##### 1A. Physical (4) I, II

Three lectures and three hours of laboratory with related field study during the semester.

The composition, origin, and distribution of earth materials, and their modification through mechanical and chemical processes. Not open to students with credit for Geology 2.

##### 1B. Historical (4) I, II

Three lectures and three hours of laboratory. Arrangement for field study during the semester.

Prerequisite: Geology 1A, or 2 and 3.

Theories of earth origin, and the evolutionary history of the earth as traced through rock and fossil records. Consideration of the Paleontologic Sequence.

##### 2. General Geology (3) I, II

Earth materials and processes, the development of land forms, and a brief consideration of the history of the earth. Open to all students except those with previous credit in geology.

##### 3. General Geology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geology 2.

Recognition of common earth features and materials with experience in both field and map relationships. Designed to accompany and augment Geology 2. Not open to students with previous laboratory credit in geology.

##### 14. Geomorphology (3) II

Prerequisite: Geology 1B.

Development and classification of land forms with consideration of processes involved.



## Geology

### 21. Mineralogy (4) I, II

Two lectures and six hours of laboratory.  
Prerequisite: 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.

### 24. Petrology (3) I, II

Two lectures and three hours of laboratory.  
Prerequisites: Geology 1A, or 2 and 3, and credit or concurrent registration in Geology 21.  
The origin, occurrence, identification, and classification of rocks and minerals with emphasis on hand specimen characteristics.

### 53. General Geology for Engineers (1) I, II

One three-hour laboratory or field project per week.  
Prerequisite: Engineering 2 or 24.  
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 3.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 100. Structural Geology (3) I, II

Two lectures and three hours of laboratory per week with occasional field trips.  
Prerequisites: Geology 1A, 1B and trigonometry.  
Structural features of the earth, both deformational and primary. Mechanical principles, causes of folding and faulting, graphic solutions and analyses.

### 102. Geology of North America (3) I

Prerequisite: Geology 1B.  
A regional analysis of North American geology, its structural, stratigraphic, and tectonic patterns and hypotheses concerning their origin and evolution.

### 105. Photogeology (3) II

Two lectures and three hours of laboratory.  
Prerequisites: Geology 14 and 100.  
Geologic interpretation of aerial photographs, elementary stereoscopy and stereo-metry applied to structural and stratigraphic problems, and compilation of geologic maps from annotated aerial photographs.

### 106. Paleontology (4) I, II

Two lectures and six hours of laboratory.  
Prerequisites: Geology 1B and Biology 1 and 2.  
Principles and methods, exemplified by a study of the morphology, classification, habit, and geologic significance of fossil invertebrates.

Vertebrate Paleontology, see Zoology 160.

### 107. Principles of Stratigraphy (3) II

Two lectures and three hours of laboratory.  
Prerequisites: Geology 24 and 106.  
Procedures used in analysis, correlation, and classification of stratigraphic units. The chronologic significance of the important physical and biological criteria.

### 108A. Field Geology (4) II

One lecture and three hours of laboratory and twelve Saturday field sessions in the local area.  
Prerequisites: Geology 24 and 100, and Engineering 2.  
Techniques and methods of geologic observation, interpretation, and field mapping.

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### 108B. Field Geology (4) I

Prerequisite: Geology 108A.  
Geologic investigation of an assigned area with preparation of an individual report and a geologic map.

### 110. Introduction to Geophysics (3) I

Two lectures and three hours of laboratory.  
Prerequisites: Mathematics 22 or 50, Physics 2B and 3B or equivalents, and Geology 100 or concurrent registration therein.  
Physics of the earth and its application to prospecting for oil, gas, and mineral deposits.

### 112. Advanced Geophysics (3) II

(Offered in alternate years)  
Two lectures and three hours of laboratory.  
Prerequisites: Mathematics 52, Physics 103 and 110, and Geology 110.  
Theoretical principles underlying the physics of the earth and their application to the design and the operation of geophysical instruments, and to the interpretation of the geophysical records.

### 116. Micropaleontology (3) II

Two lectures and three hours of laboratory.  
Prerequisite: Geology 106.  
The morphology, classification and geologic significance of the various microfossils.

### 118-S. Summer Field Problems (4-6)

Prerequisite: Geology 108A and consent of instructor.  
Field techniques in the investigation of selected geological problems. This course cannot be substituted for Geology 108B.

### 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. May be repeated for a maximum of four units.

### 120. Ore Deposits (3) I

Prerequisites: Completion or concurrent registration in Geology 24 and 100.  
Geologic relations, origin, distribution, and economics of metallic and non-metallic mineral deposits.

### 121. Petroleum Geology (3) II

Prerequisites: Completion or concurrent registration in Geology 24 and 100.  
Geologic occurrence of petroleum and the application of geologic principles in exploration and production.

### 124. Optical Mineralogy (3) I

Two lectures and three hours of laboratory.  
Prerequisite: Geology 21.  
Theory and use of the polarizing microscope for determining optical properties of minerals as an aid to their identification.

### 125. Petrography (4) II

Two lectures and six hours of laboratory.  
Prerequisite: Geology 124.  
A study of rocks with the polarizing microscope; identification of mineral constituents; interpretation of textures; classification of rocks; problems of genesis.

### 130. Geochemistry (3) II

Two lectures and three hours of laboratory.  
Prerequisites: Geology 24 and Chemistry 1B.  
The relationship of basic chemical principles to geologic phenomena and environments, including applications to geologic exploration problems.



## Geology

### 166. Honors Course (1-3) I, II

Special work in any of several phases of geologic science for students of demonstrated ability. Refer to the Honors Program.

### 198A. Senior Research (1) I, II

Prerequisite: Credit or concurrent registration in Geology 108A.

Three hours of laboratory and discussions.

Selection and design of an individual research project. Oral and written progress reports.

### 198B. Senior Research (2) I, II

Six hours of laboratory and discussions.

Prerequisites: Geology 198A and Geology 108B.

Individual research project, involving field work in a selected field of geology, with oral reports of progress to the class and a final oral and written report of work accomplished.

### 199. Special Study (1-3) I, II

Individual study in field, library, laboratory, or museum work. Four units maximum credit.

Prerequisites: Acceptable grade average in at least 12 upper division units within the major and consent of staff.

## GRADUATE COURSES

### 200. Seminar (2 or 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.

### 208. Graduate Field Geology (3) II

One lecture and nine Saturday field sessions.

Prerequisite: Geology 108A.

Experience in one or more specialized aspects of field mapping.

### 209. Igneous Petrology (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 125 and 130.

Investigation of problems in igneous petrology, using petrography, geochemistry, and experimental methods.

### 211. Metamorphic Petrology (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 125 and 130.

Investigation of problems in metamorphic petrology using petrography, geochemistry, and experimental methods.

### 212. Sedimentary Petrology (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 107 and 124.

Investigation of problems in sedimentary petrology.

### 220. Biostratigraphy (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 107.

Development of concepts and practices in stratigraphic and geochronologic synthesis critically reviewed in contexts of current knowledge of the fossil record.

### 221. Advanced Palynology (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 106 and Botany 172.

Problems and current topics in palynology.

## Geology

### 225. Paleocology (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 106 and Biology 110.

Problems and methods in the study of relationships between fossil organisms and their environment; interpretation of paleoenvironment, paleoclimate, and biologic relationships among fossil organisms.

### 229. Seminar: Advanced Studies in Stratigraphy (3)

Two seminars and three hours of laboratory.

Prerequisite: Geology 107.

Regional stratigraphic patterns in North America and their historical implications.

### 235. Marine Processes (3)

Prerequisite: Geology 107.

Marine erosion, transportation and deposition and their geologic consequences.

### 240. Geotectonics (3)

Prerequisite: Geology 100.

A consideration of topics on continental genesis and evolution, orogeny, geosynclinal theory, and a survey of classic geologic provinces.

### 245. Advanced Structural Geology (3)

Prerequisite: Geology 100.

Topics in advanced structural geology in the light of petrographic, geophysical, and experimental data, combined with classic field observations.

### 250. Seminar: Physical Properties of Earth Materials (2)

Prerequisite: Geology 110.

Theoretical principles and instrumental techniques used to remotely determine the physical properties of earth materials.

### 260. Isotope Geology (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 130.

A survey of isotopic and geochronologic topics with individual projects in isotopic analysis.

### 270. Pleistocene Geology (3)

Three lectures and field trips.

Topics in Pleistocene geology: glaciation, Pleistocene lakes and drainage, relation of geology to early man, including field investigations.

### 280. Sedimentary Geochemistry (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 130.

Problems in low temperature geochemistry, including clay mineralogy and diagenesis.

### 285. Genesis of Ore Deposits (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 120, 125, and 130 or four units of physical chemistry.

Application of mineralogy, petrography, and chemistry to an understanding of the origin of ore deposits.

### 297. Research (1-3)

Prerequisite: Consent of department.

Supervised research in an area of geology.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.

Preparation of a thesis for the master's degree.



## GERMAN

## IN THE COLLEGE OF ARTS AND LETTERS

## Faculty

Emeritus: Walker

Professors: Dukas (Chairman German-Russian), Lawson, Wolf, E.

Associate Professors: Boney, Dunkle, Paulin, Tanaka, Westervelt

Assistant Professors: Herrmann, Schaber, Wolf, C., Wulbern

## Offered by the Department of German and Russian

Master of Arts degree in German. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in German with the A.B. degree in liberal arts and sciences.

Minor in German.

Teaching major in German with specialization in both elementary and secondary teaching.

Teaching minor in German with specialization in both elementary and secondary teaching.

## 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 82 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 1, 2, 3, 4, 10, and 11. (20 units.)

**Major.** A minimum of 24 upper division units in German to include German 101A-101B, 102A-102B, and 12 units in the period literature of the language.

## GERMAN MINOR

The minor in German consists of from 15 to 22 units in German, six units of which must be in upper division courses.

## GERMAN MAJOR

## FOR THE STANDARD 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, with specialization in either elementary or secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

**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 German and Russian. The candidate must consult with the chairman of the Department of German and Russian concerning this examination.

## Specialization in Elementary Teaching

**Preparation for the major.** German 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

**Teaching Major.** A minimum of 24 upper division units to include German 101A-101B, 102A-102B, 125A or 125B, 140, 141, 150, and three upper division units of electives in German. In addition to the major, credential candidates must complete Education 136.

## Specialization in Secondary Teaching

**Preparation for the major.** German 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

**Teaching Major (Undergraduate).** A minimum of 24 upper division units in German to include German 101A-101B, 102A-102B, 140, 141; and 125A or 125B or 150; and six upper division units of German in the period literature of the language.

**Postgraduate Year.** Six units of graduate courses in German.

## GERMAN MINOR

## FOR THE STANDARD TEACHING CREDENTIAL

**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 German and Russian. The candidate must consult with the chairman of the Department of German and Russian concerning this examination.

## Specialization in Elementary Teaching

The minor in German for elementary teaching consists of not less than 20 units in German, six units of which must be in upper division courses.

## Specialization in Secondary Teaching

The minor in German for secondary teaching consists of not less than 20 units in German, exclusive of course equivalents, to include in the lower division, German 1, 2, 3, 4, 10, and 11 (or equivalents); and in the upper division, German 101A-101B, 102A-102B, and 125A or 125B.

## 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 1; three years the equivalent of German 2; and four years the equivalent of German 3. 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

## 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.

## 2. Elementary (4) I, II

Four lectures and one hour of laboratory.

Prerequisite: German 1 or two years of high school German.

Continuation of German 1.

## 3. Intermediate (4) I, II

Prerequisite: German 2 or three years of high school German.

A practical application of the fundamental principles of grammar. Reading in German of cultural material, short stories, novels or plays; oral practice.

## 4. Intermediate (4) I, II

Prerequisite: German 3 or four years of high school German.

Continuation of German 3.

## 7A-7B. Intensive Reading Course in German (2-2)

Prerequisites: German 1 and 2 or three years of high school German.

Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in German.



## German

### 8A-8B. Scientific Reading (2-2)

Prerequisite: German 2 or three years of high school German.  
Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc.

### 10. Conversation (2) I, II

Prerequisite: German 2 or three years of high school German.  
Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

### 11. Conversation (2) I, II

Prerequisite: German 10 or German 3, or four years of high school German.  
Continuation of German 10.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 101A-101B. Oral and Written Composition (3-3)

Prerequisites: German 4 and 11.  
Translation into German of moderately difficult English prose. Free composition in German, written and oral. Outside reading of modern German plays and prose, discussions in German. Oral and written practice in conversational German.

### 102A-102B. Survey Course in German Literature (3-3)

Prerequisite: German 4.  
Important movements, authors, and works in German literature from the Middle Ages to the present.

### 103A-103B. German Literature of the Eighteenth Century (3-3)

Prerequisites: German 4 and 11.  
The literature of the German Enlightenment, the "Storm and Stress," the Classical Age. Outside readings and reports.

### 105A-105B. German Literature of the 19th Century (3-3)

Prerequisites: German 4 and 11.  
The literature of German Romanticism, Young Germany, Realism, and Naturalism. Outside readings and reports.

### 107. German Literature from its Beginning to the Reformation (3)

Prerequisites: German 4 and 11.  
Poetry, drama, and prose of the Old High German, Middle High German, and early New High German periods, the early texts to be read in modern German adaptations.

### 110A-110B. Contemporary German Literature (3-3)

Prerequisites: German 4 and 11.  
The main developments in German literature from Neo-Romanticism to the present. Outside readings and reports.

### 111. Contemporary German Drama (3)

Prerequisites: German 4 and 11.  
German drama from Hauptmann to the present.

### 115. Goethe's *Faust* (3)

Prerequisites: German 4 and 11.  
Goethe's *Faust*, Parts 1 and 2, its philosophical contents and its position in German and European literature; lectures, reading, reports.

### 125A-125B. Advanced Oral and Written Composition (2-2)

Prerequisite: German 101A-101B.  
Advanced forms of oral and written German.

## German

### 130. German Syntax and Stylistics (3)

Prerequisites: German 101A-101B.  
Theoretical and practical study of the structure of German prose.

### 140. German Civilization (2) I

Prerequisites: German 4 and 11.  
Conducted in German. Primarily for German majors and minors.  
German culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

### 141. German Civilization (2) II

Prerequisites: German 4 and 11.  
Conducted in German. Primarily for German majors and minors.  
Continuation of German 140.

### 148. Applied German Linguistics (3)

Prerequisites: German 101A-101B.  
Linguistic study of modern German; integration of modern linguistic theory with the language classroom.

### 150. German Phonology (3)

Prerequisites: German 4 and 11.  
Sounds, intonation, and elocution of German.

### 152. Middle High German (3)

Prerequisite: Twelve units of upper division German.  
The grammatical structure of Middle High German with readings from the "Nibelungenlied," "Parzival," "Tristan und Isolde," and from the lyric poets of the period.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit. 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.

## GRADUATE COURSES

### 201. History of the German Language (3)

Prerequisite: Twelve units of upper division German.  
The historical development of the German language, with source readings from the Gothic Bible to Luther's translation of the Bible.

### 202. Middle High German Literature (3)

Prerequisite: German 152.  
Reading and analysis of Middle High German literature.

### 203. The German Novelle (3)

Prerequisite: Twelve units of upper division German.  
The development of the Novelle as a literary form from Goethe to the present.

### 204. The German Novel in the Twentieth Century (3)

Prerequisite: Twelve units of upper division German.  
The German novel from the beginning of the twentieth century with special emphasis on the works of Thomas Mann, Hermann Hesse, and Franz Kafka.

### 205. German Lyric Poetry from Hölderlin to Rilke (3)

Prerequisite: Twelve units of upper division German.  
The major German lyric poets from the beginnings of Romanticism to Rilke.

### 206. German Drama of the 19th Century (3)

Prerequisite: Twelve units of upper division German.  
Representative works of German dramatic literature from Kleist to Hauptmann.



## German

### 207. Renaissance and Baroque Literature (3)

Prerequisite: Twelve units of upper division German.  
German literature of the sixteenth and seventeenth centuries.

### 208. Goethe (3)

Prerequisite: Twelve units of upper division German.  
Goethe's lyric, epic, and dramatic poetry excluding *Faust*.

### 210. Schiller (3)

Prerequisite: Twelve units of upper division German.  
Schiller as poet, dramatist, critic and philosopher, with emphasis on his classical period.

### 240. German "Geistesgeschichte" in the 19th and 20th Centuries (3)

Prerequisite: Sixteen units of upper division German including German 140 and 141.

Dominant ideas in German culture since 1800 with emphasis on philosophical, historical, social, political, and scientific thought, and on the intellectual contents of literary works. Based on the reading of German sources.

### 251. Seminar in Eighteenth-Century Literature (3)

Prerequisite: Eighteen units of upper division 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.

### 255. Seminar in Nineteenth-Century Literature (3)

Prerequisite: Eighteen units of upper division 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.

### 260. Seminar in Twentieth-Century Literature (3)

Prerequisite: Eighteen units of upper division 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.

### 265. Seminar in Germanic Linguistics (3)

Prerequisite: Eighteen units of upper division and/or graduate German.  
Directed research in a specialized area of Germanic linguistics or philology. Maximum credit six units applicable to a master's degree.

### 290. Research and Bibliography (3)

Prerequisite: Twelve units of upper division German.  
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. Recommended for the first semester of graduate work.

### 297. Research (3)

Prerequisite: Advancement to candidacy.  
Individual research in a specialized subject in German literature or linguistics.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.  
Prerequisites: Eighteen units of upper division German and consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.

## Greek

## GREEK

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Faculty assigned to teach courses in Greek are drawn from the Department of Classical and Oriental Languages.

#### Offered by the Department of Classical and Oriental Languages

Courses in Greek.  
Major or minor work in Greek is not offered. A minor in Classics, described in this section of the catalog under Classical and Oriental Languages, is offered.

#### LOWER DIVISION COURSES

##### 1. Elementary (4) I

Four lectures and one hour of laboratory.  
Introduction to ancient Greek, emphasizing grammatical foundations of New Testament and Attic Prose.

##### 2. Elementary (4) II

Four lectures and one hour of laboratory.  
Prerequisite: Greek 1.  
Continuation of Greek grammar with selections from St. John, Herodotus, and Plato. Interpretation, style and grammar.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

##### 103. Readings in Ancient Greek (3) I

Prerequisite: Greek 2.  
Graded readings from the masters of Greek prose and poetry. Emphasis on rapid reading.

##### 104. Readings in Ancient Greek (3) II

Prerequisite: Greek 103.  
Intensive study of one or more major writers, such as Plato, Euripides, and Demosthenes. Author selected in consultation with students.

##### 105. Greek Poetry (3)

Prerequisite: Greek 104.  
Literary, linguistic, and cultural themes among the Greek poets. Contributions of the Greeks to later ages. May be repeated with new content. Maximum credit six units.

##### 106. Greek Prose Writers (3)

Prerequisite: Greek 104.  
Origin and development of the genre of each author and his literary, philosophical, or political contribution to western civilization. May be repeated with new content. Maximum credit six units.

##### 199. Special Study (1-6) 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  
Assistant Professors: Barnes, Boskin, Fellers, Grant, Kessler, Noto, Sorochan  
Lecturer: Reid



## Health Science and Safety

### Offered by the Department

Master of Arts degree for teaching service with a concentration in health education. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in health education with the B.S. degree in applied arts and sciences.

Minor in health education.

Teaching major in health sciences with specialization in secondary teaching.

Teaching minor in health sciences with specialization in both elementary and secondary teaching.

## HEALTH EDUCATION 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 78 of this catalog.

A minor is not required with this major.

#### EMPHASIS IN COMMUNITY HEALTH

**Preparation for the major.** Health Science and Safety 21, 29, 65; Home Economics 4A; Zoology 8; Biology 9 or 22 and 23; Psychology 1, 12; and Sociology 1. (26 or 27 units.)

**Major.** A minimum of 36 upper division units to include Health Science and Safety 100, 101, 140, 145, 146, 160, 165, 169, 175, 176, 177; the remaining units to be selected from health science and safety or closely related fields with approval of the adviser.

#### EMPHASIS IN INDUSTRIAL SAFETY EDUCATION

**Preparation for the major.** Health Science and Safety 21, 29, 65; Home Economics 4A; Zoology 8; Biology 9 or 22 and 23; Psychology 1, 12; and Sociology 1. (26 or 27 units.)

**Major.** A minimum of 36 upper division units to include Health science and Safety 100, 140, 145, 146, and 177; Psychology 121, 122, and 124; Sociology 120; the remaining units to be selected from health science and safety or closely related fields with approval of the adviser.

#### EMPHASIS IN TRAFFIC SAFETY

An emphasis in traffic safety will be offered in the fall of 1970. For specific requirements, contact the chairman of the Department of Health Science and Safety.

## HEALTH EDUCATION MINOR

The minor in health education consists of from 15 to 22 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 100, and 65 or 160.

## HEALTH SCIENCES MAJOR

### FOR THE STANDARD 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 a major in health education for the B.S. degree in applied arts and sciences.

#### Specialization in Secondary Teaching

**Preparation for the major.** Health Science and Safety 21, 29, 65; Home Economics 4A; Zoology 8; and Biology 9 or 22 and 23; Sociology 1; and Psychology 1. (24 units.)

**Teaching Major (Undergraduate).** A minimum of 36 upper division units to include Health Science and Safety 100, 145, 146, 153, 155, 165, 172; Psychology 106; and Sociology 140. Remaining units to be selected from health science and

## Health Science and Safety

safety and closely related fields. In addition students must complete School of Education requirements which include Education 121P and Health Science and Safety 151.

**Postgraduate Year.** Six units of postgraduate courses in the major or minor acceptable toward the credential.

## HEALTH SCIENCES MINOR

### FOR THE STANDARD TEACHING CREDENTIAL

#### Specialization in Elementary Teaching

The minor in health sciences for elementary teaching consists of 21 units to include Health Science and Safety 21, 29, 65; and in the upper division 15 units to include Health Science and Safety 100, 145, 146; and six units of electives in health science and safety. In addition students must complete School of Education requirements which include Health Science and Safety 150 and Education 121P. Courses should be selected in consultation with the departmental adviser in health science and safety.

#### Specialization in Secondary Teaching

The minor in health sciences for secondary teaching consists of 21 units to include Health Science and Safety 21, 29, 65; and in the upper division 15 units to include Health Science and Safety 100, 145, 146, and six units of electives in health science and safety. In addition students must complete School of Education requirements which include Health Science and Safety 151 and Education 121P. Courses should be selected in consultation with the departmental adviser in health science and safety.

### LOWER DIVISION COURSES

#### 21. Principles of Healthful Living (2) I, II, 5

An application of modern knowledge to the development of understandings, attitudes, and practices essential to healthful living. Fulfills statutory requirement in public safety.

#### 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.

#### 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.

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

#### 100. Introduction to Health Science and Safety (3) I

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.

#### 101. The Change Process and Health Science and Safety (3) I

Prerequisite: Health Science and Safety 21.  
Attitude formation, behavior change, decision-making, perception, motivation, group behavior, etc., and their relationship to the practice of health science and safety.

#### 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 21.



## Health Science and Safety

### 140. Traffic Safety (3) I

Problems of traffic safety and programs designed to deal with them.

### 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.

### 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.

### 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.

### 148. Advanced Driver Education and Driver Training (3) I, II, S

Two lectures and three hours of laboratory.  
Prerequisites: Health Science and Safety 145 and 147.  
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.

### 149. Multi-media Techniques in Driver Instruction (3) I, II

Prerequisite: Health Science and Safety 147.  
Teaching devices and techniques in driver education and driver training, including multi-media approaches, psycho-physical testing and multiple car driving ranges; major emphasis on driver simulators, their operation and basic principles.

### 150. Health Education for Elementary Teachers (2) I, II, S

The teacher's function in the different aspects of the elementary school health program, with emphasis upon the planning and presentation of instructional materials and upon community resources and relationships. Not open to students with credit in Health Science and Safety 151.

### 151. Health Education for Secondary Teachers (2) I, II, S

Health status of adolescents and of the teacher's function in the secondary school health program. Emphasis is placed upon statutory requirements in stimulants and narcotics and upon safety and accident prevention. Not open to students with credit in Health Science and Safety 150.

### 153. Administration of the School Health Program (3) II

Administrative responsibilities and procedures in organizing and conducting the school health program. Principles, policies, and practices involved in instruction, service, environment, and community relationships.

### 154. Workshop in Health Science and Safety (2) S

For elementary and secondary administrators, school nurses, and teachers. The workshop provides opportunities for participants to work together toward the improvement of the total school health program in such areas as health instruction, health services, health environment, and community health. Maximum credit six units.

### 155. Sex Education in the Schools (3) I, II

Prerequisite: Health Science and Safety 150 or 151.  
Philosophy, current procedures, and materials needed for the development of healthy attitudes and scientific knowledge appropriate to teaching sex education.

### 160. Introduction to Public Health (3) I

Prerequisite: Health Science and Safety 65.  
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.

## Health Science and Safety

### 165. Communicable and Non-Communicable Diseases (3)

Causes, prevention and control of communicable, degenerative and chronic health disorders.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 169. World Health (3) II

Prerequisite: Health Science and Safety 65.  
Health status of selected populations; international approaches to the attainment of world health. Special emphasis on the work of the World Health Organization.

### 171. Institute on Current Health Issues (1) S

A critical appraisal and analysis of selected contemporary health issues. May be repeated with different subject matter. Maximum of three units may be applied toward a bachelor's degree.

### 172. Habit Forming Substances (3) I, II

Stimulants, depressants and hallucinogens; use and abuse.

### 175. Health in Later Maturity (3) I

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.

### 176. Health and Medical Care (3) II

Prerequisite: Senior or graduate standing with a major or minor in health education or closely related areas.

Health values, concepts, and attitudes; health products and facilities; hospital care and hospitalization plans; governmental health controls; economic and cultural influences upon health and medical care; professional contributions, relationships, and careers; national and international health programs. Not open to students with credit in Sociology 121.

### 177. Environmental and Occupational Health (3) I

Prerequisite: Health Science and Safety 65.  
Environmental hazards of living and working in this modern technological world stressing air pollution, water pollution, and occupational safety.

### 192. Critical Analysis of Professional Literature (3) II

Investigation and study of selected literature in the field which has important bearing on health, physical education, and recreation programs in the school and community. Evaluation of literature content on basis of specific criteria.

### 197. Supervised Field Experience (1-3) I, II

Prerequisite: Senior standing and consent of the chairman of the department.  
Supervised practical experience in local health agencies.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.  
Prerequisite: Consent of the special study adviser.

## GRADUATE COURSES

### 200. Seminar (3)

Prerequisite: Fifteen units completed in health science and safety.  
An intensive study of advanced problems in health education. Maximum credit six units applicable on a master's degree.

### 201. Interdisciplinary Factors in Health Education (3)

Prerequisite: Fifteen units completed 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.



## Hebrew

### 202. Measurement and Evaluation in Health Education (3)

Prerequisite: Health Science and Safety 153.

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.

### 240. Administration of Traffic Safety Education (3)

Prerequisites: Health Science and Safety 145 and 147.

Research and trends in traffic safety education with emphasis on the problems of organization and administration.

### 245. School Safety Programs and Procedures (3)

Prerequisite: Health Science and Safety 145.

Advanced consideration of school safety programs including legal bases and requirements, personnel responsibilities, liability, instruction, maintenance, and school transportation.

### 270. Problems in Disease Control (3)

Prerequisite: Health Science and Safety 165.

New concepts in the community management of disease. Individual investigation and discussion.

### 271. Drug Abuse Education (3)

Prerequisite: Health Science and Safety 172.

Drug abuse education in the school and community.

### 298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.

Individual study. Six units maximum credit.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## HEBREW

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Faculty assigned to teach courses in Hebrew are drawn from the Department of Classical and Oriental Languages.

#### Offered by the Department of Classical and Oriental Languages

Courses in Hebrew.

Major or minor work in Hebrew is not offered.

### LOWER DIVISION COURSES

#### 1. Elementary (4) I

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings in Hebrew culture, essentials of grammar.

#### 2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Hebrew 1.

Continuation of Hebrew 1.

#### 3. Intermediate (4) I

Prerequisite: Hebrew 2.

Application of fundamental principles of grammar. Readings in Hebrew cultural material, oral practice.

#### 4. Intermediate (4) II

Prerequisite: Hebrew 3.

Continuation of Hebrew 3.

## History

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 199. Special Study (1-3) I, II

Prerequisite: Consent of instructor.

Individual study. Maximum credit six units.

## HISTORY

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Professors: Coox, Hanchett (Chairman), Merrill, Nasatir, Norman, Pincetl, Rader, Ragen, Ridout, Rohlfisch, Ruetten, Webb

Associate Professors: Berge, Cheek, Munter, Schatz, Smith, R., Starr, Strong

Assistant Professors: Appleby, Bartholomew, Chu, Cox, Cuniff, Davies, Detweiler, Dill DuFault, Dunn, Flemion, Greene, Heyman, Hoidal, McDonald, Oades, O'Brien, Reid, Rosen, Smith, C., Steele, Stites, Stoddart, Sutherland, Vanderwood, Vartanian, Weber

Lecturer: Siwundhla

#### Offered by the Department

Master of Arts degree in history; and a Master of Arts degree for teaching service with a concentration in history. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in history with the A.B. degree in liberal arts and sciences.

Minor in history.

Teaching major in history with specialization in secondary teaching.

Teaching minor in history with specialization in secondary teaching.

### 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 82 of this catalog.

A minor is not required with this major.

**Preparation for the major.** History 4A-4B, or 8A-8B, or 9A-9B, or 17A-17B. (6 units.)

**Major.** A minimum of 24 upper division units in history to include History 198 and a minimum of a year of concentration in **each of three** of the following fields: (a) Ancient and Medieval; (b) Modern Europe; (c) United States; (d) Latin America; (e) South and East Asia; (f) Africa and the Middle East. These courses must be selected under the guidance of the chairman of the department.

### HISTORY MINOR

The minor in history consists of from 15 to 22 units in history to include six sequence units in the lower division. At least nine units must be in upper division courses, including a year course.

### HISTORY MAJOR

#### FOR THE STANDARD 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.



## History

### Specialization in Secondary Teaching

Requirements are the same as the requirements for the undergraduate major for the A.B. degree in liberal arts and sciences, as outlined above, with the provision that a minimum of a year concentration in U.S. history must be included in the upper division work. In addition, students must complete, in the postgraduate year, a minimum of six upper division or graduate units.

## HISTORY MINOR

### FOR THE STANDARD TEACHING CREDENTIAL

### Specialization in Secondary Teaching

The minor in history for secondary teaching consists of a minimum of 21 units to include the following courses: in the lower division, History 4A-4B, or 8A-8B, or 9A-9B, or 17A-17B; and 15 additional units in history to include not less than 12 upper division units selected with the approval of the adviser.

### GRADUATION REQUIREMENT IN AMERICAN INSTITUTIONS

The graduation requirement in American institutions, to include demonstration of competency in U. S. history, U. S. Constitution, and California government, may be met by satisfactory completion of appropriate tests and courses listed in one of the following groups:

- (1) History 17A and 17B or 172A and 172B or 184A and 184B.
- (2) History 8A and 8B plus an approved test or course on the U.S. Constitution.
- (3) History 176A and 176B, or 179A and 179B, or 181A and 181B plus approved tests or courses on (a) the U.S. Constitution and (b) California government.
- (4) History 189B plus approved tests or courses on (a) U.S. history and (b) the U. S. Constitution.
- (5) History 177A and 177B plus an approved test or course on California government.

For further information on American Institutions, refer to the section of this catalog on Graduation Requirements.

### LOWER DIVISION COURSES

#### 4A-4B. Western Civilization (3-3)

Prerequisite: History 4A is prerequisite to History 4B.

European institutions, culture, and thought from ancient times to the present.

#### 8A-8B. The Americas (3-3)

The history of the western hemisphere from its discovery to the present time. This year course meets the graduation requirements in American history, institutions and ideals. 8B meets the graduation requirement in California State and local government.

#### 9A-9B. Asian Civilization (3-3)

Asian institutions, cultures, and thought from ancient times to the present. Semester I: Traditional Asian civilization. Semester II: Asia since the impact of the West.

#### 17A-17B. American Civilization (3-3)

Prerequisite: History 17A is prerequisite to History 17B.

The political and social development of the United States, with emphasis upon the rise of American civilization and ideals. This year course meets the graduation requirement in American history, institutions and ideals. The first semester course, 17A, also meets the requirement in U.S. Constitution; and the second semester course, 17B, meets the requirement in California state and local government. Ordinarily not open to students with credit for Political Science 2, 71A, or 71B. History 17A-17B may be taken by such students with the consent of the chairman of the History Department.

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. Limit of nine units applicable to a bachelor's degree in courses under this number of

## History

which no more than three units may be applicable to general education requirements.

### UPPER DIVISION COURSES

#### 101A-101B. The Contemporary World in Historical Perspective (3-3)

Prerequisite: History 4B.

Trends and developments in the recent past which can contribute to an understanding of the problems of our age.

#### 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.

#### 105A-105B. War and Civilization (3-3)

The political and social implications of modern warfare, of the development of military technologies, and of changing concepts of military organization. Semester I: to 1500. Semester II: from 1500 to the present.

#### 111A-111B. Ancient History (3-3)

Fall semester: Greece to the Roman Conquest.

Spring semester: Rome to the 5th century A.D.

#### 121A-121B. Europe in the Middle Ages (3-3)

Prerequisite: History 121A is prerequisite to 121B

European social, cultural, and political developments from the fall of Rome to the Renaissance.

#### 122. The Holy Roman Empire to the Great Interregnum (3)

Prerequisite: History 4A or 121A-121B.

The multi-national Holy Roman Empire and its intellectual and social ramifications. Church-state relationships and the development of constitutionalism.

#### 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. (Formerly numbered and entitled, History 156, The Byzantine Empire and Its Successors.)

#### 131A-131B. Renaissance and Reformation (3-3)

Persons and events connected with the social, political, cultural, economic and religious change between 1300 and 1600. 131A not open to students with credit for History 132-S.

#### 133A-133B. Europe in the 17th and 18th Centuries (3-3)

Prerequisite: History 133A is prerequisite to 133B.

Europe from the Thirty Years War to the French Revolution. Emphasis is on Western Europe and the growth of French preponderance. Semester I: The rise of absolutism to 1713. Semester II: The Enlightenment and the nature of the "old regime" to the eve of revolution. (Formerly numbered History 141A-141B.)

#### 135A-135B. Europe in the 19th Century (3-3)

Prerequisite: History 135A is prerequisite to 135B.

Social, political, and economic developments of 19th century Europe.

#### 136A-136B. Intellectual History of Europe in the 19th Century (3-3)

Prerequisite: History 4A-4B. History 136A is prerequisite to 136B.

An analysis of the dominant ideas of the 19th century. Course work is based primarily upon contemporary source materials. (Formerly numbered History 143A-143B.)

#### 137A-137B. Europe in the 20th Century (3-3)

Prerequisite: History 137A is prerequisite to 137B.

Political and social developments from 1870 to the present. (Formerly numbered History 144A-144B.)



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### 138A-138B. Diplomatic History of Modern Europe (3-3)

Prerequisite: History 4A-4B.

Diplomatic relations of the various European states with European and non-European powers. First semester: From the Concert of Europe (1815) to the Era of *Realpolitik* in the late 19th century. Second semester: The diplomatic backgrounds and results of two wars. (Formerly numbered History 145A-145B.)

### 141A-141B. History of Scandinavia (3-3)

The major political, economic, and social developments from the Stone Age to the present. Semester I: Stone Age to 1814. Semester II: 1814 to present.

### 142A. The French Revolution and Napoleonic Era (3) I

Prerequisite: History 4A-4B.

France on the eve of the Revolution; the Great Revolution, 1789-1799, the Napoleonic Era.

### 142B. Modern France (3) II

Prerequisite: History 4A-4B.

The development of France since 1815.

### 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. (Formerly numbered and entitled History 149A, Modern Spain.)

### 145A-145B. Central and Eastern Europe (3-3)

Prerequisite: History 4A-4B.

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.

### 146A-146B. Germany and Central Europe (3-3)

Prerequisite: History 4A-4B.

The political, social, and cultural record of the Germanic peoples of Northern and Central Europe from Tacitus to the present.

### 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 present. Semester II: Emphasis on the 20th century.

### 149. Modern Italy (3)

The development of Italy from 1815 to the present. (Formerly numbered History 149B.)

### 151A-151B. England (3-3)

Prerequisite: History 151A is prerequisite to History 151B.

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.

### 152A-152B. Constitutional History of England (3-3)

Evolution of the common law and the development of parliamentary institutions.

### 153A-153B. Tudor and Stuart England (3-3)

Semester I: The Age of the Tudors. Semester II: England during the Stuart Dynasty, 1603-1714.

### 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: The French Revolution, the rise of parliamentary democracy, the Victorian age and political thought from the Utilitarians to the Fabians.

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### 155A-155B. History of the British Empire and Commonwealth (3-3)

British expansion, the founding of the colonies of settlement, and development of colonial policy. Semester II: Creation of the Commonwealth and the liquidation of the Empire.

### 157A-157B. History of the Near East from the 7th Century to Modern Times (3-3)

Semester I: Medieval Islam from the 7th century A.D. to the rise of the Ottoman Turks. Semester II: The Modern Near East and the impact of the West. (Formerly numbered and entitled History 157, The Arab States, Israel, and Iran.)

### 158A-158B. Africa (3-3)

Semester I: Civilization of pre-colonial Africa both north and south of the Sahara from the advent of Islam to 1880. Semester II: Colonial and post-colonial Africa.

### 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 8A-8B.

### 161A-161B. Mexico (3-3)

Prerequisite: History 8A-8B or 160A-160B.

Colonial and modern Mexico. Semester II: Emphasis on the 20th century.

### 162A-162B. History of Brazil (3-3)

Prerequisite: History 8A-8B or 160A-160B.

The fusion of the Portuguese heritage with Indo-American and Negro elements to form the unique culture of the major nation in the tropics. Semester I: Colony and Empire to 1889. Semester II: Republic, 1889-present.

### 163A-163B. The Caribbean Area (3-3)

Prerequisite: History 8A-8B or 160A-160B.

Development of the Caribbean area with emphasis on the 20th century.

### 164. The Pacific Coast Nations of South America (3)

Prerequisite: History 8A-8B or 160A-160B.

The fusion of the native cultures and institutions with those of Spain to form the modern nations of the Pacific Coast of South America.

### 165A-165B. Economic, Social, and Intellectual Development of Latin America (3-3)

Prerequisite: History 8A-8B or 160A-160B.

Designed for students in the Latin American Studies program, foreign trade, and foreign service.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 167A-167B. Diplomatic History of Latin America (3-3)

Prerequisites: History 8A-8B or six units of upper division history.

Origins of Inter-Americanism; relations among the Latin American nations; the origins and development of the American States; Latin America in World Affairs.

### 168. The Platine Nations (3)

Prerequisite: History 8A-8B or 160A-160B.

The historical development of Argentina, Uruguay, and Paraguay, with emphasis on the 20th century.

### 171A-171B. Rise of the American Nation (3-3)

Prerequisite: History 171A is prerequisite to History 171B.

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.

### 172A-172B. Development of the Federal Union (3-3)

Prerequisite: History 172A is prerequisite to History 172B.

Political, cultural, social and intellectual aspects of the Confederation and early national period; the Convention of 1787 and establishment of the Constitution; the



## History

administrations of Washington through John Quincy Adams. This year-course meets the graduation requirements in American history, institutions and ideals; 172A meets the requirement in U. S. Constitution; and 172B includes materials which meet the requirements in California state and local government.

### **173A-173B. Civil War and Reconstruction: The United States from Jackson to Grant (3-3)**

Lectures and readings on Jacksonian democracy, territorial expansion, the Mexican War, the slavery controversy, the Civil War and Reconstruction.

### **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.

### **175A-175B. The United States, 1901-1945 (3-3)**

The age of reform and the United States as leader of the free world.

### **175C. The United States in the Nuclear Age (3)**

The United States since World War II.

### **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.

### **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.

### **178A-178B. The 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.

### **179A-179B. Intellectual History of the American People (3-3)**

The ebb and flow of ideas in the United States since the founding of the English colonies, with attention devoted to social and political thought. This year course meets the graduation requirement in American history, institutions and ideals.

### **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. May be repeated for a maximum of six units.

### **181A-181B. The Westward Movement (3-3)**

The American frontier: Expansion, exploration, settlement and building of the new states, with emphasis upon 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.

### **182A-182B. The Spanish Borderlands and the American Southwest (3-3)**

Semester I: Development and colonization of the Spanish Southwest; the growth and influence of Spanish institutions. Semester II: United States' acquisition of the Southwest; the development and problems of expansion, water, industry, transportation, immigration, culture, and agriculture in the region of semi-aridity.

### **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. (Formerly numbered and entitled History 183, The Negro in American Civilization.)

## History

### **184A-184B. United States History (3-3)**

United States history, 1492-present. Primarily for history minors and social science majors and minors. Semester I: to 1877; Semester II: 1877 to present. Not open to students who have completed History 17A-17B or equivalent.

### **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 189B will fulfill the requirement in California state and local government.

### **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.

### **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.

### **192. Chinese Civilization (3) I**

Chinese internal history and institutions during the period of relative isolation; religions, philosophy, literature, and the arts.

### **193. China in Modern Times (3) II**

The impact of the West on China's history and civilization, particularly in the nineteenth and twentieth centuries with emphasis on internal developments.

### **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.

### **195. Rise of Japan as a Modern State (3) II**

The impact of the West on Japan's history and civilization, particularly in the nineteenth and twentieth centuries with emphasis on internal developments.

### **196A-196B. The Indian Sub-Continent (3-3)**

Semester I: The historical and cultural development of the sub-continent from earliest times through Muslim rule. Semester II: British rule and its legacy in the sub-continent. The international relations of India and Pakistan.

### **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.

### **198. The Writing of History (3) I, II**

Prerequisite: History major or 12 upper division units of history.  
Historical method and research in some aspect of history.

### **199. Special Study (1-3) I, II**

Individual study. Six units maximum credit.  
Prerequisite: Consent of department chairman and instructor.

## GRADUATE COURSES

NOTE: All graduate courses have a prerequisite of twelve units of upper division history, including specific prerequisites in history, or consent of the instructor.

### **201. Seminar in Historical Method (3)**

General historical bibliography. The use of libraries and archives. Methods of critical historical investigation. The interpretations of history.

### **202. Seminar in Historiography (3)**

A critical study of the works of major historians, their philosophies, and the schools of scholarship associated with their work.



## History

### 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.

### 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.

### 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.

### 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.

### 245. Directed Reading in African History (3)

Prerequisite: Six upper division units in African history.  
Selected readings in source materials and historical literature in a designated area of African history. Maximum credit six units applicable on a master's degree.

### 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.

### 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.

### 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.

### 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.

### 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.

### 255. Seminar in African History (3)

Prerequisite: Six upper division units in African history.  
Directed research on topics selected from a designated area of African history. Maximum credit six units applicable on a master's degree.

### 296. Area Studies in History (1-3)

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.

### 297. Research (3)

Prerequisite: Advancement to candidacy.  
Independent research in a specialized subject in history.

## Home Economics

### 298. Special Study (1-3)

Individual study. Six units maximum credit.  
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.

## HOME ECONOMICS

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Emeritus: Comin, Talboy  
Professors: Cannon (Chairman), Dorris, Thomas  
Associate Professor: Reed  
Assistant Professors: Anderson, Brogger, Clay, Dickerson, Gunning, Martin, Milne, Nordquist, Price, Schupp, Somerville, Yount  
Lecturers: Andriola, Barnwell, Kwallek, Morris, Warner

#### Offered by the Department

Master of Science degree in home economics. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in home economics with the A.B. degree in applied arts and sciences.

Minor in home economics.

Teaching major in home economics with specialization in secondary teaching.

Teaching minor in home economics with specialization in secondary teaching.

### 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 78 of this catalog.

A minor is not required with this major.

The major in home economics is available in two areas of emphasis: (1) General home economics and (2) Food and nutrition.

#### MAJOR WITH EMPHASIS IN GENERAL HOME ECONOMICS

**Preparation for the major.** Home Economics 2, 3, 15, 35, 40, 45, 70; Anthropology 1C; Art 2A; Biology 1; Chemistry 2A-2B; Economics 1A; Physics 5; and Sociology 1. (44 units.)

**Major.** A minimum of 24 upper division units to include Home Economics 100, 115, 135, 143, 151, 152, 171, and three units selected from home economics courses.

#### MAJOR WITH EMPHASIS IN FOOD 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 three-year 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 food and nutrition careers include extension service, teaching, business, health agencies and research.



## Home Economics

### Requirements

**Preparation for the major.** Home Economics 2, 3, 4A, 15, 35, 40, 45, 70; Biology 22; Business Administration 1A; Chemistry 2A-2B, 3; Economics 1A; Physics 5; Sociology 1; and Microbiology 1. (50 units.)

**Major.** Thirty-six units to include Home Economics 100, 102, 103, 104, 105, 106, 151, 152, 180, 182; and six units to be selected with consent of the adviser, from Business Administration.

### HOME ECONOMICS MINOR

The minor in Home Economics consists of 18-22 units of home economics courses, six units of which must be upper division courses.

### HOME ECONOMICS MAJOR

#### FOR THE STANDARD 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.

#### Specialization in Secondary Teaching

Requirements are the same as the requirements for the degree with an emphasis in general home economics as outlined above. In addition, students must complete, in their postgraduate year, six upper division or graduate units in home economics acceptable toward the credential and selected with approval of the adviser.

### HOME ECONOMICS MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

#### Specialization in Secondary Teaching

The minor in Home Economics consists of 20-22 units of home economics courses, six units of which must be upper division courses. Courses for the minor for secondary teaching must be selected with the approval of the adviser.

### LOWER DIVISION COURSES

#### 1. Fundamentals of Home and Family Life (3) I, II

General concepts of family relationships and effective use of family resources. General Education course open to men and women. Not open to Home Economics majors.

#### 2. Orientation to Home Economics as a Profession (1) I, II

Introduction to the opportunities and requirements in various professional fields for home economists.

#### 3. Food Selection and Preparation (3) I, II

One lecture and six hours of laboratory.  
The production, selection, composition, preservation, nutritive value and preparation of foods.

#### 4A. Fundamentals of Nutrition (3) I, II

Nutrition as applied to the stages of the normal life cycle.

#### 4B. Nutrition Laboratory (1) Irregular

Three hours of laboratory.  
Prerequisite: Limited to students in the nursing program.  
Principles of nutrition applied to food preparation, meal planning, and special diets.

#### 14-5. Workshop for School Lunch Personnel (1) S

Open to school lunch personnel only.

The following areas are included:

- Nutrition for School Lunches.
- Beginning Meal Planning.
- Food Purchasing.

## Home Economics

#### D. Sanitation and Safety.

#### E. Work Simplification and Personnel Management.

#### F. Advanced Menu Planning.

#### G. Record Keeping and Cost Analysis.

No area may be repeated for credit, but credit may be earned in two areas concurrently. Maximum credit seven units. May not be used as part of a major or minor in home economics or homemaking education.

#### 15. Clothing and Textiles (3) I, II

Six hours of activity.

Commercial patterns and their adaptation; fitting and construction; selection and care of textiles.

#### 19. Textiles (3) I, II

Two lectures and three hours of laboratory.

Fibers, yarn, fabric construction, and finishes as related to selection, use, and care.

#### 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 30, or Sociology 35.

#### 40. Family Income Management (3) I, II

Financial problems involved in the effective management of the family resources.

#### 45. Fundamentals of Housing and Design (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Art 2A.

Historical and contemporary interiors. Architectural, constructural, and artistic factors of housing as related to family needs.

#### 70. Principles of Child Development and Guidance (3) I, II

Three lectures and one hour of observation.

Prerequisite: Psychology 1 and Sociology 1. Recommended: Biology 22.

Growth and development of the child from conception through adolescence; his relationships with his family and peers; and implications for guidance.

Not open to students with credit in Psychology 106, or Education 111.

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

#### 100. Advanced Foods (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Home Economics 3 and Chemistry 2B.

Fundamentals and practices of scientific food preparation. Development of standards in food preparation, meal planning, and service.

#### 101. Family Food Management (3) I

Six hours of laboratory.

Not open to home economics majors and minors.

Planning, organizing, preparing and serving attractive well balanced meals for different income levels, for various occasions.

#### 102. Advanced Nutrition (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Home Economics 4A and Chemistry 2B.

Fundamental principles of human nutrition; planning, calculating and evaluating diets to meet human requirements; animal feeding experiments.



## Home Economics

### 103. Quantity Cookery (3) I

One lecture and six hours of laboratory.

Prerequisites: Home Economics 100 and Business Administration 1A.

Application of basic principles to quantity foods, including experiences in planning, purchasing, storage, preparation, serving and cost accounting for institutional food service. Laboratory experience is provided in the campus cafeteria and in hospitals.

### 104. Institutional Food Organization and Management (3) II

Two lectures and three hours of laboratory.

Prerequisites: Home Economics 103.

Problems involved in the organization of food service units, problems of administration, cost of food service, specifications, operation and care of equipment for institutions, and routing of work. Special projects and field trips.

### 105. Experimental Foods (3) II

One lecture and six hours of laboratory.

Prerequisite: Home Economics 100.

Physical and chemical tests applied to problems in processing and preparation of food. Studies relate to protein foods; batters, doughs and sugar cookery; emulsions, fats and oils; and developments in food preservation.

### 106. Diet Therapy (3) I

Two lectures and three hours of laboratory.

Prerequisite: Home Economics 102.

Planning and preparation of special diets and food requirements in pathological conditions.

### 108. Advanced Institution and Restaurant Management (3) Irregular

Two lectures and three hours of laboratory.

Prerequisites: Home Economics 103 and 104.

Purchasing food and selecting and maintaining equipment based on the needs of various types of food service and institutional layout.

### 109. Meal Management and Service (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Home Economics 3 and 4A.

Planning, organizing, preparing, and serving meals with consideration of nutritional needs and the time, energy, and money resources available.

### 115. Advanced Clothing (3) I, II

Six hours activity.

Prerequisite: Home Economics 15.

Fitting and construction processes applied to wool, silk, and synthetics, emphasizing fundamental principles of handling.

### 116. Advanced Clothing Design (3) I

Six hours activity.

Prerequisite: Home Economics 115.

Principles of tailoring; planning and construction of coats and suits.

### 117. Clothing Selection (3) I, II

Three lectures.

Appropriate clothing for the individual and the family. Basic art principles, fashion trends, history of costume, buying practices; current legislation in textiles and clothing.

### 118. Flat Pattern Design (3) II

Six hours activity.

Prerequisites: Home Economics 115 and Art 6A.

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 trend in design.

## Home Economics

### 119. Textile Analysis and Testing (3) II

Six hours activity.

Prerequisites: Home Economics 15 and Chemistry 2B.

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.

### 120. Clothing and Human Behavior (3) II

Prerequisite: Consent of instructor.

Socio-economic influences on consumer clothing behavior patterns.

### 121. Clothing Design: Draping (3) I

Prerequisite: Home Economics 15.

Experience in creative designing through fabric manipulation. Designer problems related to mass-production techniques.

### 122. Clothing Design: Historical Influences

Prerequisite: Home Economics 115.

Chronological analysis of men's and women's fashions providing inspiration for original creations in clothing design.

### 135. Family Interaction (3) I, II

Prerequisites: Psychology 1, and Home Economics 35.

Marriage adjustment and family interaction throughout the family life cycle.

### 136. Family Study (3) I, II

Prerequisite: Home Economics 35.

Dynamics of family living; attitudes, practices, social and psychological interaction, and family life patterns in different cultures, social classes and ethnic groups. (Formerly Home Economics 135.)

### 140. Family Financial Problems and Practices (3) II

Prerequisite: Home Economics 40.

Financial problems and practices of families; decision-making with respect to market goods and services; consumer protection programs.

### 143. Household Equipment and Processes (3) II

Six hours activity.

Prerequisite: Physics 5 and Chemistry 2B.

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.

### 145. Family Housing (3) II

Two lectures and three hours of laboratory.

Prerequisite: Home Economics 45.

Advanced housing problems at various stages of the family life cycle and the different socio-economic levels.

### 150. Principles of Home Management (3) I, II

Open to both men and women, but not open to home economics majors.

Efficient management of the home, family cooperation, establishment of goals, and productive use of money, time, and energy. Not open to students with credit in Home Economics 151.

### 151. Home Management Theory and Analysis (3) I, II

Prerequisite: Home Economics 40.

Management process and its relationship to the use of resources based upon the decisions, values, goals, and standards of the family. Adaptation of work simplification techniques for use in studies of activities in homes and home economics classes.

### 152. Home Management Laboratory (3) I, II

Five weeks' residence in a family-size unit.

Prerequisites: Home Economics 40, 151, and written request made to department chairman one year prior to enrollment.

Application of theories and principles of all disciplines of home economics.



## Home Economics

- 153. Supervised Field Work in Home Management (3) I, II**  
Prerequisites: Home Economics 3, 40, 135, 151, 171 and consent of instructor.  
Management and social problems as they relate to the home and family. Supervised field work with various community agencies and selected families.
- 160. Merchandise Analysis (3) II**  
Contemporary problems of production and distribution of textiles and clothing.
- 166. Honors Course (1-3) I, II**  
Refer to the Honors Program.
- 170. Human Development: Infancy (3) I, II**  
Prerequisite: Home Economics 70.  
Physiological, psychological, social and cultural development and behavior of the human organism through age two.
- 171. Human Development: Early Childhood (3) I, II**  
Prerequisite: Home Economics 70.  
Development, behavior, and guidance of the preschool child. Observing, recording and interpreting behavior.
- 175. The Nursery School Program (3) I**  
Two lectures and two hours of participation.  
Prerequisite: Home Economics 171.  
Types of programs for the nursery school with consideration of methods and materials evaluated in terms of needs of young children.
- 176. Creative Experiences for Young Children (3) II**  
Prerequisite: Home Economics 175.  
Exploration of spontaneous creativity at the preschool age; evaluation of materials best suited for use in art, music, dance, and language for the young child.
- 177. Administration and Supervision in Nursery Schools (3) Irregular**  
Prerequisites: Home Economics 175 and 176 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.
- 178. Methods and Materials in Parent Education (3) II**  
Prerequisite: Consent of instructor.  
An investigation of philosophy, curriculum instruction, current trends, and issues in the teaching of child guidance to parents.
- 179. Advanced Child Study (3) I, II**  
Prerequisites: Nine units in child development.  
Readings and interpretations of scientific literature which contribute to an understanding of child behavior. Physical, social, and psychological factors which determine the direction of human development.
- 180. Food Demonstration Techniques (3) I, II**  
Six hours activity.  
Prerequisite: Nine units in home economics courses.  
Organizing materials and developing techniques for demonstrations; observation, evaluation and participation in professional demonstrations for photography, the classroom and mass media.
- 181. Materials and Techniques for Teaching Home Economics (2) II**  
Two hours activity.  
Prerequisite: Education 121C or concurrent registration.  
Development and use of audio-visual and other instructional materials.
- 182. Educational Practices and Instructional Resources (3)**  
Prerequisite: Fifteen units of home economics.  
Principles of learning as they relate to teaching home economics to adults. Organization of material; selection, use and evaluation of teaching techniques.

## Home Economics

- 190. Advanced Studies in Home Economics (2-6) Irregular**  
Prerequisite: Twelve upper division units in home economics.  
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.
- 199. Special Study (1-3) I, II**  
Individual study. Six units maximum credit.  
Prerequisite: Consent of the instructor.

### GRADUATE COURSES

- 200. Seminar: Foods and Nutrition (3)**  
Prerequisites: Home Economics 100 and 102.  
An intensive study of research and technological advances in the fields of foods and nutrition with emphasis on professional organizations and ethical procedures.
- 203. Advanced Readings in Food Technology (3)**  
Prerequisite: Home Economics 100.  
Reading and analysis of selected research in food technology.
- 204. Advanced Readings in Nutrition (3)**  
Prerequisite: Home Economics 102.  
Reading and analysis of selected research in nutrition.
- 205. Assay for Nutrients in Foodstuffs and Tissues (3)**  
Two lectures and three hours of laboratory.  
Prerequisites: Home Economics 100 and 102.  
Determinations of energy values, organic nutrients and minerals in foodstuffs and tissues by chemical, biological, and microbiological methods.
- 206. Physiological Bases of Diet Therapy (3)**  
Prerequisite: Home Economics 106. Chemistry 115B or 116B 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.
- 207. Child Nutrition (3)**  
Two lectures and three hours of laboratory.  
Prerequisite: Home Economics 102.  
Nutrition, health, and biochemical growth in children. Conditions leading to malnutrition, the prevention and correction of same.
- 215. Seminar: Clothing (3)**  
Prerequisite: Nine units in the area of clothing.  
Selected problems in the field of clothing.
- 216. Seminar: Textiles (3)**  
Prerequisites: Home Economics 119 and consent of instructor.  
Current literature and experimental research in fiber and fabric technology related to consumer use.
- 219. History of Textiles and Clothing (3)**  
Prerequisite: Six units in art, anthropology, sociology, or psychology.  
Textile and clothing development from ancient times to the present as related to socio-economic and political influences.
- 231. Family Life Education (3)**  
Prerequisite: Three units in Family Relations.  
Methods and materials in family life education for schools, colleges, churches, and social agencies.
- 234. Seminar: Marriage Adjustment (3)**  
Prerequisite: Home Economics 135.  
Individual study, seminar reports, and group discussions of selected topics in marriage adjustment.



## Humanities

**240. Seminar in Family Economics (3)**

Prerequisite: Upper division course in family finance.  
Personal financial practices under changing conditions. Review of literature in family financial management.

**251. Seminar in Home Management (3)**

Prerequisites: Upper division course in home management or related area.  
Recent research in home management.

**270. Seminar: Child Development and Guidance (3)**

Prerequisite: Consent of instructor.  
Emphasis on personality theories and on research and clinical findings relevant to a systematic study of human development and the guidance of children.

**271. Advanced Readings in Human Development (3)**

Prerequisites: Home Economics 70 and 179.  
Analysis of selected research in human development.

**281. Seminar: Home Economics Education (3)**

Prerequisites: Eighteen units in home economics and consent of instructor.  
The study and evaluation of home economics research and philosophical principles which have implications for the secondary homemaking teacher.

**282. Current Developments in Home Economics Education (3)**

Prerequisites: Education 121C or the equivalent, and 18 units in home economics.  
Current issues and recent developments in home economics education with implications for secondary and post high school programs.

**290. Bibliography and Methods of Research (3)**

Prerequisites: A basic statistics course and twelve upper division or graduate units in home economics.  
Reference materials, bibliography, investigation of current research in home economics, processes of thesis topic selection, and techniques of scholarly writing.

**298. Special Study (1-3)**

Individual study. Six units maximum credit.  
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

**299. Thesis (3)**

Prerequisite: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.

## HUMANITIES

## IN THE COLLEGE OF ARTS AND LETTERS

## Faculty

Faculty assigned to teach courses in humanities are drawn from the College of Arts and Letters.

## Offered by the College of Arts and Letters

Teaching minor in Humanities (with concentration in Latin) with specialization in secondary teaching. (Described in the section on the School of Education.)  
Curriculum in Humanities. (Described in the section on Liberal Arts and Sciences.)

## LOWER DIVISION COURSES

**40. Mythology (3)**

Major myths of the Western world in ancient and modern versions.

**42. French Civilization (2) I**

The major currents and characteristics of French culture, as expressed through the centuries in literature, art, and philosophy.

**43. French Civilization (2) II**

Continuation of Humanities 42.

**44. German Civilization (2) I**

Conducted in English. Not open to majors or minors in German.  
The major currents and characteristics of German culture, as expressed through the centuries in literature, art, and philosophy.

**45. German Civilization (2) II**

Conducted in English. Not open to majors or minors in German.  
Continuation of Humanities 44.

**48-S. European Civilization (3) 5**

The civilization of Europe through a conducted travel tour.

**52. Russian Civilization (2) I**

(Same course as Russian 40)  
Conducted in English.

The major currents and characteristics of Russian culture, as expressed through the centuries in literature, art, philosophy, and music.

**53. Russian Civilization (2) II**

(Same course as Russian 41)  
Conducted in English.  
Continuation of Humanities 52.

**54. Italian Civilization (2) I**

(Same course as Italian 40)  
Conducted in English.

The major aspects of Italian civilization with particular emphasis upon literature, art, philosophy, music, and history.

**55. Italian Civilization (2) II**

(Same course as Italian 41)  
Conducted in English.  
Continuation of Humanities 54.

**59A-59B. 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.

**66A-66B. Honors Colloquium (3-3)**

Prerequisite: Sophomore standing and admission to the special advising program.  
Interdisciplinary conference, with readings, discussion, reports.

## UPPER DIVISION COURSES

**138. Introduction to Aesthetic Appreciation (1) I**

(Same course as Comparative Literature 138)

Major forms of expressions and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstrations, and panel discussions.

**142. French Civilization (2) I**

French culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

**143. French Civilization (2) II**

Continuation of Humanities 142.

**148-S. European Civilization (3) 5**

The civilization of Europe through a conducted travel tour.



## Humanities

### 150. The Cultural Heritage of Europe I (3) I

Bases and development of the common cultural heritage of Europe in its history, literature, philosophy, and the arts to the time of the French Revolution of 1789.

### 151. The Cultural Heritage of Europe II (3) II

The development of the common cultural heritage of Europe in its history, literature, philosophy, and the arts during the 19th and 20th centuries.

### 152. Russian Civilization (2) I

(Same course as Russian 140)

Conducted in English.

Russian culture of the past and present, with emphasis on the arts, philosophy, literature, and music.

### 153. Russian Civilization (2) II

(Same course as Russian 141)

Conducted in English.

Continuation of Humanities 152.

### 154. Italian Civilization (2) I

(Same course as Italian 140)

Conducted in English.

The major aspects of Italian civilization with particular emphasis on literature, art, philosophy, music, and history with written reports on individual topics.

### 155. Italian Civilization (2) II

(Same course as Italian 141)

Conducted in English.

Continuation of Humanities 154.

### 160. The Quest for European Unity (3)

Prerequisite: A year course in Western Civilization.

The movement for European unity: background, manifestations, and obstacles.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 170. The Humanities and Modern Man (1) Irregular

Lectures open to the public. May be repeated for a total of three units.

Weekly lectures on literature, language, philosophy, and cultural history. Reading and reports required of students enrolled for credit.

### 180. Study of American Culture (3) I, II S

American Studies as a discipline, the critical methods of the field, the variety of materials for interdisciplinary study.

### 190. Conference on European Integration (1) S

Correlated lectures and discussions on various current aspects of European coordination, cooperation, and integration. May be repeated to a maximum of three units with different content.

### 198. Integration in the Humanities (3) I, II

The investigation of topics common to two or more departments, with oral and written reports. Required of all senior majors in divisional programs in humanities, and open to seniors with majors in English, foreign languages, history, and philosophy.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisites: A major within the Division of the Humanities, senior standing, and consent of the instructor.

## Industrial Arts

## INDUSTRIAL ARTS

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Emeritus: Ford, Luce

Professors: Anderson, W. C., Irgang, McLoney (Chairman), Thiel

Associate Professors: Aguirre, Bailey, Hammer, McMullen

Assistant Professors: Dirksen, Fukamizu, Guentzler, Marsters, McEowen, Simons

Lecturers: Ferree, McLean

#### Offered by the Department

Master of Arts degree in industrial arts.

(Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in industrial arts with the A.B. degree in applied arts and sciences.

Minor in industrial arts.

Teaching major in industrial arts with specialization in secondary teaching.

Teaching minor in industrial arts with specialization in both elementary and secondary teaching.

### 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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Industrial Arts 11, to be taken at the beginning of the major; five courses selected from Industrial Arts 15, 21, 31, 40, 51, 61, 71, and 81. (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, or graphic arts; and six units selected from the areas just mentioned, or from industrial arts crafts, photography, or multiple activities in industrial arts.

### INDUSTRIAL ARTS MINOR

The minor in industrial arts consists of 20 units in industrial arts to include Industrial Arts 11, 21, and one lower division and one upper division course in each of two of the following fields: drafting, general woodworking, general metalworking, electricity-electronics, transportation, and graphic arts. Electives should be chosen in consultation with the adviser.

### INDUSTRIAL ARTS MAJOR

#### FOR THE STANDARD 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.

#### Specialization in Secondary Teaching

Requirements are the same as the requirements for the A.B. degree in applied arts and sciences as outlined above. In addition, students must complete, in their postgraduate year, two of the following courses, selected in the same two areas used for the nine-unit areas of concentration in the undergraduate major: Industrial Arts 202, 203, 205, 206, 207, 208.

### INDUSTRIAL ARTS MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

The minor in industrial arts for the standard teaching credential, with specialization in either elementary or secondary teaching, consists of 26 units to include In-



## Industrial Arts

Industrial Arts 11 and nine units selected from the following lower division courses: Industrial Arts 21, 31, 40, 51, 61, 71, and 81; and in the upper division, twelve units from the following two-course sequences: Industrial Arts 101 and 102, 111 and 112, 121 and 123, 131 and 133, 140 and 142, 151 and 153, 161 and 163, 171 and 173, 181 and 183.

## LOWER DIVISION COURSES

**5. General Industrial Arts Laboratory (3) I, II**

One lecture and six hours of laboratory.  
Open to all students. A general education elective course.  
Practical utilization of tools and materials with emphasis on drafting, metalworking, and woodworking. Individual projects, field trips, and audio-visual materials.

**6. Survey of Electronics (3) I, II**

One lecture and six hours of laboratory.  
A non-mathematical survey of electronics, practical utilization of tools and equipment of today's industry.

**10. General Crafts (3) I, II**

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.

**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.

**15. General Plastics (3) I, II, S**

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.

**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.

**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, machine, and welding.

**40. Introduction to Photography (3) I, II**

(Same course as Telecommunications and Film 20)  
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 50. (Formerly numbered Industrial Arts 85.)

**51. General Woodworking (3) I, II**

One lecture and six hours of laboratory.  
Theories, practices, and basic problems of working in wood; safety practices. The use of hand tools, the science of working with wood, and the techniques of student personnel management.

**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.

**71. General Transportation (3) I, II**

One lecture and six hours of laboratory.  
The design, theory of operation, and repair procedures of various types of transportation equipment. Development of basic skills in the maintenance of equipment for land, sea, and air transportation.

**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.

**99. Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 129. 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

**101. Industrial Arts Crafts (3) I, II**

One lecture and six hours of laboratory.  
Prerequisites: 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.

**102. Advanced Industrial Arts Crafts (3) I, II**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 101.  
Advanced techniques of industrial arts crafts. Development of audio-visual aids, projects, and resource materials with emphasis on physical setting, organization, and other pertinent laboratory problems.

**105. Workshop in Instructional Materials (3) S**

One lecture and six hours of laboratory.  
Industrial arts laboratory experiences adapted to the individual needs of experienced elementary and secondary school teachers; practice in use of tools common to problematic needs. Preparation of materials and instructional aids for classroom use. Not open to industrial arts majors.

**111. Comprehensive Industrial Arts (3) I, II**

One lecture and six hours of laboratory.  
Prerequisites: Previous industrial arts experience.  
Principles, techniques, and procedures effective in meeting problems involved in a multiple activity program. Individual opportunity to explore each area of the selected industrial arts activities, utilizing a variety of tools, equipment, and materials.

**112. Organization of Comprehensive Industrial Arts (3) I, II**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 111.  
Planning a multiple activities program; selection and organization of subject matter. Individual opportunity to develop skills and to cooperate in mass production studies.



## Industrial Arts

### 115. Industrial Arts Plastics (3) I, II, S

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 15.

Production of plastic products. Design and use of basic tooling: dies for injection and compression molds, forms for lamination and reinforcement, and molds for thermoforming.

### 116. Intermediate Industrial Arts Plastics (3) I, II, S

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 115.

Techniques of tooling production and plastics processing; physical and mechanical properties of various plastics; selection of plastic materials.

### 117. Advanced Industrial Arts Plastics (3) I, II, S

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 116.

Composition of basic plastics and its relationship to processes; the structure of plastic resins, catalysis, and the effects of environment.

### 121. Intermediate Industrial Drawing (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 21.

Complex theories and techniques of graphic delineation. Activities selected to develop individual competence.

### 122. Advanced Industrial Drawing (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 21.

Architectural drafting, primarily in small home planning. Development of drafting skills and understanding of good contemporary home design.

### 123. Industrial Arts Drawing (3) I, II

Two lectures and three hours of laboratory.  
Prerequisite: Industrial Arts 21.

Practice in and analysis of modern industrial drafting techniques and theories.

### 131. Intermediate Metalworking (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 31.

Advanced study of metal fabrication with emphasis on the theory and operation of metalworking machines. Laboratory activities on a selective basis to provide for the development of individual competence.

### 132. Advanced Metalworking (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 131.

Manufacturing processes, including material selection, production procedures, methods of assembly, and finishing. Emphasis on selection, distribution, and utilization of metal products.

### 133. Industrial Arts Metalworking (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 131.

Theory and practice in organization and management of industrial arts metalworking facilities, including material procurement, equipment selection, and maintenance.

### 140. Photography for Teachers (3) I, II

One lecture and six hours of laboratory.

Designed for more mature students to learn photographic skills useful in teaching. (Formerly numbered Industrial Arts 185.)

## Industrial Arts

### 141. Intermediate Photography (3) I, II

Two lectures and three hours of laboratory.  
Prerequisite: Industrial Arts 40 or 140.

Exposure theory, sensitometry, contrast control, specialized development, distortion and perspective control, and advanced studies of photographic lenses and equipment.

### 142. Advanced Photography (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 85.

A consideration of advanced negative control, projection printing techniques, composition and editorial content, architectural and illustrative photography, and flood photoflash techniques. (Formerly numbered Industrial Arts 186.)

### 143. Advanced Problems in Photography (3)

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 141.

Technical problems and techniques in photography.

### 144. Color Photography (3)

Two lectures and three hours of laboratory.

Prerequisite: Industrial Arts 141.

Exposure and processing techniques as applied to current color films and papers in relation to the theory of color photography.

### 151. Intermediate Woodworking (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 51.

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.

### 152. Advanced Woodworking (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 151.

Designed to increase professional skills, craftsmanship, advanced technical skills, and equipment maintenance procedures.

### 153. Industrial Arts Woodworking (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 152.

Industrial arts woodworking resources and materials; experience in industrial arts planning, laboratory and equipment organization, and personnel management.

### 161. Intermediate Electronics (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 61.

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.

### 162. Advanced Electronics (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 161.

Development of advanced skills with application to industrial electronics. Techniques in the use of electronics test equipment and analysis of electronic devices.

### 163. Industrial Electronics (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 162.

Advanced problems in industrial electronics circuit development, analysis, theory, and application.



## Industrial Arts

**164. Basic Digital Computers (3)**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 162.  
Functions of circuitry as applied to switching, timing and pulse circuits. Basics of computer digital logic.

**165. Analog Computer Fundamentals (3)**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 162.  
Introduction to electronic analog circuits, with emphasis on instrumentation and measurement techniques.

**166. Honors Course (1-3) I, II**

Refer to the Honors Program.

**171. Intermediate Transportation (3) I, II**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 71.  
Advanced study of the operating principles and maintenance procedures of selected types of transportation equipment. Emphasis on automotive engines, electrical systems, and automatic transmissions.

**172. Advanced Transportation (3) I, II**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 71.  
Theory and use of various types of diagnostic test equipment. Emphasis on automotive power accessories.

**173. Industrial Arts Transportation (3) I, II**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 171.  
Advanced techniques in testing and analysis of power units common to transportation and industry. Emphasis on organization and administration of industrial arts transportation facilities.

**181. Intermediate Graphic Arts (3) I, II**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 81.  
Activities in the various graphic arts with emphasis on new technology in the industry.

**182. Advanced Graphic Arts (3) I, II**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 181.  
Planning of activities and perfecting of skills in printing and publication; efficient operation of machines and equipment.

**183. Industrial Arts Graphic Arts (3) I, II**

One lecture and six hours of laboratory.  
Prerequisite: Industrial Arts 181.  
Advanced techniques in developing skills involved in graphic arts facilities.

**190. Experimental Industrial Arts (1 or 2) I, II**

Prerequisite: Consent of instructor.  
Individual laboratory work on complex projects on an experimental basis. May be repeated with consent of instructor.

**193. Industrial Arts Organization and Management (2) I, II**

Two lectures.  
The organization of industrial arts in secondary schools, review of project requirements and methods of developing student participation in personnel management.

**194. Recent Trends in Industrial Arts Education (2) I, II**

Two lectures.  
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.

**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.

**199. Special Study (1-3) I, II**

Individual study. Six units maximum credit.  
Prerequisite: Consent of instructor.

## GRADUATE COURSES

**200. Seminar (3)**

An intensive study in advanced industrial arts, topic to be announced in the class schedule.

**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) metalworking; (c) woodworking; (d) electricity-electronics; (e) transportation; (f) graphic arts; (g) photography; (h) comprehensive industrial arts. Stress on project design and visual materials. Maximum of six units applicable on a master's degree.

**202. Industrial Arts Problems in Graphics and Design (3)**

Prerequisite: Industrial Arts 123.  
The theories and procedures of industrial drafting, including nomographs, descriptive geometry, and graphic solutions. Emphasis on special applications to industrial arts.

**203. Industrial Arts Problems in Metalworking (3)**

Prerequisite: Industrial Arts 133.  
Problems involved in industrial arts metalworking. Individual research project dealing with instructional materials or processes.

**204. Problems in Photography (3)**

Prerequisite: Industrial Arts 142, 143, or 144.  
Advanced problems in photography in industry and photography in education. Individual research project dealing with instructional materials or industrial processes.

**205. Industrial Arts Problems in Woodworking (3)**

Prerequisite: Industrial Arts 153.  
Selected areas of the woodworking industry as it relates to materials, production, and construction. Presentation of research findings.

**206. Problems in Electronics (3)**

Prerequisite: Industrial Arts 163.  
Recent developments in the electronics areas. Special research projects and resource materials.

**207. Industrial Arts Problems in Transportation (3)**

Prerequisite: Industrial Arts 173.  
Research in selected areas of the transportation industry and effective presentation of findings in oral and written form.

**208. Industrial Arts Problems in Graphic Arts (3)**

Prerequisite: Industrial Arts 183.  
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.



## Industrial Arts

### 215. Problems in Plastics (3)

Prerequisite: Industrial Arts 117.

Research with selected plastics processes and materials. Development of projects, aids, resource materials, oral and written presentations.

### 220. History and Philosophy of Industrial Education (3)

The philosophical foundations and development of industrial education and its continuing role in American culture. Contemporary practices and trends will be given consideration.

### 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.

### 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.

### 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.

### 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.

### 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.

### 290. Research Procedures in Industrial Arts (3)

Location, selection, and analysis of scientific and professional literature, research data and specialized bibliographies.

### 295. Selected Topics in Industrial Arts (3)

Prerequisite: Industrial Arts 290 and advancement to candidacy for the Master of Arts degree.

Study in selected topics of industrial arts culminating in a research paper.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## Italian

## ITALIAN

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Associate Professor: Vergani

#### Offered by the Department of French and Italian

Minor in Italian.

Teaching minor in Italian with specialization in both elementary and secondary teaching.

#### ITALIAN MINOR

The minor in Italian consists of from 15 to 22 units in Italian, six units of which must be in upper division courses.

#### ITALIAN MINOR

##### FOR THE STANDARD TEACHING CREDENTIAL

##### Specialization in Elementary Teaching

The minor in Italian for elementary teaching consists of not less than 20 units in Italian, six units of which must be in upper division courses.

**Proficiency Examination:** Before taking a student teaching assignment in the language, the candidate for the credential must pass an oral examination in the language administered by the Department of French and Italian. The candidate must consult with the chairman of the Department of French and Italian for permission to take this examination.

##### Specialization in Secondary Teaching

The minor in Italian for secondary teaching consists of not less than 20 units in Italian, exclusive of course equivalents, to include in the lower division, Italian 1, 2, 3, 4, 10, and 11 or equivalents; and in the upper division, Italian 101A, 101B, 102A, 102B, and 122.

**Proficiency Examinations:** Before taking a student teaching assignment in the language (Education 180C, 180D), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of French and Italian, in the language and its area civilization. (Italian 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of French and Italian for permission to take these examinations.

##### 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 1; three years the equivalent of Italian 2; and four years the equivalent of Italian 3. 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

##### 1. Elementary (4) I

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Italian culture and civilization, minimum essentials of grammar.

##### 2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Italian 1.

Continuation of Italian 1.



## Italian

### 3. Intermediate (4) I

Prerequisite: Italian 2.

A practical application of the fundamental principles of grammar. Reading in Italian of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

### 4. Intermediate (4) II

Prerequisite: Italian 3.

Continuation of Italian 3. Reading of selections from Italian literature.

### 10. Conversation (2) I

Prerequisite: Italian 2 or three years of high school Italian.

Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

### 11. Conversation (2) II

Prerequisite: Italian 10 or Italian 3, or four years of high school Italian.

Continuation of Italian 10.

### 40. Italian Civilization (2) I

(Same course as Humanities 54)

Conducted in English. No prerequisite.

The major aspects of Italian civilization with particular emphasis upon literature, art, philosophy, music, and history.

### 41. Italian Civilization (2) II

(Same course as Humanities 55)

Conducted in English. No prerequisite.

Continuation of Italian 40.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 101A-101B. Advanced Oral and Written Composition (3-3)

Prerequisite: Italian 4 and 11, with a grade of C or better.

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.

### 102A-102B. Survey Course in Italian Literature (3-3)

Prerequisite: Italian 4 with a grade of C or better.

Important movements, authors, and works in Italian literature from the Middle Ages to the present.

### 103A-103B. Dante and the Divine Comedy (3-3)

Prerequisites: Italian 101A-101B, 102A-102B.

The poet, his cultural background, and his political-historical mission.

### 104A-104B. Literature of the Italian Renaissance (3-3)

Prerequisites: Italian 101A, 101B, 102A, 102B.

Literature of the 15th and 16th centuries as presented in the works of Poliziano, Lorenzo de' Medici, Pulci and Boiardo; Machiavelli, Aristo, Michelangelo, Cellini and Tasso.

### 122. The Foreign Language Laboratory (2) I

Conducted in English.

Prerequisite: Admission to teacher education.

Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French, German, Spanish, or Russian 122.

## Japanese

### 140. Italian Civilization (2) I

(Same course as Humanities 154)

Conducted in English. No prerequisite.

An advanced course in the major aspects of Italian civilization with particular emphasis on literature, art, philosophy, music, and history with written reports on individual topics.

### 141. Italian Civilization (2) II

(Same course as Humanities 155)

Conducted in English. No prerequisite.

Continuation of Italian 140.

### 150. Advanced Phonetics and Diction (3)

Prerequisites: Italian 4, 10, and 11.

For students and teachers of Italian wishing to perfect their pronunciation and diction. Correct formation of Italian sounds in isolation and combination. Class exercises, individual drill, and use of special discs and tape recordings.

### 166. Honors Course (1-3) I, II

Refer to Honors Program.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit. 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

Faculty assigned to teach courses in Japanese are drawn from the Department of Classical and Oriental Languages.

#### Offered by the Department of Classical and Oriental Languages

Courses in Japanese.

Major or minor work in Japanese is not offered.

#### LOWER DIVISION COURSES

### 1. Elementary (4)

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Japanese culture and civilization, minimum essentials of grammar.

### 2. Elementary (4)

Four lectures and one hour of laboratory.

Prerequisite: Japanese 1.

Continuation of Japanese 1.

### 3. Intermediate (4)

Prerequisite: Japanese 2.

A practical application of the fundamental principles of grammar. Reading in Japanese of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

### 4. Intermediate (4)

Prerequisite: Japanese 3.

Continuation of Japanese 3. Reading of selections from Japanese literature.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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.



## JOURNALISM

## IN THE COLLEGE OF PROFESSIONAL STUDIES

## Faculty

Professors: Julian, Wimer

Associate Professors: Holowach, Odendahl (Chairman)

Assistant Professors: Buckalew, Haberstroh, Sorensen, Spevak

## Offered by the Department

Major in journalism with the A.B. degree in liberal arts and sciences.

Teaching major in journalism with specialization in secondary teaching.

Minor in journalism.

Teaching minor in journalism with specialization in secondary teaching.

## 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 82 of this catalog.

A minor is not required with this major; however, several minors are available to increase the scope of training for careers in journalism. Available are those in business administration for students interested in advertising or newspaper management, and in speech arts (broadcasting emphasis) for those interested in radio and television news. Students planning to enter public relations should work out with their advisers a pattern of courses from other departments to supplement requirements for a major in journalism.

**Preparation for the major.** Journalism 50, 51A, and 51B. (9 units.)

**Major.** A minimum of 24 upper division units in journalism to include Journalism 102, 117, and 104 or 151, and one year's enrollment in 124 or 125 or 192.

## JOURNALISM MINOR

The minor in journalism consists of from 15 to 22 units in journalism to include Journalism 49, 51A, 51B, 102, and 104 or 151.

## JOURNALISM MAJOR

## FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the specialization as outlined in the section of this catalog on the School of Education.

This major, with a specialization in secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

## Specialization in Secondary Teaching

**Preparation for the major.** Journalism 50, 51A, and 51B. (9 units.)

**Teaching Major (Undergraduate).** A minimum of 24 upper division units in journalism to include Journalism 102, 117, 121, and 151 or 104, and one year's enrollment in 124, 125, 192 or 193.

**Postgraduate Year.** Six upper division or graduate units in journalism.

## JOURNALISM MINOR

## FOR THE STANDARD TEACHING CREDENTIAL

## Specialization in Secondary Teaching

The minor in journalism for secondary teaching consists of not less than 20 units to include in the lower division, Journalism 51A, 51B; and in the upper division, Journalism 102, 151 and 192. Additional journalism electives must be taken to com-

plete the minimum of 20 units. Among the electives recommended but not required, are Journalism 49, 152, and 193. Students selecting this minor must have an academic major.

## LOWER DIVISION COURSES

## 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.

## 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. Not open to students with credit in Industrial Arts 85.

## 51A. News Reporting (3) I, II

Two lectures and three hours of laboratory.

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.

## 51B. Advanced News Reporting (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Grade of C or better in Journalism 51A.

Intensive laboratory practice in writing the more complex types of news stories. Work includes some reporting for the campus newspaper, *The Daily Aztec*.

## 92. Newspaper Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units. A maximum of three units of Journalism 92, or its equivalent, may be counted in the total required for graduation.

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*.

## 93. Yearbook and Magazine Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

## 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

## 101. Magazine Article Writing (3) 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 required.

## 102. Law of Mass Communications (3) I, II

Libel, defamation, privacy, censorship, advertising laws, postal regulations, and constitutional guaranties affecting press, radio, television; rights and responsibilities of communicators in reporting public affairs.

## 103. Magazine Editing (3) II

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.



**104. Radio and Television News (3) I, II**

(Same course as Telecommunications and Film 112)  
Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures, and kinescopes; filming, editing, and scripting news on motion pictures; using recorders to report special events.

**105. Editorial Writing (3) I**

Principles and policies of editorial composition for mass communications media.

**107. Technical Writing (3) II**

Reporting technical developments in nontechnical language. Techniques of writing and editing primarily for nonmajors in journalism.

**117. History of Mass Communications (3) I**

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.

**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.

**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.

**122. Public Opinion Measurement (3) I**

(Same course as Psychology 122)  
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.

**124. Radio News Production (3) I, II**

Prerequisite: Journalism 104 or Speech Arts 187.  
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. May be repeated to a maximum of six units.

**125. Television News Production (3) I, II**

Prerequisite: Journalism 104 or Speech Arts 187.  
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. May be repeated to a maximum of six units.

**144. Reporting of Public Affairs (3) II**

Prerequisites: Journalism 51A and 51B.  
Coverage of the city hall, courthouse, police headquarters, federal agencies, courts, and other public and political centers.

**150. Advanced News and Feature Photography (3) II**

Two lectures and three hours of laboratory.  
Prerequisite: Journalism 50.  
Techniques for achieving the technical and story-telling quality in photojournalism.

**151. News Editing (3) I**

Three lectures and two hours of laboratory.  
Prerequisites: Journalism 51A and 51B.  
Editing copy, writing headlines, making up pages, handling telegraph copy.

**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.

**153. Newspaper Advertising (3) I**

Principles of advertising for newspapers and trade papers. Emphasis on copy-writing, layout, typography, and production. Use of consumer and market surveys, and advertising readership studies in planning local advertisers' sales problems and promotions.

**154. Newspaper Advertising Practice (1-3) I, II**

Prerequisite: Journalism 153.  
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.

**155. Advanced Editing Techniques (3) I**

Prerequisite: Journalism 151.  
Principles of typography, page layouts, and use of pictorial material; selection evaluation, editing, and display of news.

**162. Mass Communication and Society (3) I, II**

Prerequisite: Sociology 1 or 102.  
Social factors underlying nature, functions of mass media. Theories, models, research in media as culture carriers, as opinion shapers, and in relation to government.

**166. Honors Course (1-3) I, II**

Special study open to members of the Honors Program in journalism. Refer to the Honors Program.

**177. Research Methods in Mass Communications (3) II**

Investigative tools and methods of mass media; content analysis, readership studies, audience measurement, experimental designs, and representative studies.

**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.

**182. Publications Workshop (3) 5**

Individual problems in high school publication problems. May be repeated for a maximum of six units.

**183. Problems in Public Relations (3) II**

Prerequisite: Journalism 180.  
Current public relations problems of industry, public agencies, and other institutions.

**191. Internship in Journalism (1-3) I, II**

Prerequisites: Journalism 51A, 51B, and consent of instructor.  
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. May be repeated to a maximum of six units with no more than three units in any one semester.

**192. Newspaper Production (1-3) I, II**

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.  
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*.

**193. Yearbook and Magazine Production (1-3) I, II**

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.



## Journalism

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

### 194. Editorial Conferences (1-3) I, II

More than three hours a week per unit of credit.

Prerequisites: Journalism 192 or 193, 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 *Del Sudoeste*. Maximum credit six units.

### 197. Investigation and Report (3) I, II

Development of articles of substance and depth in specialized fields. Research, analysis, and interpretation of complex issues in the news. May be repeated to a maximum of six units.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

## GRADUATE COURSES

### 200. Scope and Method of Mass Communications (3) I

Intensive preparation in methodology applicable to the various fields related to mass media study.

### 202. Seminar: Mass Media and the Law (3) I

Prerequisite: Journalism 102 or Telecommunications and Film 105.

Case studies of legal restrictions and guarantees affecting radio, television, motion pictures, advertising, and printed media.

### 217. Seminar: History of Journalism (3) II

Prerequisite: Journalism 117.

Directed research on topics of history of American journalism.

### 221. Seminar: Media Problems (3) I

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.

### 222. Mass Communications and Public Opinion (3) II

Prerequisite: Journalism 122 or 177.

Analysis of media and their opinion-shaping role; methods and effects of pressure groups; propaganda analysis; creation and perpetuation of images and stereotypes.

### 240. Major Projects in Mass Communications (1-6) I, II

Prerequisite: One course in area of major project.

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.

### 262. Seminar: Mass Communications and Society (3) II

Prerequisite: Journalism 162.

Rights, responsibilities, and characteristics of mass media and mass communications practitioners; characteristics and responsibilities of audiences and society.

### 298. Special Study (1-3) I, II

Individual study. Maximum credit six units.

Prerequisite: Consent of staff; to be arranged with the department chairman and instructor.

### 299. Thesis (3) I, II

Prerequisite: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## Latin

## LATIN

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Faculty assigned to teach courses in Latin are drawn from the Department of Classical and Oriental Languages.

#### Offered by the Department of Classical and Oriental Languages

Major work in Latin is not offered.

Teaching minor in Latin with specialization in secondary teaching.

Teaching minor in Humanities (with concentration in Latin) with specialization in secondary teaching. (Described in the section on School of Education.)

Minor in Classics. (Described in this section of the catalog under Classical and Oriental Languages.)

## LATIN MINOR

### FOR THE STANDARD TEACHING CREDENTIAL

#### Specialization in Secondary Teaching

The minor in Latin for secondary teaching consists of 20 units of Latin, at least six units of which must be in upper division courses (exclusive of course equivalents and Comparative Literature 102B.)

### 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 1; three years the equivalent of Latin 2; and four years the equivalent of Latin 3. 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

#### 1. Elementary (4) I

Four lectures and one hour of laboratory.

Study of the language and Roman culture, with reading of selected prose passages.

#### 2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Latin 1 or two years of high school Latin.

Continuation of Latin 1.

#### 3. Intermediate (4) I

Prerequisite: Latin 2 or three years of high school Latin.

A practical application of the fundamental principles of grammar. Reading of selected passages emphasizing the contribution of the ancient culture to our own.

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

#### 104. The Augustan Age (3)

Prerequisite: Latin 3.

Selections from such authors as Vergil, Horace, Ovid, the elegiac poets, Livy. Literary aspects of individual genres and influence of each writer on later literature. May be repeated with new content. Maximum credit six units.



## Library Science

### 105. Literature of the Republic (3)

Prerequisite: Latin 3.

Selections from such authors as Plautus, Terence, Lucretius, Caesar, Cicero, Sallust, Nepos. Analysis of language and style of the author and his relationship to ideas and ideals of the Roman Republic. May be repeated with new content. Maximum credit six units.

### 106. Literature of the Empire (3)

Prerequisite: Latin 3.

Selections from such authors as Seneca, Petronius, Lucan, Pliny, Martial, Tacitus, Juvenal, Suetonius. Characteristics of genres and style of the Silver Age. May be repeated with new content. Maximum credit six units.

### 107. Late Latin (3)

Prerequisite: Latin 3.

Selections from authors ranging from Tertullian and St. Augustine to Erasmus and Milton. The changes in Latin throughout the centuries. May be repeated with new content. Maximum credit six units.

### 153. Latin Composition (3)

Prerequisite: Latin 3.

Writing of connected Latin prose. Morphology, syntax, vocabulary building. Sight reading from selected prose authors. May be repeated with new content. Maximum credit six units.

### 199. Special Study (1-6) I, II

Individual Study. Maximum credit six units.

Prerequisite: Consent of instructor.

## LIBRARY SCIENCE

### IN THE SCHOOL OF EDUCATION

#### Faculty

Assistant Professors: McAllister, Reid

#### Offered by the School of Education

Minor in library science.

Program for the school librarian. (Described in the section on the School of Education.)

### LIBRARY SCIENCE MINOR

The minor in library science is offered by the School of Education. The minor consists of from 15 to 22 units in library science, six units of which must be in upper division courses.

#### LOWER DIVISION COURSES

### 1. Use of the Library (1) I, II

Introduction to use of the library. Includes classification, card catalog, periodical indexes, selected reference books, and preparation of bibliographies.

#### UPPER DIVISION COURSES

### 110. Bibliography and Reference Materials (3) I, II

Prerequisite: Library Science 1.

A comprehensive course dealing with reference books, bibliographies, and source materials, with emphasis upon their use in research. A course of general interest and utility.

### 118. Selection and Acquisition of Library Materials (3) I

Study of all types of book and nonbook materials, including sources of information, selection, and evaluation. Attention is given to book and film reviews, standard lists, trade publications and bibliographies, publishers' and producers' announcements.

## Library Science

### 119. Technical Processes (3) I

Theory and methods of organizing library materials; a study of classification, cataloging, and choice of subject headings.

### 136. School Library Administration (3) I

Objectives, standards, and activities involved in operating the school materials program. Planning, organizing, administering, and coordinating the school library with the instructional program of the school.

### 138. Organizing and Processing of Curriculum and Special Materials (3) II

Prerequisite: Library Science 119.

Methods of purchasing, processing, classifying, cataloging and servicing special curriculum and audio-visual materials.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 184. History of Books and Libraries (3) II

The historical development of the book and of the library from the earliest times to the present day; examines their influence upon our schools and culture. Open to all upper division students.

### 199. Special Study (1-3) I, II

Individual study. Maximum credit six units.

Prerequisite: Consent of instructor.

#### GRADUATE COURSES

### 225. Bibliography of the Humanities (2)

Prerequisite: Library Science 110.

Survey and evaluation of bibliographical and reference materials in the humanities, with training and practice in their use in solving questions arising in reference service.

### 226. Bibliography of the Social Sciences (2)

Prerequisite: Library Science 110.

Survey and evaluation of bibliographical and reference materials in the subject fields of the social sciences, with study of typical problems arising in reference service in these subjects.

### 227. Bibliography of the Sciences (2)

Prerequisite: Library Science 110.

Survey and evaluation of representative reference sources in the pure and applied sciences. Study of typical problems encountered in providing and servicing scientific reference materials.

### 231. Literature for Children (3)

Prerequisite: Library Science 118.

Survey and evaluation of literature and other library materials particularly suited to the use of the elementary school student. A critical study of standard, classic, and current books for children, together with aids and criteria for selection.

### 232. Literature for Adolescents (3)

Prerequisite: Library Science 118.

Survey and evaluation of literature and other library materials particularly suited to the use of the high school student. A critical study of standard, classic, and current books for the adolescent, together with aids and criteria for selection.



## MATHEMATICS

### IN THE COLLEGE OF SCIENCES

#### Faculty

Emeritus: Clark, H., Emerson

Professors: Becker, Branstetter, Burton, Deaton, Eagle, Garrison, Gindler, Harris, Harvey, Holmes (Chairman), Moser, Riggs, Saltz, Shaw, Smith, N., Van de Wetering, Warren, Willerding

Associate Professors: Bray, Bryant, Drobnies, Fountain, Ho, Howard, Lopez, Nower, Romano

Assistant Professors: Accomando, Beverage, Bulman, Burdick, Davis, Eckberg, Elwin, Hintzman, Khazanie, Kopp, Macky, Marcus, Morez, Ross, Short, Smith, J., Villone, Whitman

Lecturers: Bacon, Marosz

#### Offered by the Department

Master of Arts or Master of Science degree in mathematics, Master of Arts degree for teaching service with a concentration in mathematics. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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 with specialization in both elementary and secondary teaching.

Teaching minor in mathematics with specialization in both elementary and secondary teaching.

### 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 82 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (13-16 units.) Recommended: Physics 4A-4B-4C.

**Major.** A minimum of 24 upper division units which should be approved by the adviser before starting upper division work. This must include Mathematics 121A and 150A, and may include six units of approved related area courses.

### 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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (13-16 units.) Recommended: Physics 4A-4B-4C.

**Major.** A minimum of 24 upper division units which should be approved by the adviser before starting upper division work. This must include Mathematics 121A and 150A, and may include six units of approved related area courses.

### MATHEMATICS MINOR

The minor in mathematics consists of at least 21 units in mathematics to include in the lower division, Mathematics 50 and 51 or Mathematics 21, 22, and 23, and in the upper division, nine units in mathematics with not more than three units selected from Mathematics 101, 104, 110A, 110B, 130A.

### MATHEMATICS MAJOR

#### FOR THE STANDARD 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 either liberal arts and sciences or applied arts and sciences.

#### Specialization in Elementary Teaching

**Preparation for the Major.** Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52.

**Teaching Major.** A minimum of 24 upper division units in mathematics to include Mathematics 150A. The remaining units must be approved by the departmental adviser and may include six units in courses from an approved related area.

#### Specialization in Secondary Teaching

**Preparation for the major.** Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (13-16 units.) Recommended: Physics 4A-4B-4C.

**Teaching Major (Undergraduate).** A minimum of 24 upper division units in mathematics to include Mathematics 101, 104, 150A, a geometry course and a statistics course. Mathematics 121A is recommended.

**Postgraduate Year.** Six upper division or graduate units acceptable toward the credential, to be selected with approval of the departmental adviser.

### MATHEMATICS MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

#### Specialization in Elementary Teaching

The minor in mathematics for elementary teaching consists of not less than 20 units in mathematics, six units of which must be in upper division courses.

#### Specialization in Secondary Teaching

The minor in mathematics for secondary teaching consists of not less than 21 units, exclusive of course equivalents to include in the lower division, Mathematics 40, or qualifying by examination, Mathematics 50 and 51; one course in related areas selected from Astronomy 1, Engineering 20A, Physics 4A or 2A or 1A; and in the upper division, nine units (12 units if major is a non-academic major) in mathematics to include Mathematics 104 and six units of mathematics electives.

### MATHEMATICS PLACEMENT EXAMINATIONS

All students who expect to enroll in Mathematics 3, 4, 12, 20, 21, 40, or 50 and have not completed prerequisite courses at San Diego State College must take the mathematics placement tests. Students in elementary education who expect to enroll in Mathematics 10A, 10B, or 110A and have not completed prerequisite courses at San Diego State 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

#### 3. Intermediate Algebra (3) I, II

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 20 or higher-numbered courses.



## Mathematics

### 4. Trigonometry (2) I, II

Prerequisites: Credit in plane geometry in either high school or college combined with either credit in Mathematics 3 at this college or qualification on Mathematics Placement Examination. Mathematics 4 may be taken concurrently with either Mathematics 40 or 50.

Basic concepts of analytic trigonometry.

### 7. Introduction to Computer Programming (2) I, II

One lecture and three hours of laboratory.

Prerequisite: Mathematics 3.

The use of a problem-oriented language and peripheral equipment. Machine organization. Extensive programming of problems on the computer.

### 8. Theory and Use of the Slide Rule (1)

Practice in performing the fundamental operations of the slide rule.

### 10A-10B. Structure and Concepts of Elementary Mathematics (3) I, II

Open only to students working toward a teaching credential in elementary education.

Prerequisites: High school algebra and geometry. Mathematics 10A or qualification on a Mathematics Education Placement Test is prerequisite to 10B.

Numbers used in elementary mathematics, elementary number theory and congruences, extension of the number system to irrational numbers, nonmetric and metric geometry, and an introduction to logic.

### 12. Elementary Statistics (3) I, II

Two lectures and two hours of laboratory.

Prerequisite: Mathematics 3 at this college or qualification on the Mathematics Placement Examination.

Tabular and graphical presentation, measures of central tendency and variability, analysis of times series, linear correlation coefficient. Applications from the fields of biology, economics, education, engineering and psychology. Not open to students with credit for, or concurrent enrollment in another statistics course.

### 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.

### 20. Mathematics for Business Analysis (3) I, II

Prerequisite: Mathematics 3 at this college or qualification on Mathematics Placement Examination.

Basic mathematics for business students, including topics from finite mathematics and calculus.

### 21. Mathematical Analysis (3) I, II

Prerequisites: Mathematics 3 at this college or qualification on the Mathematics Placement Examination.

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 50.

### 22. Mathematical Analysis (3) I, II

Prerequisite: Mathematics 21.

A continuation of Mathematics 21 including concepts of trigonometry and the calculus of elementary transcendental functions. Not open to students with credit in Mathematics 51.

### 23. Mathematical Analysis (3)

Prerequisite: Mathematics 22.

Infinite series, partial differentiation, multiple integrals. For the non-major. (Not open to students with credit in Mathematics 52.)

## Mathematics

### 37. Intermediate Computer Programming (3) I, II

Prerequisite: Mathematics 7.

Further use of problem-oriented language. Machine organization. Introduction to general concepts of machine and machine-oriented language. Additional topics.

### 40. College Algebra (3) I, II

Prerequisite: Mathematics 3 at this college or qualification on the Mathematics Placement Examination.

Functional notation, mathematical induction, complex numbers, De Moivre's theorem, inequalities, binomial theorem, determinants, etc. Not open to students with credit in Mathematics 50.

### 49. Introductory Matrix Algebra (3)

Prerequisite: Math 40.

Matrices, vectors, linear dependence and independence, basis, change of basis, similarity and congruence. Applications to systems of equations, characteristic values and orthogonality.

### 50. Analytic Geometry and Calculus (5) I, II

Prerequisites: Mathematics 40 at this college with grade of C or better, and credit or concurrent registration in Mathematics 4; or qualification on Mathematics Placement Examination.

Topics in analytic geometry, differentiation and integration of algebraic functions.

### 51. Differential and Integral Calculus (4) I, II

Prerequisite: Mathematics 50 with grade of C or better.

Differentiation and integration of the elementary transcendental functions; applications.

### 52. Differential and Integral Calculus (4) I, II

Prerequisite: Mathematics 51 with grade of C or better.

Infinite series, partial differentiation, differential equations, multiple integrals, applications.

### 60. Introduction to Modern Mathematical Concepts (3) II

Prerequisite: Mathematics 40 or 21.

Elementary approach to selected topics from mathematical logic, set theory, probability, matrices, linear programming and theory of games.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 101. Mathematical Concepts for Secondary School Teachers (3) I, II

Prerequisite: Mathematics 50.

An examination of the concepts of secondary school mathematics from the teacher's point of view.

### 104. History of Mathematics (3) I, II

Prerequisite: Mathematics 21 or 40.

History of mathematics down to early modern times.

### 105. Introduction to the Foundations of Geometry (3) II

Prerequisite: Mathematics 51 or 22.

The foundations of Euclidean and hyperbolic geometries. Highly recommended for all prospective teachers of high school geometry.

### 106. Projective Geometry (3) I

Prerequisites: Mathematics 51 or 22 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.



## Mathematics

### 107. Non-Euclidean Geometry (3)

Prerequisite: Mathematics 22 or 51.

History of attempts to prove the fifth postulate; emphasis on plane synthetic hyperbolic geometry; brief treatment of other types of non-Euclidean geometry.

### 108. Differential Geometry (3)

Prerequisite: Mathematics 52.

Curves in space, Frenet formulas, curves on surfaces, geodesics, lines of curvature, asymptotic lines, Gaussian curvature.

### 110A-110B. Modern Elementary Mathematics (3-3)

Prerequisite: Mathematics 10B or qualification on a Mathematics Education Placement Test. Mathematics 110A is prerequisite to 110B.

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.

### 118A-118B. Methods of Applied Mathematics (3) I, II

Prerequisites: Mathematics 52. 118A is prerequisite to 118B.

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.

### 119. Differential Equations (3) I, II

Prerequisite: Mathematics 52.

Ordinary differential equations with applications to geometry, physics, and chemistry.

### 121A. Advanced Calculus I (3)

Prerequisite: Mathematics 52.

The real number system, limits and other topics, with emphasis on functions of one variable.

### 121B. Advanced Calculus II (3)

Prerequisite: Mathematics 121A.

A continuation of Mathematics 121A with emphasis on functions of two or more variables.

### 124. Vector Analysis (3)

Prerequisite: Mathematics 52.

Vector algebra, differentiation of vectors, gradient, divergence, and curl. Applications to geometry and physics.

### 130A. Statistical Methods (3) I

Two lectures and two hours of laboratory.

Prerequisite: Mathematics 12 or equivalent statistics course.

F, t, Chi-square tests, analysis of variance, confidence intervals, correlation and regression analysis of covariance.

### 130B. Statistical Methods (3) II

Two lectures and two hours of laboratory.

Prerequisite: Mathematics 130A.

Sequential analysis, sensitivity experiments, design of experiments, nonparametric and distribution-free statistics.

### 134. Probability (3)

Prerequisite: Mathematics 51.

Definitions, computation of probability by enumeration of the cases, discrete and continuous random variables, density functions, moments, limit theorems, selected distributions.

### 135A. Numerical Analysis and Computation (3) I

Prerequisite: Mathematics 7 and 52.

Newton, Lagrange and Chebyshev approximation of functions. Inverse interpolation, numerical evaluation of roots and definite integrals.

## Mathematics

### 135B. Numerical Analysis and Computation (3) II

Prerequisites: Mathematics 119 or 118A and 135A.

Solution of systems of linear equations. Application of numerical methods to the solution of partial differential equations and of integral equations.

### 136. Data Structures (3)

Prerequisite: Mathematics 37.

Basic concepts of data. Linear lists, strings, arrays, and orthogonal lists. Representation of trees and graphs. Multilinked structures.

### 137. Combinatorial Principles for Digital Computers (3)

Prerequisite: Mathematics 23 or 52.

Boolean algebra, logical design, and applied combinatorial analysis.

### 139. Programming Languages (3)

Prerequisite: Mathematics 37.

Formal definition of programming languages including specification of syntax and semantics. Structure of algorithmic languages. List processing and string manipulation languages.

### 140A. Mathematical Statistics (3) I

Prerequisite: Mathematics 134.

Sampling distributions, law of large numbers, central limit theorem, estimation of parameters, confidence intervals, hypothesis testing, regression.

### 140B. Mathematical Statistics (3) II

Prerequisite: Mathematics 140A.

Theoretical discrete and continuous distributions, limiting distributions, small sample theory including student's T, Chi-square and F distributions with applications, Analysis of Variance, distribution-free statistics.

### 141. Statistics, Theory and Applications (3)

Prerequisite: Mathematics 140A.

Sampling and sampling distributions, confidence limits, hypothesis testing, correlation, regression, analysis of variance and covariance, nonparametric techniques.

### 143. Stochastic Processes (3)

Prerequisite: Mathematics 140A.

Weiner and Poisson processes, covariance stationary processes, renewal counting processes, Markov chains.

### 149. Linear Algebra (3) I, II

Prerequisite: Mathematics 52 or 23.

A study of linear equations, Euclidean spaces, linear transformations, matrices, determinants, and eigenvalues.

### 150A-150B. Modern Algebra (3) I, II

Prerequisites: Mathematics 52; 150A is prerequisite to 150B.

Selected topics from modern algebra to include an introduction to the theory of groups, theory of equations, and finite mathematics.

### 152. Number Theory (3)

Prerequisite: Mathematics 51.

Selected topics from the theory of numbers to include congruences, Diophantine equations, and a study of prime numbers.

### 155. Mathematical Logic (3)

Prerequisite: Mathematics 51 or 60, or Philosophy 20.

The logical rules of proof governing sentential connectives and the universal and existential quantifiers with applications. Not open to students with credit in Philosophy 121.

### 156. Logical Foundations of Mathematics (3)

Prerequisite: Mathematics 52 or 155.

The axiomatic method. Cantor's set theory and its antinomies. Development of various viewpoints on foundations of mathematics: logicism, intuitionism, formalism.



## Mathematics

### 158. Automata Theory (3) II

Prerequisite: Mathematics 150A.  
Definition and algebraic description of finite automata. Reduced forms for sequential machines. Regular sets and expressions. Introduction to context-free languages.

### 160. Introduction to Topology (3)

Prerequisite: Mathematics 121A.  
Topological spaces. Functions, mappings, and homeomorphisms. Connectivity, compactness. Metric spaces.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 170. Partial Differential Equations (3)

Prerequisite: Mathematics 119.  
A study of initial and boundary value problems using separation of variables methodology.

### 175. Functions of a Complex Variable (3)

Prerequisite: Mathematics 52.  
Analytic functions, Cauchy-Riemann equations, theorem of Cauchy, Laurent series, calculus of residues.

### 196. Advanced Topics in Mathematics (2 or 3) I, II

Prerequisite: Consent of instructor.  
Selected topics in classical and modern mathematics. May be repeated with the approval of the instructor for a total of six units.

### 198. Directed Readings in Mathematics Literature (1)

Prerequisite: Credit or concurrent enrollment 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.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.  
Prerequisite: Consent of instructor.

## EXTENSION COURSES

### X-100. Mathematical Topics for School Teachers (2 or 3)

Open only to persons currently employed as elementary or 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.

## GRADUATE COURSES

### 200. Seminar (2 or 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.

### 202. Geometrical Systems (3)

Prerequisites: Mathematics 150A and an upper division course in geometry.  
Ordered and affine geometries, decompositions, dilations. Projectivities and projective space. Absolute geometry, isometries, groups generated by inversions.

### 203. Topics in Algebra (3)

Prerequisites: Mathematics 121A and 150A.  
Unique factorization domains, rings and ideals, groups, algebraic field extensions. A course designed for secondary school teachers.

## Mathematics

### 204A-204B. Topics in Analysis (3-3)

Prerequisites: Mathematics 121A and 150A. 204A is prerequisite to 204B.  
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.

### 205. Advanced Mathematical Logic (3)

Prerequisite: Mathematics 150A or 155.  
First-order theories, completeness theorems, arithmetization, Gödel's incompleteness theorem.

### 212. Advanced Ordinary Differential Equations (3)

Prerequisite: Mathematics 119 and 121A.  
Existence and uniqueness theorems, Wronskians, adjoint systems, Sturm-Liouville boundary value problems, equations of Fuchsian type.

### 214. Advanced Partial Differential Equations (3)

Prerequisite: Mathematics 170.  
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 transformation, other transformation methods, Green's functions.

### 220A-220B. Topology (3-3)

Prerequisite: Mathematics 160. Mathematics 220A is prerequisite to 220B.  
Metric spaces, regular spaces, Hausdorff spaces, general topological spaces, arcs and curves, and the Jordan Curve Theorem.

### 222A-222B. Functional Analysis (3-3)

Prerequisites: Mathematics 149 and 160. Mathematics 222A is prerequisite to 222B.  
Banach spaces, Hilbert spaces, spectral theory and Banach algebras.

### 224A-224B. Functions of a Complex Variable (3-3)

Prerequisites: Mathematics 121B and 175. 224A is prerequisite to 224B.  
Analytic continuation, elliptic functions, conformal mapping, Riemann surfaces.

### 226A-226B. Functions of a Real Variable (3-3)

Prerequisite: Mathematics 121B. Mathematics 226A is prerequisite to 226B.  
Point sets, functions and limits, continuity, differentiation. Riemann and Lebesgue integration.

### 227. Fourier Analysis (3)

Prerequisites: Mathematics 121A, 149, and 150.  
Fourier series on the real line and on groups, spectral theorems, Tauberian theorems.

### 228. Generalized Functions (3)

Prerequisites: Mathematics 121A, 149, and 150A.  
Schwartz Distribution Theory, and constructive theory with application to Fourier analysis and differential equations.

### 230. Rings and Ideals (3)

Prerequisite: Mathematics 150B.  
A development of the theory of rings.

### 231. Theory of Groups (3)

Prerequisite: Mathematics 150B.  
A development of the theory of groups.

### 232. Theory of Fields (3)

Prerequisite: Mathematics 150B.  
A study of both finite and infinite fields, and field extensions.

### 233. Linear Algebra and Matrix Theory (3)

Prerequisite: Mathematics 149.  
A study of matrices, determinants, and vector spaces.



## Mathematics

### 240A-240B. Advanced Mathematical Statistics (3-3)

Prerequisites: Mathematics 140B and 121A. 240A is prerequisite to 240B.

Theory of common distribution functions, derivation of sampling distributions with emphasis on normal populations, estimation of maximum likelihood, ratio tests of parametric hypotheses, general linear hypothesis theory.

### 241. Advanced Probability (3)

Prerequisites: Mathematics 121A and 134.

Probability spaces, integration of random variables, convergence in probability, product spaces and product measures; conditional measures and independent measures.

### 242. Non-parametric Statistics (3)

Prerequisite: Mathematics 140B.

Tolerance regions, randomness problems, most powerful rank tests, the invariance method, consistency and efficiency of tests.

### 243. Advanced Hypothesis Testing (3)

Prerequisite: Mathematics 140B.

Sequential probability ratio tests, confidence intervals, minimax and invariance principles.

### 244. Multivariate Analysis (3)

Prerequisites: Mathematics 140B and 149.

Multivariate normal distributions, multivariate analysis of variance, factor analysis, canonical correlation.

### 245. Linear Statistical Hypothesis Testing (3)

Prerequisites: Mathematics 140A and 149.

The multivariate normal distribution; distribution of quadratic forms; linear and curvilinear models; general linear hypotheses of full rank, regression models.

### 246. Statistical Decision Theory and Applications (3)

Prerequisites: Mathematics 121A and 140B.

Sequential and nonsequential decision methods, complete classes of decision functions, admissible decision functions, adaptive control systems, stochastic stability and control.

### 247. Design of Experiments (3)

Prerequisites: Mathematics 140A and 149.

Experimental design models, a basic approach as well as a matrix algebra approach.

### 260A-260B. Theory of Computability (3-3)

Prerequisites: Mathematics 137 and 158.

Turing machines and their variants. Gödel numbering and unsolvability results. Models of computation.

### 265A-265B. Formal Languages and Syntactic Analysis (3-3)

Prerequisites: Mathematics 136 and 139.

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.

### 268A-268B. Applications of Digital Computation (3-3)

Selected topics for information retrieval, artificial intelligence, theorem proving by computer, simulation, computer graphics, learning theory, computer-assisted instruction.

### 270A-270B. Advanced Numerical Analysis (3-3)

Prerequisites: Mathematics 121A and 135B.

Matrix norms and bound, localization theorems and eigen problem for matrices. Iterative methods for the solution of linear equations and application to partial differential equations. Extra-polation to the limit. Ordinary boundary value problem.

## Mexican-American Studies

### 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.

### 297. Research (1-3)

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.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

### SPECIAL COURSES FOR NATIONAL SCIENCE FOUNDATION INSTITUTE

The following courses are open only to participants in the National Science Foundation Institute, except with consent of instructor.

#### Lower Division Course

### 54. Calculus Review (2)

Review of the fundamentals of elementary calculus.

#### Upper Division Courses

### 180S. Recent Trends in Secondary School Mathematics (1)

Recent trends in high school mathematics and in application of mathematics.

### 181. Selected Topics of Secondary School Mathematics (3)

Selected concepts of secondary school mathematics; recommended modern presentation of these concepts; relation of these concepts to more advanced college mathematics.

### 183S. Modern Algebra (3)

Topics of modern algebra with emphasis on their implications for high school mathematics and with attention to aspects of algebra currently becoming more important.

### 185S. Modern Geometry (3)

Topics of modern geometry with emphasis on their implications for high school mathematics. Postulational systems, Euclidean and Non-Euclidean geometries, projective geometry, topology.

### 187A-187B. Probability and Statistics for Secondary School Teachers (3-3)

Probability, measures of central tendency and dispersion, characteristics of frequency functions of discrete and continuous variates; applications.

## MEXICAN-AMERICAN STUDIES

### Faculty

Assistant Professors: Segade (Chairman), Vasquez, Velez, Villarino

Lecturers: Alurista, Rivas

### 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

### 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 82 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 1A-1B. (6 units.)

**Major.** A minimum of 24 upper division units to include Mexican-American Studies 100; History 182A-182B; History 183A or 183B or Comparative Literature 180; and twelve units selected from (social sciences) Mexican-American Studies 101, 102, 103, 104, 105, 111, 121, 122A-122B; or twelve units selected from (humanities) Mexican-American Studies 131, 132, 133, 134, 135, 165; or twelve units selected from (education) Mexican-American Studies 180, 181, 182, 183, 184, 185, 186. These courses are not acceptable for an education credential program.

**Foreign language requirement.** Students majoring in Mexican-American studies must demonstrate knowledge of Spanish by satisfactory completion of 20 units of Spanish (Spanish 1, 2, 3, 4, 10, 11, or equivalents), or by written and oral examinations administered by Mexican-American studies.

### MEXICAN-AMERICAN STUDIES MINOR

The minor in Mexican-American studies consists of from 15 to 22 units in Mexican-American studies, nine units of which must be in upper division courses.

#### LOWER DIVISION COURSES

(These courses were offered in 1969-1970 as Chicano Studies courses.)

#### 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.

#### 2A-2B. Oral and Written Communication for the Spanish-Speaking (3-3)

Training for the Spanish-speaking in processes 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 2A is equivalent to Speech Communication 3. Mexican-American Studies 2B is equivalent to English 3.

#### 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 10 is equivalent to Sociology 10.

#### 11. Field Instruction (3-6)

Field work in the barrio. Directed research and development projects in the San Diego Chicano community. Recommended that this course be taken concurrently with Mexican-American Studies 1A or 1B. Maximum credit six units.

#### 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.

#### 30. Mexican Literature in Translation (3)

Contemporary Mexican prose and poetry in translation.

## Mexican-American Studies

#### 40. History and Sociology of Racism (3)

Survey and analysis of majority group racism and its effects upon minority ethnic groups and society.

#### 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.

#### 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.

#### 60. Mexican-American Art (3)

Contemporary barrio art in the Southwest. Lectures and exhibitions by Chicano artists of California.

#### 65A. History of Mexican-American Drama (3)

The teatro Campesino of Luis Valdes: The Los Angeles teatro urbano. Theory and practice in contemporary Chicano theater, including literary, critical, and technical aspects viewed against the historical background.

#### 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.

#### 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.

#### UPPER DIVISION COURSES

#### 100. Mexican-American Culture and Thought (3)

Intellectual history of Mexican-American from Nahua and European origins to synthesis between the two continents in nineteenth and twentieth centuries. The concept of *Raza de bronce* and *Aztlan*.

#### 101. Community Organization and Development (3)

Theory of organizing the Mexican-American community for creative roles in educational, political, social change. Role of the professional organizer.

#### 102. Contemporary Problems of the Barrio (3)

Sociological and practical analysis of barrio problems. Observation in informal agencies for experience and sensitizing.

#### 103. Narcotics in the Mexican-American Community (3)

Prevention and cure of drug problems; old and new methods and formal and informal agencies explored.

#### 104. Penology and Criminology and the Chicano (3)

The Chicano and the Pachuco and the penal institutions. Who goes to jail, and why. Field trips to penal institutions, courtrooms.

#### 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.

#### 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.

#### 121. Immigration Law and Practices (3)

Legal and political status of the immigrant from Mexico; process of immigration; counseling the immigrant.



## Mexican-American Studies

### 122A-122B. The Chicano in Urban Politics (3-3)

Prerequisite: Mexican-American Studies 122A is prerequisite to 122B.

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.

### 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.

### 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.

### 133. Prehispanic Literature (3)

Literature of Nahua and Maya areas in translation: studied as literature.

### 134. Language of the Barrio (3)

Pachuco, calo, and barrio Spanish: A linguistic study.

### 135. Mexican-American Literature (3)

Ideas, forms, history of significant Mexican-American prose, poetry and other literary genres.

### 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.

### 180. The Mexican-American and the Schools (3)

The Mexican-American child's experience in the school system from pre-school through high school with emphasis on social, intellectual, and emotional growth and development.

### 181. Bilingual Systems (3)

New methods in bilingual education. Practical field experience in bilingual programs as classroom aids; development of bilingual materials.

### 182. Mexican-American Curricula

Studies of current theories in Mexican-American curricula and their development.

### 183. Rural and Migrant Education (3)

The Mexican-American rural and migrant student: problems and new programs.

### 184. Counseling the Mexican-American Student (3)

Motivational counseling at all levels; parent counseling and involvement; recruiting for secondary continuation and college.

### 185. Testing the Mexican-American Student (3)

Cultural bias in testing; development of new testing methods.

### 186. The Educational System (3)

Study and observation in county, city, and community administrative and staff offices. Identification of specific problems relating to Mexican-Americans as administrators and teachers.

### 197. Senior Survey in Mexican-American Studies (3)

Survey integrating studies of selected areas of Mexican-American studies. Senior report will be written.

### 199. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisites: Consent of instructor and chairman of Mexican-American studies.

## Microbiology

### MICROBIOLOGY

#### IN THE COLLEGE OF SCIENCES

#### Faculty

Professors: Moore, H., Myers, Walch

Associate Professors: Baxter (Chairman), Kelley, Phelps

Assistant Professors: Anderes, Jokela

#### Offered by the Department

Master of Arts or Master of Science degree in biology with an emphasis in microbiology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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.

Curriculum in Medical Technology.

Minor in Microbiology.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

#### 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 82 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 1, 2, and 15; Chemistry 1A-1B, 4 or 5, and 11 or 12; Mathematics 21 and 22, or 40 and 50; and Physics 1A-1B or 2A-2B (37-41 units.) Recommended: Chemistry 13; and Physics 3A-3B.

**Major.** A minimum of 24 upper division units in Microbiology and approved related fields, to include Microbiology 101, 103, 105 and 114 or Biology 155; and Chemistry 115A-115B. 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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Biology 1, 2, and 15; Chemistry 1A-1B, 4 or 5, and 11 or 12; Mathematics 21 or 40; and Physics 1A-1B or 2A-2B. (34 or 36 units.) Recommended: French or German; Chemistry 13; Mathematics 22 or 50; Physics 3A-3B.

**Major.** A minimum of 36 upper division units in microbiology and approved related fields to include Microbiology 101, 102 or 115, 103, 104, 105, and 107; Chemistry 115A-115B. 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:



## MEDICAL TECHNOLOGY CURRICULUM

**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 102 and 109, and Zoology 128. Recommended Zoology 108 and 126.

**Clinical Technologist.** To fulfill the academic requirements to qualify for the licensing examination given by the State for Clinical Technologist, the student should follow the major in microbiology described for the B.S. degree, but should include Microbiology 102 and 109, and Zoology 128, and should substitute Chemistry 114A-114B for Chemistry 115A-115B. Recommended: Biology 101, 103 and 151; Microbiology 108, 111A-111B, 114 or Biology 155; and Zoology 108 and 126.

## 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 76 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Biology 1 and 2; Chemistry 1A-1B, 4 or 5, and 11 or 12; Physics 1A-1B or 2A-2B, 3A-3B; Mathematics 21 and 22, or 40 and 50; Biology 15; Geology 2; Health Science and Safety 65; and Sociology 1. (48-54 units.)

**Major.** A minimum of 36 units to include Microbiology 101, 102, 111A-111B, 112, 113; Zoology 128 or Biology 150; Health Science and Safety 160; Public Administration 160; Engineering 123, 125.

## MICROBIOLOGY MINOR

The minor in microbiology consists of from 15 to 22 units in microbiology to include Microbiology 101, 103 and 105.

## BIOLOGICAL SCIENCES MAJOR

## FOR THE STANDARD TEACHING CREDENTIAL

## Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the adviser for biological sciences teaching programs.

**Postgraduate Year.** A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences. Courses must have approval of the adviser for biology teaching programs. (Six units of graduate course work toward completion of a minor may be substituted for this requirement.)

## LOWER DIVISION COURSES

## 1. General Microbiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 1A or 2A. Students with credit in Microbiology 110 may enroll but will receive only one additional unit of credit.

A course for other than biological science majors. A study of the microorganisms of the environment, including the disease-producing organisms, their actions and reactions.

## 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

## 101. General Microbiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 1A-1B. Students with credit in Microbiology 110 may enroll but will receive only one additional unit of credit.

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.

## 102. Pathogenic Bacteriology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101, Chemistry 4 or 5, and 11 or 12. Recommended: Chemistry 114A or 115A.

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.

## 103. Fundamentals of Immunology and Serology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101, and one other advanced Microbiology course; and Chemistry 114A or 115A.

The immunochemistry of antigens and antibodies and their reactions. Immunohematology and hypersensitivity. Serological techniques.

## 104. Medical Mycology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101, Chemistry 11 or 12. Recommended: Chemistry 114A or 115A.

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.

## 105. Microbial Physiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101; Chemistry 4 or 5 and 11 or 12; and Physics 2A-2B. Recommended: Chemistry 114A or 115A; Physics 3A-3B.

Physiology of selected bacteria, fungi, and other microorganisms.

## 107. General Virology (2) I, II

Two lectures.

Prerequisite: Microbiology 102 or 115.

Viruses, their structure, function, culture, and methods of study.

## 108. General Virology Laboratory (2) I

Six hours of laboratory.

Prerequisites: Microbiology 102 and credit or concurrent registration in Microbiology 107.

The culture, isolation, and characterization of viruses.

## 109. Hematology (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Microbiology 101 and Chemistry 11 or 12.

The study of normal and pathological blood with chemical, physical and microscopic methods.

## 110. Microbiology and Man (3) I, II

Two lectures and three hours of laboratory.

The biology of microorganisms and their significance in disease, agriculture, sanitation and industry; laboratory exercises designed to complement lecture material. Not open to majors in the biological sciences.

## 111A-111B. Epidemiology (2-2)

Two lectures.

Prerequisite: Microbiology 102.

Study of the transmission, distribution, and control of infectious and non-infectious diseases in the community.



## Microbiology

### 112. Survey of Environmental Health (4) I

Three lectures and three hours of laboratory and field work.

Prerequisites: Biology 15; Chemistry 1A-1B, 4 or 5, and 11 or 12; Physics 2A-2B, 3A-3B; Geology 2; Health Science and Safety 65; and Microbiology 101.

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.

### 113. Environmental Health Administration (4)

Three lectures and three hours of field work.

Prerequisites: Microbiology 102, Health Science and Safety 160, and credit or concurrent registration in Engineering 125.

Concepts of organization and administration applied to environmental health, factors affecting these at the local, national and international levels.

### 114. Bacterial and Viral Genetics (4) I

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101, Chemistry 11 or 12. Recommended: Chemistry 114A or 115A.

The genetics of bacteriophages, selected animal viruses and bacteria.

### 115. Advanced General Microbiology (4) II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101; Chemistry 114B or 115B; and either Microbiology 105, Biology 101, or Botany 130.

Taxonomy, comparative physiology and ecology of representative microorganisms found in various natural environments.

### 120. Animal Viruses (4) II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 107. Recommended: Microbiology 103 and 108.

Animal virus identification and investigation, emphasizing cell culture, cytopathic effects, and serology.

### 130. Experimental Immunology (4) II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 103, Chemistry 114A or 115A.

The study of selected antigens and antibodies and their reactions.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 180. Electron Microscopy (4) II

Two lectures and six hours of laboratory.

Prerequisites: Physics 2A-2B, Chemistry 11 or 12, Microbiology 101. Recommended: Biology 103, Microbiology 107, and Zoology 108.

Principles and techniques in the biological application of the electron microscope.

### 190. Investigation and Report in Microbiology (2) I, II

Prerequisites: Microbiology 101 and at least one additional upper division course in microbiology.

Investigation and reports on current microbiological literature.

### 198. Methods of Investigation (2) I, II

One discussion and three hours of laboratory.

Prerequisites: Microbiology 101 and one other upper division course in the biological sciences.

Selection and design of individual investigation in microbiology; oral and written reports. Four units maximum credit for Microbiology 198 or a combination of this course with Biology 198 or Zoology 198.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisites: Fifteen upper division units in the major with an average of B (3.0) or better.

## Microbiology

### GRADUATE COURSES

#### 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.

#### 205. Seminar in Microbial Physiology (2)

Prerequisite: Microbiology 105.

May be repeated with new content. Maximum credit four units applicable on a master's degree.

#### 210. Seminar in Pathogenic Bacteriology (2)

Prerequisite: Microbiology 102.

May be repeated with new content. Maximum credit four units applicable on a master's degree.

#### 215. Seminar in Bacterial and Viral Genetics (2)

Prerequisite: Microbiology 114.

May be repeated with new content. Maximum credit four units applicable on a master's degree.

#### 220. Seminar in Industrial and Agricultural Microbiology (2)

Prerequisite: Microbiology 101.

May be repeated with new content. Maximum credit four units applicable on a master's degree.

#### 230. Seminar in Medical Mycology (2)

Prerequisite: Microbiology 104.

May be repeated with new content. Maximum credit four units applicable on a master's degree.

#### 240. Seminar in General Microbiology (2)

Prerequisites: Microbiology 101 and 105.

May be repeated with new content. Maximum credit four units applicable on a master's degree.

#### 250. Seminar in Virology (2)

Prerequisite: Microbiology 107.

May be repeated with new content. Maximum credit four units applicable on a master's degree.

#### 260. Seminar in Immunology and Serology (2)

Prerequisite: Microbiology 103.

May be repeated with new content. Maximum credit four units applicable on a master's degree.

#### 270. Biology of Animal Pathogenic Fungi (4)

Three lectures and three hours of laboratory.

Prerequisites: Microbiology 103, 104, and 105; Botany 102; and Chemistry 115B. Biology 110 and 155 recommended.

Physiological, cytological, genetical, and ecological factors relating to pathogenesis of the fungi-causing diseases in man and other animals.

#### 271. Bacterial Viruses (Bacteriophages) (4)

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 105, 107, Biology 155; Chemistry 115B.

Effects of temperate and virulent bacteriophages on their hosts, including host-induced modification, lysogenic conversion, and transduction.

#### 272. Advanced Pathogenic Bacteriology (4)

Three lectures and three hours of laboratory.

Prerequisites: Microbiology 102 and 105; Chemistry 114B or 115B. Recommended: Biology 101 and 110.

Biological and chemical nature of disease-producing bacteria. Application of experimental information to diagnostic laboratory procedures.



**291. Research Techniques (3)**

Prerequisites: Major in a biological science and two upper division courses in the area of microbiology.

Analysis of research procedures in microbiology.

**297. Research (1-3)**

Research in one of the fields of microbiology.

Maximum credit six units applicable on a master's degree.

**298. Special Study (1-3)**

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

**299. Thesis or Project (3)**

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## MUSIC

## IN THE COLLEGE OF PROFESSIONAL STUDIES

The Department of Music is a member of National Association of Schools of Music

**Faculty**

Emeritus: Smith, L. D., Springston

Professors: Anderson, Blyth, Genzlinger, Lambert, Rost, Savage, Smith, J. D. (Chairman), Snider, Ward-Steinman

Associate Professors: Bruderer, Forman, Hogg, Hurd, Mracek, Sheldon.

Assistant Professors: Almond, Brunson, Estes, Flye, Hill, H., Loomis, Mitchell, Rohfleisch

Lecturers: Fenwick, Logan, Moe, Overton

**Offered by the Department**

Master of Arts degree in music. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in music with the A.B. degree in liberal arts and sciences.

Bachelor of Music degree in applied arts and sciences.

Minor in music

Teaching major in music with specialization in secondary teaching. Teaching majors in fine arts, fine arts and humanities, and fine arts and social sciences, allowing a concentration in music, are also offered. (See the section of this catalog on the School of Education.)

Teaching minor in music with specialization in both elementary and secondary teaching.

**MUSIC CURRICULA**

Several plans of study are available with varying degrees of emphasis on performance, history and literature, creative activity, and teaching.

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 with music as either a major or minor, (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 liberal 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 or private piano study for credit.

2. Upon entering the department, each student is required to declare his major instrument (voice, piano, clarinet, etc.), take an examination thereon for classification, and continue the development of his performance ability on that instrument through class or individual study for credit after admission to the program.

3. Appearance in at least one student recital during each semester in residence, according to departmental recital requirements.

4. As laboratory experience, participation in two performing groups each semester, beginning with the first semester and continuing for eight semesters for students with the major in applied arts and sciences, or for seven semesters for students in the teaching credential program, one of which must be a major group (choir, piano ensemble, orchestra, or band) in which the major instrument or voice is regularly used.

**MUSIC 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 82 of this catalog. Students must choose French, German or Italian to meet the foreign language requirements for graduation.

A minor is not required with this major.

**Preparation for the major.** Music 9A, 9B, 10A-10B-10C, 59A, 59B or 106, 52, and four units of Music 50. (21 units.)

**Major.** A minimum of 24 upper division units to include Music 108, 152A, 152B, six units selected from 154A-154B-154C-154D-154E, four units selected from 170 through 188, six units of upper division electives.

**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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Music 9A-9B, 10ABCD (may be waived in full or in part by examination), 52, 59A-59B, eight units selected from courses numbered 70-88, and four units in the major instrument. (26-30 units.)

**Major.** Thirty-two to 34 upper division units to include Music 108, 109A, 146A, 146B, 152A, 152B; eight units selected from courses numbered 170-188; four units of courses in the major instrument; Music 106; and the requirements in one of the following fields of emphasis:

(a) *Performance.* Five units from Music 153, 154ABCDE, 167, 197, 199.

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 compositions to be performed before the music faculty preceding the recitals.

(b) *Music History and Literature.* Seven units from Music 154ABCDE, 197, 199.

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 or composer or with certain periods, composers, or styles to be compared. Such students must pass a preliminary audition of the material to be presented before the music faculty at least one month in advance of each performance.

(c) *Composition.* Seven units from Music 105, 109B, 197, 199.

An interview with the Department Chairman is required for admission to this emphasis. Students electing the emphasis will take Music 7 in the spring term of the freshman and sophomore years and Music 107 in the spring term of the junior year in lieu of private study in composition.



## Music

The student emphasizing creative activity and 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 one month in advance of the performance.

**Foreign Language Requirement.** Twelve units in one foreign language chosen from French, German, or Italian, or equivalent knowledge demonstrated in a test of reading knowledge administered by the foreign languages department concerned in consultation with the Music Department. (Exception: Voice students must substitute four units each of French, German, and Italian, or the equivalent, in lieu of 12 units in one foreign language.)

### OUTLINE OF SPECIFIC REQUIREMENTS

First Year	Units	Second Year	Units
Music 9A-9B	6	Music 52	2
†Music 10A-10B	0-2	†Music 10C-10D	0-2
Music organization courses numbered 70-88	4	Music 59A-59B	6
Major instrument	2	Music organization courses numbered 70-88	4
Health Science and Safety 21	2	Major instrument	2
Psychology 1	3	American institutions	6
English 3	3	Foreign language	4
Speech Communication 3 (or 4)	2	Natural science	3
Lit., philos., and the arts	3	P.E. activities	1
Foreign language	4		28-30
P.E. activities	1		
	30-32		
Third Year	Units	Fourth Year	Units
Music 108	2	Music 109A	2
Music 146A-146B	2	Music 106	3
Music 152A-152B	6	Major instrument	2
Major instrument	2	Music organization courses numbered 170-188	4
Music organization courses numbered 170-188	4	Units from one of the fields of emphasis listed below	5-7
Natural science	6	(a) Performance: Five units from Music 153, 154ABCDE, 167, 197, 199.	
Social science	3	(b) Music History and Literature: Seven units from Music 154ABCDE, 197, 199.	
Foreign language	4	(c) Composition: Seven units from Music 105, 109B, 197, 199.	
Lit., philos., and the arts	3	†Electives	14-16
	32		30-34

† May be waived in part or in full by examination.

‡ In addition to the upper division courses in the major, the student must have a sufficient number of upper division units to meet the minimum of 40 required for the A.B. degree.

## MUSIC MINOR

The general basic requirements for the minor in music are as follows:

- (1) Demonstration of vocal or instrumental performing ability before admission to the minor program may be granted.
- (2) Proficiency in piano equivalent to Music 10ABCD.

Coursework in the minor consists of 21 units in music to include the following: In the lower division, Music 9A, 9B, 52, and 59A; in the upper division, Music 151, three units selected from courses numbered 170-188, and four units from Music 150.

## Music

## MUSIC MAJOR

### FOR THE STANDARD 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.

Student in Teacher Education may use this major, with specialization in secondary teaching, 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.

### Specialization in Secondary Teaching

**Preparation for the major.** Music 9A, 9B, 59A, 59B; 10A-B-C-D, 15A, 15B, 52; eight units selected from courses numbered 70 through 88; four units selected from courses numbered 20 through 35; and four units in the major instrument. (36 units.)

**Teaching Major (Undergraduate).** Thirty units to include Music 108, 109A; three units selected from courses numbered 120 through 135; Music 146A, 146B, 152A, 152B; six units selected from courses numbered 170 through 188; three units in the major instruments; four units of upper division music electives; and Ed 121R or 121S.

**Proficiency Examination.** In addition to the major, the credential candidate must pass a departmental proficiency examination in piano and voice, to include the following:

(a) Piano: Specific requirements may be obtained in the Music Department Office.

(b) Voice: Ability (1) to sing at least one song representative of each of the following periods of vocal literature: classic, romantic, modern; (2) to sing at sight any part of a four-part hymn.

**Postgraduate Year.** Confer with departmental counselor.

## MUSIC MINOR

### FOR THE STANDARD TEACHING CREDENTIAL

### Specialization in Elementary Teaching

The teaching minor in music for elementary teaching is restricted to students admitted to and continuing in the credential program for elementary teachers. The teaching minor consists of not less than 20 units to include the following courses: Music 2, 10A-B-C, 15A, 15B, 143, 144, 145, 146A, and two units of music organization courses numbered 170-188.

### Specialization in Secondary Teaching

The teaching minor in music for secondary teaching requires demonstration of vocal or instrumental performing ability by placement audition before admission to the minor program may be granted.

Coursework in the minor consists of 25 units to include the following: In the lower division, Music 9A-9B, 10A-10B-10C, 15A-15B, and 52; in the upper division, Music 146A-146B, four units in the major instrument, three units of music organization courses 170-188, and 3-6 units selected from Music 120A, 120B, 125A, 125B, 130A, 130B, and 135. Music 10A-B-C may be waived in part or in full by examination, units waived to be used in courses 120A through 135.

### ELECTIVES IN MUSIC

The Music Department offers certain courses which fulfill the needs of students who do not have music as a major or minor subject but 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 51 and 151 and the music courses numbered 70 to 88 and from 170 to 188. 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.



**CREDIT FOR MUSIC STUDY UNDER PRIVATE INSTRUCTORS**

Credit may be allowed for private instruction in music under the following conditions:

1. The applicant for such credit must be either a regularly enrolled student in the Music Department of the college (that is, a music major or minor), or he must have as a prerequisite or be taking concurrently with his private study, three units chosen from these specific courses: Music 2, 9A, 51, or 151.
2. The instructor giving such private work must be approved by the Music Department. All private work and names of all such teachers must be registered in the office of the Music Department chairman at the beginning of the semester.
3. Under no circumstances may a student change teachers in the middle of a semester without first notifying the chairman of the Music Department and securing his permission for this change.
4. Prior to the start of private study in San Diego State, the student is required to take a placement examination conducted by the Music Department faculty at the beginning of the semester, which will show the status of the student at the beginning of his work.
5. Students who have dropped out of school, or have stopped taking Applied Music for credit for one semester or more, upon the resumption of that instruction for credit are required to take the placement examination.
6. Evidence that the standards of the Music Department have been met will be shown by an examination conducted by the Music Department faculty at the end of the semester.
7. Ten clock hours of lessons and adequate preparation to pass the Applied Music examinations and the curriculum requirements of the department are required for one unit of credit.

**LOWER DIVISION COURSES****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.

**7. Composition Laboratory (1) II**

Three hours of laboratory.

Prerequisite: Consent of instructor.

Original writing in different homophonic and polyphonic forms for various media. May be repeated to a maximum of two units.

**8A-8B. Comprehensive Musicianship (6-6) I, II**

Four lectures and four hours of activity.

Prerequisite: Music 8A is prerequisite to 8B.

Direct analysis of musical forms as they have evolved historically; sight-singing, keyboard harmony, dictation, part-writing and counterpoint and, where relevant, orchestration, aesthetics, art and architecture, literature, and cultural history.

**9A. Elementary Harmony (3) I, II**

Four hours.

Sight-singing, dictation, keyboard harmony; traditional diatonic harmony, part-writing, analysis.

**9B. Intermediate Harmony (3) I, II**

Four hours.

Prerequisite: Music 9A.

Continuation of Music 9A, with applied emphasis upon part-writing.

**10A-10B. Piano—Elementary Class Instruction (1-1) I, II**

Two hours.

Prerequisite: Music 10A is prerequisite to 10B.

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.

**10C-10D. Piano—Elementary Class Instruction (1-1) I, II**

Two hours.

Prerequisite: Music 10B is prerequisite to 10C; and 10C to 10D.

Continuation of Music 10A-10B.

**15A. Voice—Elementary Class Instruction (1) I, II**

Two hours.

A class for beginners in the vocal field taking up the problems of breath control, tone placement, articulation and enunciation. Frequent classroom performance of simple songs.

**15B. Voice—Elementary Class Instruction (1) I, II**

Two hours.

Prerequisite: Music 15A.

More advanced songs with attention being given to interpretation, as well as continued work on tone, articulation and placement. Frequent performance before class required.

**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 120A.

**20B. Strings—Elementary Class Instruction (1) II**

Two hours.

Prerequisite: Music 20A or 120A.

Fundamentals of violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A. Not open to students with credit in Music 120B.

**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 125A.

**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 125B.

**30A. Brass—Elementary Class Instruction (1) I**

Two hours.

Fundamentals of the trumpet and French horn by lecture and acquisition of elementary skills. Not open to students with credit in Music 130A.

**30B. Brass—Elementary Class Instruction (1) II**

Two hours.

Prerequisite: Music 30A or 130A.

Fundamentals of the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Not open to students with credit in Music 130B.

**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 135.



## Music

### 50. Applied Music—Individual Study (1) I, II

Ten one-hour lessons or 15 40-minute lessons.

For the teaching credential performance requirement or for the requirements of the major emphasis curricular leading to the B.M. degree. For conditions under which credit may be given for private instruction, see Credit for Music Study Under Private Instructors in the section on the music major.

A. Piano	M. Baritone Horn
B. Organ	N. Tuba
C. Voice	O. Percussion
D. Flute	P. Violin
E. Oboe	Q. Viola
F. Clarinet	R. Cello
G. Saxophone	S. Contrabass
H. Bassoon	T. Harp
J. French Horn	U. Classical Guitar
K. Trumpet	V. Composition
L. Trombone	X. Classical Accordion
	Y. Harpsichord

### 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.

### 52. Orientation in Music Literature (2) I, II

The elements of musical style, structure, and media of expression as found in representative musical literature. Lectures, text, and assigned study of phonograph recordings and musical scores.

### 53. Opera Technique (2) I, II

Four hours.

The interpretation and characterization of light and grand opera. Specific work in coordination of operatic ensemble.

### 58A-58B. Comprehensive Musicianship (6-6) I, II

Four lectures and four hours of activity.

Prerequisite: Music 8B; Music 58A is prerequisite to 58B.

Continuation of Music 8A and 8B.

### 59A. Advanced Harmony (3) I, II

Four hours.

Prerequisite: Music 9B.

Continuation of Music 9B. Chromatic harmony, remote modulation, introduction to twentieth century techniques; analysis and writing.

### 59B. Eighteenth Century Counterpoint (3) I, II

Four hours.

Prerequisite: Music 59A.

Two- and three-voice counterpoint in the eighteenth century manner; compositional exercise in appropriate forms.

## 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.

### 70. Chamber Music (1) I, II

Three hours.

Prerequisite: Consent of instructor.

Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. Maximum credit four units.

## Music

### 75. Marching Band (1) I

Concurrent registration in Music 75 and 76 required. Combined activity, six hours.

Prerequisite: Consent of instructor.

Maximum credit two units.

### 76. Symphonic Band (1) I, II

Semester I: Concurrent registration in Music 75 and 76 required. Combined activity, six hours.

Semester II: Activity, five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

### 80. Symphony Orchestra (1) I, II

Five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

### 85. Concert Choir (1) I, II

Five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

### 86. Treble Clef (1) I, II

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

### 87. Men's Glee Club (1) I, II

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

### 88. College 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.

### 89. Jazz Ensemble (1) I, II

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

### 90. Collegium Musicum (1) I, II

Prerequisite: Consent of instructor.

Maximum credit four units.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 105. Modern Harmonic Practice (3) I, II

Prerequisite: Music 59A.

Analysis and composition in modern idioms.

### 106. Sixteenth Century Counterpoint (3) I, II

Prerequisite: Music 59A.

Contrapuntal techniques of the sixteenth century, as revealed in the works of Palestrina, Lassus, and Ingegneri. Compositional exercises in setting parts of the Mass and in writing motets.



## Music

### 107. Composition Laboratory (1) II

Three hours of laboratory.

Prerequisites: Music 7 and consent of instructor.

Continuation of Music 7. Maximum credit two units.

### 108. Form and Analysis (2) I, II

Prerequisite: Music 59A.

Musical structure and design from traditional and modern literature; development of detailed analytical techniques.

### 109A-109B. Instrumentation and Arranging (2-2) I, II

Prerequisite: Music 59A. Music 109A is prerequisite to 109B.

Arranging of music for full orchestra. Selected works of students to be performed by standard orchestras.

### 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 20A.

### 120B. Strings—Elementary Class Instruction (1) II

Two hours.

Prerequisite: Music 20A or 120A.

Fundamentals of violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A. Not open to students with credit in Music 20B.

### 123-5. Workshop in Instrumental Techniques and Chamber Music for String, Woodwind, and Brass Instruments (2) Summer

Prerequisite: Consent of instructor.

The analysis and interpretation of the literature for each instrument, with performance in various ensemble units; both group and individual instruction in class, under performing professional musicians.

### 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 25A.

### 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 25B.

### 130A. Brass—Elementary Class Instruction (1) I

Two hours.

Fundamentals of the trumpet and French horn by lecture and acquisition of elementary skills. Not open to students with credit in Music 30A.

### 130B. Brass—Elementary Class Instruction (1) II

Two hours.

Prerequisite: Music 30A or 130A.

Fundamentals of the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Not open to students with credit in Music 30B.

### 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 35.

## Music

### 140. Planning and Development of Marching Band Shows (2) I

Two hours.

Prerequisite: Two semesters of Music 75 or 175.

The organizing, charting, and producing of half-time shows for football games for prospective high school teachers. Shows are planned and produced by the students and performed by the Marching Band.

### 141. Applied Music 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

### 142. Applied Music Pedagogy Laboratory (2) I, II

One lecture and three hours of laboratory.

Prerequisite: Music 141A is prerequisite to 142A and 141B is prerequisite to 142B. Practical experience in the teaching of individual or group lessons.

A. Piano

B. Strings

### 143. Music Literature for Elementary Teachers (3) I, II

Prerequisites: Music 2 or 9A.

Music literature suitable for teaching at the elementary school level; includes background information and ways of classroom presentation.

### 144. Music of the People (3) I, II

Prerequisite: Music 2 or 9A.

The origin and development of folk music; the social instruments and their use. Participation in singing and playing folk music.

### 145. Music in Contemporary Life (3) I, II

Prerequisite: Music 2 or 9A.

Functional music in society to include its psychological, physical and recreational uses; music as communication; the composer, the musician, and the audience.

### 146A. Choral Conducting (1) I, II

Three hours.

Prerequisite: Junior standing.

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.

### 146B. Instrumental Conducting (1) II

Three hours.

Prerequisite: Music 146A.

Orchestra and band scores of graduated levels of advancement. The class will prepare and conduct instrumental works in public performances.

### 147. Perspectives in Music (3) I, II

Prerequisite: Music 2 or 9A.

Musical understandings from non-performance aspects and perspectives regarding the relationships of music to the visual arts and the humanities.



**150. Applied Music—Individual Study (1) I, II**

For the teaching credential performance requirement or for the requirements of the major emphasis curricula leading to the B.M. degree. For conditions under which credit may be given for private instruction, see Credit for Music Study Under Private Instruction in the section on the music major.

- |                |                        |
|----------------|------------------------|
| A. Piano       | M. Baritone Horn       |
| B. Organ       | N. Tuba                |
| C. Voice       | O. Percussion          |
| D. Flute       | P. Violin              |
| E. Oboe        | Q. Viola               |
| F. Clarinet    | R. Cello               |
| G. Saxophone   | S. Contrabass          |
| H. Bassoon     | T. Harp                |
| J. French Horn | U. Classical Guitar    |
| K. Trumpet     | V. Composition         |
| L. Trombone    | X. Classical Accordion |
|                | Y. Harpsichord         |

**151. Great Music (3) I, II**

Significant music literature of the various historical periods with emphasis on the stylistic characteristics through directed listening.

- Musical Masterpieces of the 18th and 19th Centuries.
- Musical Masterpieces of the 20th Century.
- Masterpieces of Grand Opera.
- Twentieth Century American Jazz.

**152A-152B. History of Music (3-3) I, II**

Prerequisites: Music 52 and 59A; Music 152A is prerequisite to 152B.

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.

**153. Opera Technique (2) I, II**

Four hours.

Interpretation and characterization of light and grand opera. Specific work in coordination of opera ensemble.

**154. Music Literature (2) I, II**

Prerequisites: Music 52 and 59A.

A concentrated study of the literature in the several areas listed. Analysis by use of scores and of recordings, when available.

- Chamber Music Literature—Strings
- Small Wind and Percussion Ensemble Literature
- Symphonic Literature
- Keyboard Literature
- Song Literature

**166. Honors Course (1-3) I, II**

To be arranged after consultation with the chairman of the department. Refer to the Honors Program.

**167. Junior Recital (1) I, II**

Prerequisite: Junior standing in music.

Selection of literature for recital program not to exceed thirty minutes in length; theoretical analysis and historical study of scores chosen; preparation for public performance; and examination before committee of music department faculty.

**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.

**199. Special Study (1-3) I, II**

Individual study. Six units maximum credit.

Prerequisite: Consent of the department chairman.

**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.

**170. Chamber Music (1) I, II**

Three hours.

Prerequisite: Consent of instructor.

Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. Maximum credit four units.

**175. 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. Symphonic Band (1) I, II**

Semester I: Concurrent registration in 175 and 176 required. Combined activity, six hours.

Semester II: Five hours per week.

Prerequisite: Consent of instructor.

Maximum credit four units.

**180. Symphony Orchestra (1) I, II**

Five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

**185. Concert Choir (1) I, II**

Five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

**186. Treble Clef (1) I, II**

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

**187. Men's Glee Club (1) I, II**

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

**188. College 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. Jazz Ensemble (1) I, II**

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

**190. Collegium Musicum (1) I, II**

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.



## GRADUATE COURSES

**200. Seminar in Music Education (3) I, II**

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

**201. Foundations of Music Education (3) I, II**

History and philosophy of music education in relation to current trends in the teaching of music.

**202. Administration and Supervision of Music Education (3) I, II**

Curriculum, scheduling, finance, human relations, organizational aspects, and the role of the supervisor-consultant.

**204. Comparative Music Education (3) I, II**

Various international philosophical and technical approaches to teaching music to include the Orff, Kodaly, Suzuki and other systems.

**207. Composition (2 to 3)**

Prerequisite: Music 107.

Advanced composition for various media, development of original idiom, intensive study of modern music. Public performance of an extended original work as a project.

**208. History and Development of Music Theory (3)**

Prerequisites: Music 108 and 152B.

Important theoretical approaches to music, from pre-Socratic writers to the present.

**209. Advanced Orchestration (2) I, II**

Prerequisite: Music 109B.

Intensive work in the practical scoring for ensembles, full orchestra, and symphonic band. Score analysis. Selected works of the class members will be performed.

**210. Electronic Music (3) I, II**

Prerequisite: Undergraduate concentration in composition.

Theory, techniques, and composition of various kinds of electronic music.

**211. Analytical Studies of Music (3) I, II**

Prerequisite: Music 108.

Melodic, formal, contrapuntal, and harmonic analysis of music.

**212. Advanced Contrapuntal Techniques (3) I, II**

Prerequisites: Music 59B and 106.

Traditional and contemporary contrapuntal styles. The development of contrapuntal skills through writing.

**213. Seminar: Music Theory (3) I, II**

Prerequisites: Music 59B and 106.

Principles of traditional harmony and ear-training.

**246A. Advanced Choral Conducting (2)**

Prerequisite: Music 146B.

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.

**246B. Advanced Instrumental Conducting (2)**

Prerequisite: Music 146B.

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.

**250. Applied Music—Advanced Individual Study (2)**

For the graduate student who qualifies for advanced study through an audition before the Music Department faculty. For conditions under which credit may be given for private instruction, see Credit for Music Study Under Private Instructors in the section on the music major. Maximum credit four units.

- |                |                        |
|----------------|------------------------|
| A. Piano       | M. Baritone Horn       |
| B. Organ       | N. Tuba                |
| C. Voice       | O. Percussion          |
| D. Flute       | P. Violin              |
| E. Oboe        | Q. Viola               |
| F. Clarinet    | R. Cello               |
| G. Saxophone   | S. Contrabass          |
| H. Bassoon     | T. Harp                |
| J. French Horn | U. Classical Guitar    |
| K. Trumpet     | V. Composition         |
| L. Trombone    | X. Classical Accordion |
|                | Y. Harpsichord         |

**252. Seminar in Music History (3)**

Prerequisites: Music 152B and consent of instructor.

Seminars in music history are offered for intensive study in each of the historical eras listed below.

- A. Music of the Middle Ages and Renaissance
- B. Music of the Baroque Era
- C. Music of the eighteenth and nineteenth centuries
- D. Twentieth century music
- E. American Music

**253. Musicology (3)**

Prerequisites: Music 152A and 152B.

Problems and research in musicology. Projects in bibliography, source materials, music history, criticism, aesthetics, and related fields. Writing and presentation of a scholarly paper. (Formerly numbered Music 203.)

**255. Seminar: A Major Composer (3) I, II**

Prerequisite: Music 152B. Completion of a seminar in Music 252 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.

**260. Seminars in the Notation of Polyphonic Music (3)**

Prerequisites: Music 152B. Completion of Music 252A is recommended.

Problems related to the notation of Medieval, Renaissance and Baroque music. Examples will be transcribed into modern notation.

- A. Notation of Soloistic Music: Scores and Tablatures.
- B. Notation of Ensemble Music: White Mensural Notation.
- C. Notation of Ensemble Music: Black Notation to the End of Franconian Notation.
- D. Notation of Ensemble Music: French, Italian, Mixed and Mannered Notation.

**270. Seminar: Interpretation of Early Music (3) I, II**

Prerequisites: Completion of Music 252A and 252B 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.

**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.

**298. Special Study (1-3)**

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.



## Nursing

### 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## NURSING

### IN THE COLLEGE OF PROFESSIONAL STUDIES

Agency Member of the National League for Nursing

#### Faculty

Professors: Atkinson, Blackmon (Chairman), Coakley, Coveny, Lee, Moses, Nye  
Associate Professors: Johnson, Salerno  
Assistant Professors: Bailey, Flagg, Goodrich, Himes, Laiho, LaMonica, LaSor, Leslie, Maire, Moffett, Schmidt  
Lecturer: Carter  
Instructors: Bellew, Brown, Conway, Mayberry

#### Offered by the Department

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

The Department of Nursing is an agency member of the National League for Nursing. It is accredited by the California Board of Nursing Education and Nurse Registration and by the National League for Nursing.

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 78 of this catalog.

A minor is not required with this major.

#### Curriculum

The curriculum in nursing requires completion of a minimum of 128 semester units of work as prescribed with a grade of C or better in each nursing course. Graduates of the program are eligible to write the examination for licensure as a registered nurse in the State of California and to apply for the California Certificate of Public Health Nursing. Directed clinical experience in hospitals and health agencies in San Diego County is an integral part of the curriculum.

Since the Baccalaureate degree is indicative of the necessary preparation for the practice of nursing on a professional level and for admission to graduate study in nursing, all students, including registered nurses, are admitted to the same curriculum. The faculty recognizes that the graduates of associate degree and diploma programs in nursing may have achieved intellectual and professional competencies that are comparable to the objectives of the Nursing Program. Such students will be evaluated, tested, and placed in appropriate advanced nursing classes.

**Preparation for the major.** Chemistry 2A-2B; Microbiology 1; Zoology 8; Biology 9; Sociology 1; Psychology 1; three units in normal nutrition; three units in human growth and development; three units in personality development; three units in marriage and the family. (37 units.)

**Major.** A minimum of fifty units in Nursing to include Nursing 100A-100B, 101, 102, 103, 104, 105, 106, 116, 130, 131, 132, 133, 134, 135, 136, 137. Any grade below a C is unacceptable in nursing courses.

#### UPPER DIVISION COURSES

##### 100A-100B. Foundations of Nursing (2-2) I, II

One lecture and three hours of laboratory.

Prerequisites: Admission to the nursing major. Concurrent registration in Nursing 101, 102, 103, 104. 100A is prerequisite to 100B.

Principles and practice of nursing to meet the basic needs of patients. Not open to students with credit in Nursing 33A, 34A.

## Nursing

##### 101. Maternal-Neonatal Nursing (3) I, II

Prerequisites: Three units in marriage and the family. Concurrent registration in Nursing 100A.

Principles of care of mothers, and newborn infants with emphasis on the importance of family relationships. Not open to students with credit in Nursing 112.

##### 102. Maternal-Neonatal Nursing Experience (3) I, II

Nine hours of laboratory.

Prerequisite: Concurrent registration in Nursing 101.

Directed clinical experience in the care of mothers and newborn infants including all phases of the maternity cycle.

##### 103. Psychiatric and Mental Health Nursing (3) I, II

Prerequisites: Three units in human growth and development; three units in personality development; and concurrent registration in Nursing 102.

Basic principles of communication and interpersonal relations in nursing; recognition of normal and disturbed communication; principles and techniques for dealing with continuum of normal and abnormal behavior. Not open to students with credit in Nursing 118.

##### 104. Psychiatric and Mental Health Nursing Experience (3) I, II

Nine hours of laboratory.

Prerequisite: Concurrent registration in Nursing 103.

Directed clinical experience, focusing on the psychotherapeutic role of the nurse in a variety of settings.

##### 105. Nursing Care of the Adult Patient (4) I, II

Prerequisites: Nursing 100A. Concurrent registration in Nursing 100B and 106.

Study of health problems of adults resulting from deviations in homeostasis and of medical and/or surgical therapies and nursing therapies utilized to restore optimum health. Not open to students with credit in Nursing 33B and 34B.

##### 106. Experience in Nursing Care of the Adult Patient (4) I, II

Twelve hours of laboratory.

Prerequisite: Concurrent registration in Nursing 105.

Directed clinical experience in the care of adult patients with medical and/or surgical health problems.

##### 112. Obstetric Nursing (5) I, II

Two lectures and nine hours of laboratory.

Prerequisite: Sociology 136.

Study of care and treatment of the obstetric patient and newborn infant.

(This course will be offered for the last time in 1970-71.)

##### 114. Pediatric Nursing (5) I, II

Two lectures and nine hours of laboratory.

Prerequisite: Credit or concurrent registration in Psychology 106.

Nursing care of infants and children; prevention and control of disease; and instruction of parents. (This course will be offered for the last time in 1970-71.)

##### 116. Trends in Nursing (2) I, II

Prerequisite: Nursing 105.

Place of nursing in world history and the present social order.

##### 118. Psychiatric Nursing (5) I, II

Two lectures and nine hours of laboratory.

Prerequisite: Credit or concurrent registration in Psychology 131.

Major concepts of psychiatric nursing and mental health that are involved in care of the mentally ill; therapies and rehabilitation measures. (This course will be offered for the last time in 1970-71.)

##### 120. Practicum in Clinical Nursing (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Nursing 112, 114, and 116.

Development of ability for making a nursing diagnosis, and taking appropriate action. (This course will be offered for the last time in 1971-72.)



## Nursing

### 124. Leadership Roles in Nursing (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Nursing 116.

Professional and legal responsibilities of the nurse; selected practice activities in the role of team leader. (This course will be offered for the last time in 1971-72.)

### 125. Public Health Nursing (4) I, II

Prerequisites: Nursing 112, 114, and credit or concurrent registration in Nursing 126.

Principles of Public Health Nursing and organization and administration of health services. (This course will be offered for the last time in 1971-72.)

### 126. Public Health Nursing Practice (5) I, II

Fifteen hours of laboratory.

Prerequisite: Concurrent registration in Nursing 125.

Guided public health nursing practice in community health agencies, out-patient clinics, schools and homes. (This course will be offered for the last time in 1971-72.)

### 130. Child Health Nursing (2) I, II

Prerequisites: Nursing 106. Concurrent registration in Nursing 131, 132, 133. Nursing care needs of the well and the sick child from birth through adolescence. Not open to students with credit in Nursing 114.

### 131. Child Health Nursing Experience (4) I, II

Twelve hours of laboratory.

Prerequisite: Concurrent registration in Nursing 130.

Directed clinical experience in hospitals, clinics, and schools.

### 132. Community Health Nursing (3) I, II

Prerequisites: Three units in community epidemiology; Nursing 106. Concurrent registration in Nursing 131.

Community facets with emphasis on the family centered approach in providing nursing service. Not open to students with credit in Nursing 125.

### 133. Community Health Nursing Experience (3) I, II

Nine hours of laboratory.

Prerequisite: Concurrent registration in Nursing 132.

Directed experience in a community health agency which encompasses as its objective the promotion of health and the prevention of disease of each member of the family. Not open to students with credit in Nursing 126.

### 134. Advanced Medical-Surgical Nursing (2) I, II

Prerequisites: Nursing 130. Concurrent registration in Nursing 135.

Common problems in the care of the acutely ill patient and the patient with continuing health problems requiring a planned rehabilitation program. Not open to students with credit in Nursing 120.

### 135. Experience in Advanced Medical-Surgical Nursing (2) I, II

Six hours of laboratory.

Prerequisite: Concurrent registration in Nursing 134.

Directed clinical experience in the nursing care of the acutely ill patient and the long-term patient requiring rehabilitation and teaching.

### 136. Leadership in Professional Nursing (2) I, II

Prerequisites: Nursing 130. Concurrent registration in Nursing 116 and 137.

Principles of leadership and supervision are stressed as a means of developing effective relationships within the health team. The leadership role of the professional individual is emphasized in relation to his responsibility as a citizen. Not open to students with credit in Nursing 124.

### 137. Management of Patient Care in a Nursing Unit (2) I, II

Six hours of laboratory.

Prerequisite: Concurrent registration in Nursing 136.

Directed clinical experience in planning, directing, giving, and evaluating patient care in a nursing unit. Team nursing concept and methods are utilized. Methods of evaluating clinical work are included.

## Oceanography/Philosophy

### Individual Study

#### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

#### 175. Nursing in School Health Services (2) I, II

Prerequisites: Nursing 125, 126; concurrent registration in Nursing 176.

The philosophy of school health, the functions and responsibilities of the school nurse in planning, organizing and implementing a program of school health services.

#### 176. Practicum in School Health Nursing Services (4) I, II

Twelve hours of laboratory.

Prerequisites: Nursing 125, 126; concurrent registration in Nursing 175.

Supervised field practice and experience in public school nursing.

#### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of the instructor.

### EXTENSION COURSE

#### X-160. School Nursing (3)

Prerequisite: Nursing 125, or equivalent to be determined by examination.

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.

## OCEANOGRAPHY

### IN THE COLLEGE OF SCIENCES

#### Faculty

Professor: McBlair

Assistant Professor: Ingmanson

#### Offered by the College of Sciences

Major or minor work in oceanography is not offered.

See Studies in the Marine Sciences on page 124 of this catalog.

### UPPER DIVISION COURSES

#### 100. The Oceans (2) I

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.

For additional courses in Oceanography see

Biology 113. Biological Oceanography.

Physical Science 110. Physical Oceanography

Physical Science 170A-170B. Theoretical Oceanography

Zoology 150. Marine Biology

## PHILOSOPHY

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Emeritus: Mendenhall

Professors: Anderson, Crawford (Chairman), Howard, Nelson, O'Reilly, Ruja,

Snyder, Warren

Associate Professors: McClurg, Weissman

Assistant Professors: Carella, Feenberg, Koppelman, Lauer, Praetorius, Troxell

Lecturer: Rosenstein



## Philosophy

### Offered by the Department

Master of Arts degree in philosophy. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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 82 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Nine lower division units in philosophy.

**Major.** A minimum of 24 upper division units in philosophy. Six units from Philosophy 101, 102, 103, 104, and 175; and six units from Philosophy 121, 122, 123, 125, and 128 are recommended.

### PHILOSOPHY MINOR

The minor in philosophy consists of from 15 to 22 units in philosophy, nine units of which must be in upper division courses. Philosophy 101 is recommended.

#### LOWER DIVISION COURSES

##### 1A-1B. Introduction to Philosophy (3-3) I, II

Prerequisite: Philosophy 1A, or consent of instructor, is prerequisite to 1B.

The place of philosophy in intelligent living. The methods, areas, and significance of philosophical inquiry. Each student is encouraged to think independently and formulate his own tentative conclusions. In Philosophy 1A, emphasis is placed upon problems of value. In Philosophy 1B, emphasis is placed on problems of knowledge and reality.

##### 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.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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: At least three units of philosophy are prerequisite to all upper division courses in philosophy. Equivalents for the prerequisites stated may be accepted at the discretion of the instructor.

##### 101. History of Philosophy I (3) I, II

Prerequisite: Six units of philosophy.  
Thales through Marcus Aurelius.

##### 102. History of Philosophy II (3) I, II

Prerequisite: Philosophy 101.  
Plotinus through William of Occam.

##### 103. History of Philosophy III (3) I, II

Prerequisite: Philosophy 101.  
Nicholas of Cusa through Kant.

##### 104. History of Philosophy IV (3) I

Prerequisite: Philosophy 103.  
Fichte through Royce.

## Philosophy

##### 105A-105B. Twentieth Century Philosophy (3-3)

Prerequisite: Philosophy 1B.

Historical treatment of major philosophical issues, movements, and figures in American and European philosophy. First semester: emphasis on Great Britain and the United States; second semester: emphasis on continental Europe.

##### 108. Recent Existentialism (3) I

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.

##### 109. Ordinary Language Analysis (3) II

Prerequisite: Six units of philosophy.

The application of linguistic analysis to basic philosophical problems.

##### 110. Philosophy of Law (3) I

Prerequisite: Philosophy 1A, 1B or 20, 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 causations, responsibility, personality, and property.

##### 112. Political Philosophy (3) II

Prerequisite: Philosophy 1A.

Selected aspects of the political structures within which we live, such as law, power, sovereignty, justice, liberty, welfare.

##### 121. Deductive Logic (3) I

Prerequisites: Philosophy 20 or Mathematics 60.

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 155.

##### 122. Inductive Logic (3) II

Prerequisite: Philosophy 20.

Definition, classification, and division. The logic of experimentation and statistics. Formation and validation of hypotheses. Probability theories.

##### 123. Theory of Knowledge (3) I

Prerequisite: Philosophy 1B.

The major theories of human knowledge: mysticism, rationalism, empiricism, pragmatism.

##### 125. Metaphysics (3) II

Prerequisite: Philosophy 1B.

Prominent theories of reality, e.g., realism and nominalism, materialism and idealism, teleology and determinism.

##### 127. Values and Social Science (3) II

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.

##### 128. Theory of Ethics (3) I

Prerequisite: Six units of philosophy.

Significant and typical value theories and systems and the concrete problems such theories seek to explain. The emphasis will be placed on moral values.

##### 129. Social Ethics (3)

Prerequisite: Philosophy 1A.

Ethical issues of contemporary life. Individualism vs. collectivism; democracy vs. dictatorship; ethical problems arising in law, medicine, business, government, and interpersonal relationships.



## Philosophy

**131. Philosophy of Language (3) II**

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.

**132. Philosophy of History (3) I**

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.

**133. Philosophy of Education (3) II**

Prerequisite: Philosophy 1B.

Various philosophical viewpoints concerning education. The functions of education as conceived by major figures in the western philosophical tradition.

**134. Philosophy of Literature (3)**

Prerequisite: Six units of philosophy.

Study of literature of philosophical significance, and of philosophical problems of literature.

**135. Philosophy of Religion (3) I, II**

Prerequisite: Six units of philosophy.

The philosophical significance of major themes in religious thought. The role of myth and the nature of religious language.

**137. Philosophy of Science (3) I**

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.

**141. History of Aesthetics (3) I**

Prerequisite: Philosophy 1A.

Major documents in the history of aesthetics.

**142. Philosophy of Art (3) II**

The nature of aesthetic experience. Principal contemporary theories of art in relation to actual artistic production and to the function of art in society. (Formerly Philosophy 136.)

**150A-150B. Asian Thought (3-3)**

Prerequisite: Six units of philosophy.

The religious and philosophical modes of thought and ways of life of the Orient. Reading and analysis of primary texts in translation. First semester: India and Southeast Asia. Second semester: China and Japan.

**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 upon Pierce, James, Royce, Santayana, Dewey, and Whitehead.

**166. Honors Course (1-3) I, II**

Refer to the Honors Program.

**175. A Major Philosopher (3) I, II**

Prerequisite: Philosophy 101.

The writings of one major philosopher. May be repeated with new content for additional credit. Maximum credit among 24 upper division units required by major. Maximum credit six units applicable on a master's degree.

**199. Special Study (1-6) I, II**

Individual study. Six units maximum credit.

Prerequisites: 12 upper division units in philosophy and consent of instructor.

## GRADUATE COURSES

**201. Seminar in Ancient Philosophy (3)**

Prerequisite: Twelve upper division units in philosophy including Philosophy 101.

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.

**202. Seminar in Medieval Philosophy (3)**

Prerequisite: Twelve upper division units in philosophy including Philosophy 102.

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.

**203. Seminar in Modern Philosophy (3)**

Prerequisite: Twelve upper division units in philosophy including Philosophy 103.

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.

**205. Seminar in Contemporary Philosophy (3)**

Prerequisite: Twelve upper division units in philosophy including Philosophy 105.

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.

**211. Seminar in Legal Philosophy (3)**

Prerequisite: Twelve upper division units in philosophy.

Directed research in recurrent themes of philosophical significance in jurisprudential literature.

**221. Deductive Logic (3)**

Prerequisites: Twelve upper division units in philosophy including Philosophy 121.

A comparison of deductive systems in logic. Problems of definability, consistency, and completeness. The role of logic in the foundations of mathematics.

**223. Seminar in Epistemology (3)**

Prerequisite: Twelve units of upper division work in philosophy.

Basic problems concerning meaning, perception, and knowledge.

**225. Seminar in Metaphysics (3)**

Prerequisite: Twelve units of upper division work in philosophy.

An inquiry into the search for significant qualities of reality.

**228. Seminar in Ethics (3)**

Prerequisite: Twelve units of upper division work in philosophy.

Contemporary ethical issues. Critical analysis of the works of some leading theorists, such as Moore, Dewey, Stevenson, and Toulmin.

**231. Semantics and Logical Theory (3)**

Prerequisites: Twelve upper division units in philosophy including Philosophy 121 and 131.

Contemporary issues in the foundations of logic and theories of language.

**235. Seminar in Philosophy of Religion (3)**

Prerequisite: Twelve upper division units in philosophy including Philosophy 135.

A philosophical investigation of the nature of religious thought: its structure, growth, and significance.

**236. Seminar in Philosophy of Art (3)**

Prerequisite: Twelve units of upper division work in philosophy.

An analysis, criticism, and comparative study of selected philosophies of art.

**237. Seminar in Philosophy of Science (3)**

Prerequisites: Twelve upper division units in philosophy including Philosophy 122 and 137.

The methodology of the empirical sciences. The logical structure of science.



## Physical Education

### 250. Seminar in East-West Philosophy (3)

Prerequisites: Twelve upper division units in philosophy including Philosophy 1505A.

Comparative study of mythological, ethical, and mystical themes in the literature of East and West.

### 298. Special Study (1-3)

Individual study. Maximum credit six units.

Prerequisites: Twelve units of upper division work in philosophy and consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## PHYSICAL EDUCATION

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Emeritus: Schwob, Shannon, Smith, D., Sportsman

Professors: Andrus, Benton, Carter, Coryell, Governali, Karr, Kasch, Lockman, Murphy, Olsen, A., Olsen, L., Phillips (Chairman), Scott, Terry, Tollefsen, Ziegenfuss

Associate Professors: Broadbent, Cave, Cullen, Fox, Schutte, Wells

Assistant Professors: Barone, Franz, Friedman, Gilbert, Hollyfield, Moore, Palmiotto, Roundtree, Selder, Smith, B., Sprunt, Sucec, Whitby, Wilhelm, Williamson, Willis, Zampese

Lecturers: Baldock, Davis, Lamke,

Instructor: Gutowski

#### Offered by the Departments

Master of Arts degree for teaching service with a concentration in physical education. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in physical education with the A.B. degree in applied arts and sciences.

Minor in physical education.

Minor in dance.

Teaching major in physical education with specialization in secondary teaching.

Teaching minor in physical education with specialization in both elementary and secondary education.

### 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 graduation requirements listed on page 78 of this catalog.

Students majoring in physical education must complete a minor in another field.

#### Major for Men

**Preparation for the major.** Physical Education 8A, 9A, 10A, 12A, 29B, 52, 70, 71, 73; Zoology 8; and Biology 22. (16½ units.) Students may be excused from skill courses by passing a competency test.

**Major.** A minimum of 29 upper division units to include Physical Education 162, 164, 167, 168, 169, 172, 174, 175, 176, 177. Recreation 140, and four to six elective units to be selected from the P.E. 180 series. P.E. 151 or P.E. 179 may be substituted for one course of the P.E. 180 requirement.

## Physical Education

#### Major for Women

**Preparation for the major.** Physical Education 33A, 33B, 34A, 34B, 52, 56A, 56B, one unit of physical education activity elective; Zoology 8; and Biology 22. (14 units.)

**Major.** Twenty-seven upper division units to include Physical Education 151 or 154, 155 or 156, 160, 167, 168, and 12 units from health education and/or physical education courses selected with approval of the department adviser.

#### Emphasis in Dance

**Preparation for the major.** Physical Education 48A, 48B, 54, 81, 82; one unit selected from Physical Education 33A, 33B, 34A, 34B; Zoology 8; and 16 units selected from Art 2A, 2B, 5, 50A, 50B, 61, Music 10A, 35, 51, Speech Communication 11A, Drama 5, 8, 30, 31, and 50. (28 units.)

**Major.** A minimum of 24 upper division units to include three to four units from Physical Education 151 or 153A, 154, 157A, 181, 182A, 182B, 183, 184, 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-Theatre 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. (The physical education major with an emphasis in dance does not meet the credential pattern for education.)

### PHYSICAL EDUCATION MINOR

The minor in physical education consists of from 15 to 22 units in physical education, nine units of which must be in upper division courses. The minor should be planned in consultation with the adviser in physical education.

### DANCE MINOR

The minor in dance consists of Physical Education 33A-33B, 34A-34B, 48A-48B, 81, 82; two units selected from Physical Education 153A or 184, 181, 182A, and 182B; and 3 upper division units to be selected from the areas of art, music, drama, and others, with the approval of the adviser in dance. (21 units.)

### PHYSICAL EDUCATION MAJOR

#### FOR THE STANDARD 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.

#### Specialization in Secondary Teaching

##### Major for Men

Requirements are the same as the requirements for the A.B. degree in applied arts and sciences as outlined above. In addition, students must complete, in their postgraduate year, a minimum of six units of 200-numbered courses approved by the department adviser.

##### Major for Women

**Preparation for the major.** Physical Education 7A, 7B, 16A, 17A, 18A, 20A, 29B, 32A, 33A, 33B, 34A, 34B, 52, 56A, 56B; Biology 22, and Zoology 8. (17 units.)

**Teaching Major (Undergraduate).** Twenty-eight upper division units to include Physical Education 151, 152, 154, 155, 156, 160, 162, 167, 168, and 172.

**Postgraduate Year.** Six units of 200-numbered courses approved by the department adviser.



## Physical Education

### PHYSICAL EDUCATION MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

##### Specialization in Elementary Teaching

**Minor for men.** The minor in physical education (men) for elementary teaching consists of not less than 20 units to include, in the lower division, Physical Education 53, 71, 73, and four units to be selected from physical education or recreation; and, in the upper division, Physical Education 175, 177, Health Education 146, Recreation 140, and two units to be selected from physical education or recreation.

**Minor for women.** The minor in physical education (women) for elementary teaching consists of not less than 22 units to include, in the lower division, Physical Education 1A, 7A, 7B, 33A, 34A, 33B or 34B, 52, 56A, 56B, Recreation 70, and one unit elective; and in the upper division 11 units to include Physical Education 151 or 154, 152, 156, and 162.

##### Specialization in Secondary Teaching

**Minor for men.** The minor in physical education (men) for secondary teaching consists of a minimum of 24½ units to include, in the lower division, Physical Education 8A, 9A, 10A, 12A, 29B, 52, 71, and 73; and, in the upper division, Physical Education 174, 175, 176, 177, Recreation 140, Health Education 146, and two to three units to be selected from either Physical Education 180 series, field experiences in intramurals, or recreation, or Physical Education 151.

**Minor for women.** The minor in physical education (women) for secondary teaching consists of a minimum of 25 units to include, in the lower division, Physical Education 1A, 7A, 7B, 16A, 17A, 18A, 20A, 32A, 33A, 33B, 34A, 34B, 52, 56A, 56B; and in the upper division, 15 upper division units in physical education to include Physical Education 151 or 154, and 155 or 156.

##### REQUIRED ACTIVITY COURSES

To meet general education requirements, four semesters of activity courses or monitored activity are required. All freshman and sophomore students must enroll in an activity course or monitored activity each semester. Two units are needed for general education and graduation, but 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.

##### Exemptions or Postponements

Veterans who have served a minimum of one continuous year in the United States armed forces are exempted from the general education requirement in physical education. Students over 25 years of age may also be exempted from the general education requirement in physical education upon approval by the Vice President for Academic Affairs or duly authorized representative. Students carrying fewer than 12 units during any semester may apply to the chairman of the Physical Education Department for a postponement of the physical education activity requirement. 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.

##### Types of Activity Courses

A health history record is required of each student entering college. Adapted physical education classes to care for special needs are offered. The content of the required courses is planned to give each student an opportunity to participate in many activities of carry-over value, developmental nature, and recreational interest. An opportunity is afforded students to participate in competitive sports in the extramural and intramural programs.

## Physical Education

### Courses

Courses offered for one-half unit credit meet two hours per week or equivalent. "A" signifies a beginning class, "B" intermediate or advanced.

**1A-1B. Fundamental Skills (½-½) I, II**

**2A-2B. Conditioning (½-½) I, II**

**6A-6B. Team Sports (½-½) I, II**

**7A-7B. Gymnastics (½-½) I, II**

**8A-8B. Basketball (½-½) I, II**

**9A-9B. Soccer (½-½) I, II**

**10A-10B. Volleyball (½-½) I, II**

**11A-11B. Track and Field (½-½) I, II**

**12A-12B. Wrestling (½-½) I, II**

**16A-16B. Golf (½-½) I, II**

**17A-17B. Archery (½-½) I, II**

**18A-18B. Tennis (½-½) I, II**

**19A-19B. Bowling (½-½) I, II**

**20A-20B. Badminton (½-½) I, II**

**21A-21B. Handball (½-½) I, II**

**22A-22B. Fencing (½-½) I, II**

**23A-23B. Boxing (½-½) I, II**

**24A-24B. Water Craft (½-½) I, II**

**29A-29B. Swimming (½-½) I, II**

**30A-30B. Synchronized Swimming (½-½) I, II**

**32A-32B. Ballroom Dancing (½-½) I, II**

**33A-33B. Folk and Square Dancing (½-½) I, II**

**34A-34B. Modern Dance (½-½) I, II**

**36A-36B. Selected Activities (½-½) I, II**

May be repeated with new activity for additional credit. See class schedule for semester offerings.

**38. Individual Adaptives (½) I, II**

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.

**39. Basic Ballet (½) I**

**40. Ballet for Gymnastics (½) II**

### MEN AND WOMEN

#### PROFESSIONAL THEORY COURSES

##### LOWER DIVISION COURSES

**46. Rhythmic Gymnastics (I) I, II**

Four hours of laboratory.

Progressive skills in free exercise, use of hand apparatus, and tumbling for gymnastics teachers.

**47A-47B. Professional Activities: Gymnastics (Women) (½-½) I, II**

Two hours of laboratory.

Study and development of competencies, skills, and knowledges needed for teaching and coaching girls' and women's gymnastics.



## Physical Education

### 48A-48B. Advanced Modern Dance (1-1) I, II

Four hours.

Prerequisites: Physical Education 34A and 34B.

Skill techniques. Compositional factors and devices. Materials of design, rhythm and dynamics in group compositions. The use of percussion and various forms of accompaniment. Discussions, lectures and practice.

### 50. Life Saving (1) I, II

Three hours per week.

Standard American Red Cross course in life saving and water safety, designed to qualify superior swimmers for Senior Life Saving Certificate.

### 52. Introduction to Physical Education (2) I, II

History and principles of physical education and sports. Study of the objectives of modern physical education with a view towards the development of a basic philosophy and background for professional education. Required of all physical education majors without previous credit in an introductory physical education course.

### 53. Physical Education of Children (2) I, II

One lecture and three hours of laboratory.

Application of the principles of motor learning and muscular fitness to the elementary physical education activity program.

### 54. Advanced Skill Techniques in Dance (1) I, II

Four hours of laboratory.

Prerequisite: Consent of instructor.

Progressively difficult dance techniques using several creative approaches. Emphasis on motivation, body design, rhythm, and dynamics.

### 55A-55B. Professional Activities: Individual Sports (Women) (1-1) I, II

Four hours of activity.

Individual sports golf, archery, and racket sports approached through a study of competencies, skills, and knowledge needed for teaching.

### 56A-56B. Professional Activities: Team Sports (Women) (1-1) I, II

Four hours of laboratory.

Team sports for women approached through a study of competencies, skills, and knowledge needed for teaching.

### 57A-57B. Officiating Women's Sports (1-1) I, II

Three hours of laboratory.

Prerequisite: Physical Education 56B.

Practice in officiating techniques in women's sports leading to official's ratings: Fall—volleyball, basketball, and hockey; Spring—softball, track and field, badminton and tennis.

### 58A-58B. Advanced Professional Activities: Team Sports (Women) (1-1) I, II

Four hours of activity.

Prerequisites: Physical Education 56A-56B.

Team sports basketball, hockey, soccer, speedball, softball and volleyball, and track and field, for women approached through a more concentrated study of advanced skills and knowledge needed for teaching.

### 70. Orientation to Physical Education (Men) (1) I, II

Orientation and guidance of major students in physical education. Course must be taken during the first semester of enrollment in the major at San Diego State (transfer major students included).

### 71. Gymnastics (Men) (2) I, II

Six hours of laboratory.

Competency development in gymnastics. Emphasis on skills, movements, rules, officiating, facilities, and organizational procedures in gymnastics.

## Physical Education

### 73. Dance (Men) (2) I, II

Six hours of laboratory.

Competency development in dance. Emphasis on skills, movements, facilities, and organizational procedures in dance.

### 81. Introduction to Dance (2) I

Dance as an art form with emphasis on the development of contemporary trends; American dance personalities and their contribution. Required of all physical education majors with an emphasis in dance.

### 82. Rhythmic Analysis Related to Movement (2) II

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.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 122. Water Safety Instruction (1) II

Four hours of lecture and laboratory.

Prerequisites: P.E. 29B or equivalent, and current American Red Cross Senior Life Saving Certificate.

Methods and materials for teaching swimming. Course designed to qualify expert swimmers for American Red Cross Swimming Instructors Certificate.

### 123. Skin and Scuba Diving (2) I, II

One lecture and three hours of laboratory.

Prerequisites: Thesis or class project requiring underwater collection techniques or Physical Education 29B. Medical examination, waiver for hazardous procedures, passage of competency test in swimming.

Functional knowledge of underwater diving to include diving physiology, hyperbaric conditions, medical hazards, safety procedures associated with Scuba Diving and proper care and operation of equipment.

### 151. Folk and Social Dance Skill Analysis (Men and Women) (3) I

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 32A and 33B, or completion of folk and social dancing competencies tests.

Folk customs, festivals, and costumes. Selection of dance materials for various age groups. Analysis of teaching techniques.

### 152. Gymnastics Skill Analysis (Women) (3) I

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 7A and 7B, or completion of competencies tests in gymnastics and related fields.

Advanced materials in tumbling and gymnastics with emphasis on safety devices, spotting, etc. Analysis of teaching techniques and progressions.

### 153A-153B. Problems in Dance (2-2)

Prerequisite: Physical Education 48A.

Problems in ethnic or modern dance: history, anthropological basis, stagecraft, accompaniment, costuming.

### 154. Modern Dance Skill Analysis (Women) (3) II

Two lectures and three hours of laboratory.

Prerequisite: Physical Education 34B, or completion of competencies tests in modern dance.

Advanced skill techniques with emphasis on individual choreography. Selection of materials and course planning for the secondary schools. Class teaching experience. Brief survey of basic literature and current readings in the field.



## Physical Education

### 155. Individual Sports Skill Analysis (Women) (3) II

Two lectures and three hours of laboratory.  
Prerequisites: Physical Education 16A, 17A, 18A, 20A, or completion of competencies tests in archery, badminton, golf, and tennis.

Individual playing techniques, knowledge, rules, and teaching methods in tennis, badminton, archery and golf. Designed for senior majors in physical education who are expected to demonstrate a high degree of competency in the sports indicated.

### 156. Team Sports Skill Analysis (Women) (3) I

Two lectures and three hours of laboratory.  
Prerequisites: Physical Education 56A and 56B, or completion of competencies tests in basketball, hockey, soccer, speedball, softball and volleyball, and track and field.

Skills, teaching techniques, officiating, and the organization of materials in team sports for women.

### 157A-157B. Choreography in Contemporary Dance (Men and Women) (3-3)

Two lectures and three hours of laboratory.  
Prerequisite: Consent of instructor.  
Experimentation in dance, relating contemporary theories to other art forms. Force and time-space relationships as factors of choreography. Semester I: Production problems for large and small groups. Semester II: Production problems for trios, duos, and solos.

### 160. Mechanics of Body Movement (Women) (3) II

Two lectures and three hours of laboratory.  
Prerequisite: Physical Education 167.  
Efficient use of the body in daily living; evaluation and classification of exercises, study of methods and practice in planning and presenting material.

### 161. The Psychological Bases of Physical Education (3) I, II

Prerequisite: Physical Education 162.  
Current issues, experimentation, problems and literature involved in the psychology of motor learning and motor performance.

### 162. Measurement and Evaluation in Physical Education (3) I, II

Existing skills, tests, and other forms of evaluation used in physical education programs, including practical measuring and comparisons with norms, standards, etc. Closely related to required competencies tests for physical education majors with applications to use in teaching.

### 163. Physical Growth and Development (3) II

Principles of human growth; performance as affected by developmental levels and individual differences in structure and function.

### 164. Athletic Injuries (Sports Medicine) (2) I, II

One lecture and three hours of laboratory.  
Prerequisite: Physical Education 167.  
Prevention and care of athletic injuries. Environment and hazards of sports. First aid. Use of prescribed modalities.

### 165. Organization and Administration of Extracurricular Activities (3) I, II

Two lectures and one hour of laboratory.  
Material covering the organization and administration of activities such as drill teams, extracurricular clubs, special events and programs, cheerleaders, intramural and extramural activities.

### 166. Honors Course (1-3) I, II

Refers to the Honors Program.

### 167. Applied Anatomy and Kinesiology (3) I, II

Prerequisites: Zoology 8 and 22.  
Arthrology, syndesmology, and myology, with special emphasis on movement analysis. Muscle groups and their functional relationships. Application of simple mechanical principles to movement analysis.

## Physical Education

### 168. Physiology of Exercise (3) I, II

Prerequisites: Zoology 8 and 22.  
Effects of physical activities on the physiological functions of the body.

### 169. Adapted Activities (2) I, II

One lecture and three hours of laboratory.  
Prerequisites: Zoology 8, Biology 22, Physical Education 167 and 168, and admission to Teacher Education.  
Adaptation of programs for the atypical individual, including physical examinations, training, and prescribed exercises, follow-up, instructional problems, and evaluation.

### 171. History and Philosophy of Physical Education (3) Irregular

Review of the historical and philosophical bases for dance, exercise, games, and sports with emphasis on the United States.

### 172. Aquatics (2) I, II

Four hours.  
Prerequisite: Physical Education 29B or demonstrated competency.  
Emphasis on skills, movements, rules, officiating, facilities, and organizational procedures in aquatics.

### 174. Combatives (Men) (2) I, II

Four hours.  
Prerequisite: Physical Education 12A or demonstrated competency.  
Competency development in combatives. Review of skills, strategy, tactics, and emphasis on teaching and coaching procedures.

### 175. Team Sports (Men) (2) I, II

Four hours.  
Prerequisites: Physical Education 8A, 9A, and 10A, or demonstrated competency.  
Competency development in team sports. Emphasis on skills, strategy, tactics, rules, officiating, facilities, and organizational procedures in selected team sports.

### 176. Individual Sports (Men) (3) I, II

Seven hours.  
Competency development in archery, badminton, golf, handball, and tennis. Emphasis on skills, strategy, tactics, rules, officiating, facilities, and organizational procedures in individual sports.

### 177. Physical Fitness (Men) (1) I, II

One lecture and two hours of laboratory.  
Prerequisite: A conditioning course in the required program, or demonstrated competency.  
Skills, movements, facilities, and organizational procedures in physical fitness programs. History and current role in the curricula.

### 178. 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. May be repeated for a total of six units. May not be used as part of the physical education major for either degree or teaching credential.

### 179. Supervised Field Experience (1-3) I, II

Prerequisites: Senior standing and consent of the department chairman.  
Supervised practical experience in physical education.



## Physical Education

### 180. Theory and Practice of Intercollegiate Sports (Men) (2-3)

Three units: Twelve hours. Two units: Eight hours.  
Concentrated study in field of interest, with emphasis on skill, strategy, tactics, rules, officiating, and organizational procedures.

Subject fields of 180 are as follows:

#### *Offered in the Fall*

- A Basketball (3)
- B Cross Country (2)
- C Football (3)
- D Gymnastics (3)
- E Swimming (2)
- F Water Polo (2)
- G Wrestling (3)
- N Soccer (2)

#### *Offered in the Spring*

- H Baseball (3)
- I Golf (2)
- J Rowing (2)
- K Tennis (2)
- L Track (3)
- M Volleyball (2)

### 181. History and Philosophy of Dance (2) II

(Offered in alternate years)

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.

### 182A. Dance Composition (Preclassic Forms) (3) I

(Offered in alternate years)

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 54 and 82.

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.

### 182B. Dance Composition (Modern Forms) (3) II

(Offered in alternate years)

Two lectures, three hours of laboratory.

Prerequisites: Physical Education 54 and 82.

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.

### 183. Dance Production (3) II

Lecture-demonstration, recital, and concert forms of dance programs. Presentation and staging of original solo and group compositions.

### 184. Workshop in Dance (1-2) I, II

Choreographic techniques and skills with visiting master teachers; written report or project. May be repeated to a total of four units.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of special study adviser.

## GRADUATE COURSES

### 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.

### 201. Curriculum in Physical Education (3)

Prerequisite: Major or minor in physical education, or equivalent.

Curricula in physical education. Special emphasis on curriculum construction and evaluation.

### 202. Administration of Physical Education in the Secondary Schools (3)

Prerequisite: Major or minor in physical education, or equivalent.

Topics include personnel problems, selection and maintenance of equipment and facilities, program organization and evaluation, budget, and related items.

### 203. History of Physical Education (3) II

Historical forces guiding the development of physical education from ancient to modern times.

## Physical Education

### 204. Problems in Recreation (3)

(Same course as Recreation 204)

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.

### 205. Current Trends and Issues in Physical Education (3)

A critical appraisal of contemporary trends and issues. Investigation and analysis of professional literature.

### 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 with the coaching of athletics; the study of possible solutions to problems associated with the program of competitive school athletics.

### 207. Advanced Kinesiology and Biomechanics (3)

Prerequisites: Zoology 8, 22, and Physical Education 167.

Principles of mechanics applied to the analysis of human motion. Electromyography and cinematography as aids in analysis. Kinetic analysis of movement.

### 208. Advanced Physiology of Exercise (3)

Prerequisites: Zoology 8 and 22, Physical Education 167 and 168.

Advanced aspects of the physiology of exercise. Effects of exercise on human beings in relations to health, longevity, morphology, and performance.

### 209. Advanced Adapted Activities (3)

Prerequisites: Zoology 8 and 22, Physical Education 167 and 169.

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.

### 210. Seminar in Facilities for Physical Education (3)

Prerequisite: Major or minor in physical education or recreation.

Individual study of problems related to the planning, development and maintenance of physical education and athletics facilities.

### 211. Advanced Evaluation in Physical Education (3)

Prerequisite: Physical Education 162.

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.

### 213. Problems in Physical Education (3)

Prerequisite: Major or minor in physical education.

A study of selected areas of the physical education program.

### 214. Seminar in Dance Programs (3)

Prerequisite: Major or minor in dance or physical education.

Procedures and evaluation of all forms of educational dance with implications for curriculum planning. Lectures and research. Completion of written project.

### 215. Philosophical Foundations for Physical Education (3) I

Major philosophies and their application in physical education.

### 220. Principles of Neuromuscular Tension (3)

Prerequisite: Physical Education 167.

Theories underlying the causes of muscular hypertension and the application of hypokinetic principles in daily living.

### 221. Exercise Electrocardiography (3) I, II

Principles of resting and exercise electrocardiography with emphasis on ergometric methods and application to exercise physiology.



## Physical Science

### 223. Advanced Exercise Physiology Laboratory (3) I, II

Nine hours of laboratory.

Prerequisites: Physical Education 169.

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.

### 227. Fitness of Adults (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Physical Education 169.

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.

### 261. Seminar in Motor Learning and Motor Performance (3) I

Prerequisite: Physical Education 161.

A review of research in Physical Education and related fields plus experimental laboratory experiences in motor learning.

### 291. Research Techniques (3) I, II, S

Prerequisites: Major in Physical Education and Physical Education 162.

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.)

### 295. Seminar in Physical Education (3)

Prerequisite: Physical Education 291 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.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## PHYSICAL SCIENCE

### IN THE COLLEGE OF SCIENCES

#### Faculty

Emeritus: Watson

Professors: Dessel (Chairman), Merzbacher, Stewart, P.

Associate Professor: Shull

Assistant Professors: Anderson, Ingmanson, Metzger, Springer, Thompson, Wallace

Lecturers: Phleger, Sadoski, Shideler

#### Offered by the Department

Master of Arts degree in the physical sciences for teaching service. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

A departmental major in physical science is not offered. An interdepartmental major in physical science for students in Teacher Education is offered. (See the section of this catalog on the School of Education and the Applied Arts and Sciences. Advising for these majors is done in the Department of Physical Science.)

## Physical Science

Teaching major in the physical sciences, with specialization in both elementary and secondary teaching, requiring an undergraduate major in physical science, or in one or more of the physical sciences. (See the section of this catalog on the School of Education.)

Minor in physical science.

### PHYSICAL SCIENCE MINOR

The minor in physical science consists of from 15 to 22 units and must include Physical Science 1, 2, 3, 4, and either 130 or 150, and at least three additional units of upper division courses approved by an adviser.

#### COURSES IN PHYSICAL SCIENCE

The courses listed below are designed to explore critically topics and concepts in the physical sciences selected for their challenge and significance, and presented in terms of their historical and intellectual development. These courses are important to the specialist in science and are of particular value to students in other major fields who seek to broaden and deepen their comprehension of the theoretical as well as the empirical aspects of science, especially as related to their own field of specialization and to contemporary problems and endeavors. This approach to the fundamentals of science is not emphasized elsewhere.

#### LOWER DIVISION COURSES

##### 1. Principles of Physical Science (3) I, II

Not open to students with credit for or concurrent registration in Physical Science 5.

The nature of the physical universe with emphasis on the whole field of physical science rather than on its separate divisions. May be followed by or, preferably, taken with Physical Science 3 for laboratory credit in natural science.

##### 2. Principles of Physical Science (3) I, II

Not open to students with credit for or concurrent registration in Physical Science 5.

A continuation of Physical Science 1, which course is recommended but not a required prerequisite. May be followed by or, preferably, taken with Physical Science 4 for laboratory credit in natural science.

##### 3. Experimental Methods in Physical Science (1) I, II

Three hours of laboratory.

Prerequisite: Credit for or concurrent registration in Physical Science 1. 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.

##### 4. Experimental Methods in Physical Science (1) I, II

Three hours of laboratory.

Prerequisite: Credit for or concurrent registration in Physical Science 2. A continuation of Physical Science 3. Fulfills the general education laboratory requirement in the natural science area.

##### 5. Fundamentals of Physical Science (3) I, II

Not open to students with credit for or concurrent registration in Physical Science 1.

Topics selected from Physical Science 1 and 2 to give a single course for the benefit of those students intending to take only one semester of physical science.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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.



## Physical Science

### UPPER DIVISION COURSES

#### 110. Physical Oceanography (3) I, II

Prerequisite: Physical Science 1.

Physical aspects of tides, waves, and currents.

#### 120. Physical Science for Elementary Teachers (3) I, II, S

An integrated study of the physical sciences for teachers in order to provide a broad background of information, a consideration of current developments, and an opportunity for individualized work. Enrollment limited to those in training for or engaged in teaching in the elementary schools.

#### 130. Modern Physical Science (3) I, II

Recent and current developments in the physical sciences. Discussions concerning such phenomena as radioactivity, cosmic rays, nuclear energy, tracer techniques, radio telescoping, supergalaxies. Not open for credit to physics majors.

#### 135A-135B. IPS Physical Science (3-3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Introductory course work in astronomy, geology, physical science or physics, and chemistry. Physical Science 135A is prerequisite to 135B.

Principles of physical science as presented in national curriculum study courses, particularly the IPS program of the Physical Science Study Committee.

#### 140S. Contemporary Problems in Physical Science (1) S

A series of six weekly lectures on varied aspects of physical science. Reading and reports required of students enrolled for credit. May be repeated to a total of three units. These lectures are open to the public.

#### 141. Electronics for Scientists (3) I, II, S

Two lectures and three hours of laboratory.

Primarily for science majors.

Electronic instrumentation used in the sciences; uses and limitations.

#### 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.

#### 160. The Development of Scientific Thought (3) I, II

Prerequisites: Six units from astronomy, chemistry, geology, physical science, or physics; and Mathematics 21 or equivalent.

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.

#### 170A-170B. Theoretical Oceanography (3-3)

Prerequisites for 170A: Mathematics 52 and Physics 4C. Prerequisite for 170B: 170A.

The application of hydrodynamics and thermodynamics to the system composed of the atmosphere and the oceans.

#### 196. Advanced Physical Science (1-3) I, II

Prerequisite: Consent of instructor.

Selected topics in classical and modern physical science. May be repeated for additional credit with new subject matter for a total of six units.

#### 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

#### 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.

## Physics

#### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

#### 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis in one of the physical sciences for the master's degree.

## PHYSICS

### IN THE COLLEGE OF SCIENCES

#### Faculty

Emeritus: Terhune

Professors: Clark, Garrison, Moe, Morris, Skolil, Smith, L., Snodgrass, Teasdale, Templin (Chairman), Wolter

Associate Professors: Nichols, Piserchio, Rehfuess, Wolf

Assistant Professors: Cottrell, Craig, Lilly, Roeder, Sarfart

#### Offered by the Department

Master of Arts or Master of Science degree in physics. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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.

Major in chemical physics with the B.S. degree in applied arts and sciences.

Minor in physics.

Teaching major in physics with specialization in both elementary and secondary teaching.

Teaching minor in physics with specialization in both elementary and secondary teaching.

### 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 graduation requirements listed on page 82 of this catalog. Students must choose French, German or Russian to meet the foreign language requirement for graduation.

Students majoring in physics must complete a minor in mathematics to include Mathematics 50, 51, and 52, or their equivalents, Mathematics 119, 170, and three units from Mathematics 121A, 150A, or 175. (Mathematics 104 is acceptable for students admitted to teacher education.) Additional mathematics is recommended for students planning graduate work in physics.

**Preparation for the Major.** Physics 4A-4B-4C or 50A-50B, 73, and Chemistry 1A-1B or 10A-10B, or their equivalents. (25 units.)

**Major.** A minimum of 24 upper division units in physics to include Physics 101, 105, 110, 112, 120A, 120B, 170, 175, and 190 or 198A and 198B. Students who plan to do advanced work in physics should include Physics 106, 114, 151, and 180 to have preparation acceptable for graduate work in physics. Electives must be approved by the department chairman.

### 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 78 of this catalog.

A minor is not required with this major for the B.S. degree.



## Physics

**Preparation for the major.** Physics 4A-4B-4C or 50A-50B, 73; Chemistry 1A-1B or 10A-10B; Mathematics 50, 51, and 52, or their equivalents. (38 units.)

**Major.** A minimum of 36-39 upper division units in physics and mathematics to include Physics 101, 105, 110, 112, 120A, 120B, 170, 198A, and 198B; Mathematics 119 and 170. The program planned in consultation with the departmental adviser for this degree must be designed to provide either a four-year terminal program or preparation to enter the graduate program toward a master of science degree. The remaining courses are to be prescribed by the department chairman. Concentrations in the areas of applied physics, physical electronics, nuclear physics and teacher education are available in this degree.

### CHEMICAL PHYSICS MAJOR

#### WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

**Preparation for the major.** Physics 4A-4B-4C or 50A-50B; Mathematics 50, 51, 52; Chemistry 1A-1B or 10A-10B, 5, and 12 (43 units).

**Major.** A minimum of 39 upper division units which must include Physics 101, 105, 110, 175, and 190; Chemistry 110A, 110B, 112, and 127A; Mathematics 119 and 170. The additional units are to be chosen from the following courses. At least one physics laboratory and one chemistry laboratory are to be taken from Physics 120A, 120B, Chemistry 111 and 155.

### PHYSICS MINOR

The minor in physics consists of from 15 to 22 units in physics, six units of which must be in upper division courses.

### PHYSICS MAJOR

#### FOR THE STANDARD 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.

##### Specialization in Elementary Teaching

The major in physics for elementary teaching is the same as the undergraduate major for the A.B. degree in liberal arts and sciences or for the B.S. degree in applied arts and sciences. All courses in the teaching major must be approved by the adviser in physics for teaching programs.

##### Specialization in Secondary Teaching

The major in physics for secondary teaching is the same as the undergraduate major for the A.B. degree in liberal arts and sciences or for the B.S. degree in applied arts and sciences. All courses in the teaching major must be approved by the adviser in physics for teaching programs.

**Postgraduate Year.** Six units of course work in physics after the bachelor's degree (unless the six units are taken in the minor).

### PHYSICS MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

##### Specialization in Elementary Teaching

The minor in physics for elementary teaching consists of not less than 20 units in physics. All courses must be approved by the adviser in physics for teaching programs. Students in Teacher Education using this teaching minor for the degree must include at least six upper division units in physics.

##### Specialization in Secondary Teaching

The minor in physics for secondary teaching consists of not less than 20 units in physics. All courses must be approved by the adviser in physics for teaching

## Physics

programs. Students in Teacher Education using this teaching minor for the degree must include at least six upper division units in physics. If the major for secondary teaching is non-academic, at least 12 upper division units of physics must be taken.

### LOWER DIVISION COURSES

Total credit in Physics 1A-1B, 2A-2B, 3A-3B, 4A-4B-4C, 50A-50B, and 5, limited to 12 units.

#### 1A-1B. Elementary Physics (5-5) I, II

Four lectures and three hours of laboratory.

Prerequisites: Two years of high school mathematics. Physics 1A is prerequisite to 1B. 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 1A is not open to students with credit in 2A; 1B not open to students with credit in 2B.

#### 2A-2B. General Physics (3-3) I, II

Prerequisites: Completion of high school physics. Physics 2A is prerequisite to 2B. Recommended: Concurrent registration in Physics 2A and 3A and in Physics 2B and 3B.

This course is for students in those liberal arts and preprofessional courses not requiring physics with calculus. Physics 2A is not open to students with credit in 1A; 2B not open to students with credit in 1B.

#### 3A-3B. Physical Measurements (1-1) I, II

Three hours of laboratory.

Prerequisite for 3A: Credit or concurrent registration in Physics 2A.

Prerequisite for 3B: Physics 3A and credit or concurrent registration in Physics 2B.

A laboratory course to accompany Physics 2A-2B. 3A: properties of matter, mechanics, heat and sound. 3B: electricity, magnetism, and light.

#### 4A-4B-4C. Principles of Physics (4-4-4) I, II

Three hours of lecture and three hours of laboratory.

Prerequisite for 4A: Completion of high school physics or equivalent, and credit or concurrent registration in Mathematics 50.

Prerequisites for 4B: Physics 4A with a grade of C or better and credit or concurrent registration in Mathematics 51.

Prerequisites for 4C: Physics 4B with a grade of C or better and credit or concurrent registration in Mathematics 52.

Certain students may, with consent of the Department, substitute credit in Mathematics 22 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.

#### 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 1A, 1B, 2A, 2B, 4A, 4B, or 4C.

#### 50A-50B. Principles of Physics (6-6) I, II

Five lectures and discussions and three hours of laboratory.

Prerequisite for 50A: High school physics, or Physics 1A-1B or 2A-2B; credit or concurrent registration in Mathematics 51. Not open to students with credit in Physics 4A.

Prerequisite for 50B: Physics 50A with a grade of C or better, and credit or concurrent registration in Mathematics 52.

Mechanics, wave motion, heat, electricity, optics, and atomic and nuclear physics. The calculus will be used.



## Physics

**73. Introductory Electronics (3) I, II**

Prerequisites: Physics 4B or 50B or 1B, or 2B and 3B, and a working knowledge of the calculus.

A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 103.

**99. Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 129. 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

**101. Modern Physics (3) I, II**

Prerequisite: Physics 4C or 50B.

Modern developments in physics, including an introduction to the quantum and relativity theories, and to the fields of atomic, nuclear and solid state physics.

**103. Basic Electronics (3) I, II**

Prerequisites: Physics 4B or 50B or 1B, or 2B and 3B, and a working knowledge of the calculus.

A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 73.

**105. Analytical Mechanics (3) I, II**

Prerequisites: Physics 4C or 50B and Mathematics 119.

Principles of Newtonian mechanics developed through the use of vector methods. Statics and dynamics of particles and rigid bodies.

**106. Optics (3) II**

Prerequisites: Physics 4C or 50B or 1B, or Physics 2B and 3B, and a working knowledge of the calculus.

Reflection, refraction, dispersion, interference, diffraction, double refraction and polarization, with applications to optical instruments, wave propagation, radiation, spectra and the nature of light.

**110. Electricity and Magnetism (3) I, II**

Prerequisites: Physics 4C or 50B; and credit or concurrent registration in Mathematics 119, and in Physics 73 or Physics 103.

Analysis of direct and alternating current circuits using the operator "j" and circuit theorems; introduction to coupled circuits, resonance and transients. Electrostatics; dielectrics and conductors. Chemical, photo and thermal effects. Electromagnetism, and magnetic properties.

**112. Thermodynamics and Kinetic Theory (3) I, II**

Prerequisites: Physics 4C or 50B and Mathematics 52.

Thermal properties of matter, laws of thermodynamics, kinetic theory of gases, and an introduction to statistical mechanics.

**114. Acoustics (3) I**

Prerequisites: Physics 73, 105, and 110.

Wave motion and its application to the production, transmission and reception of sound. Development of acoustic circuits using electro-acoustic analogs.

**120A-120B. Advanced Physical Measurements (2-2) I, II**

Six hours of laboratory.

Prerequisites: Physics 4C or 50B; and credit or concurrent registration in Physics 73 or Physics 103, and in Physics 110.

A year course stressing laboratory experiments and measurements chosen from all the major areas of physics.

**121. Radiation Physics (3)**

Two lectures and three hours of laboratory.

Prerequisites: Physics 1B or 2B and 3B, or Physics 5.

X-rays, radioactivity, interactions of radiations with matter, and methods of measurement. May not be used in the physics major. Not open to students with credit in Physics 101.

**122. Senior Physics Laboratory (2) I, II**

Six hours of laboratory.

Prerequisite: Physics 120B.

Advanced experimental measurements in the fields of classical and modern physics, in one of the following areas: acoustics, nuclear physics, heat and thermodynamics, advanced electronics, electricity and magnetism, microwaves, solid state physics, and analog computers. Combinations of two areas in one semester may be taken with consent of the instructor. May be repeated with new material to a maximum of four units.

**130. Physics for Elementary Teachers (3) I**

Basic concepts, methods, and materials of physics for the elementary school. Topics in classical and modern physics. Open only to elementary teachers and elementary teacher candidates. Not open to students with credit in Physics 4A-4B-4C or 50A-50B.

**133. Concepts of Physics (4) I**

Three lectures and three hours of laboratory.

Prerequisites: Mathematics 51 or Mathematics 22, and Physics 1B or 2B and 3B with grades of C or better.

Unifying concepts of physics; conservation of momentum and energy, wave-particle models, conservative fields, relativity, and statistical physics.

**135A-135B. PSSC Physics (3-3)**

Two lectures and discussions and three hours of laboratory.

Prerequisites: Physics 1A-1B or 2A-2B and 3A-3B.

A new approach to the study of major concepts of physics. Designed for those who plan to teach science. The course is based on test and laboratory materials prepared by the Physical Science Study Committee.

**148. Nuclear Physics Laboratory (3) II**

One lecture and six hours of laboratory.

Prerequisite: Physics 120B.

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.

**151. Nuclear Physics (3) I, II**

Prerequisites: Physics 112 and 190.

Nuclear phenomena, theory of the nucleus, cosmic rays, and high-energy reactions of particles.

**152. Transients in Linear Systems (3) I**

Prerequisites: Physics 110 and Mathematics 119.

Formulation and solution of equations of behavior of linear electrical and mechanical systems by the Laplace-transform method. Applications of the transform method to lumped parameter systems.

**155. Analog Computers (3) II**

Prerequisites: Physics 73, Mathematics 119, and 170.

Electronic integration and differentiation; solution of differential equations; multiplication, division and function generation; simulation of mechanical systems varying with time, solution of typical problems; auxiliary equipment, layout of large installations.

**156. Digital Computers (3) I**

Prerequisites: Physics 73, Mathematics 7, 119, and 170.

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.

**160. Circuit Analysis (3) II**

Prerequisites: Physics 73 and 110.

Filter design, transmission lines, and network analysis.



## Physics

### 163. Electronics Laboratory (2) I

Six hours of laboratory.

Prerequisites: Physics 120B and credit or concurrent registration in Physics 173A. Transistor characteristics, cathode ray oscillograph. One stage RC amplifier. One stage and multistage amplifiers including feedback. Equivalent circuits.

### 166. Honors Course (1-3) I, II

An individual study arrangement for students admitted to the Honors Program. Enrollment through the department chairman, subject to the approval by the Committee on Honors. Refer to the Honors Program.

### 167A. Semiconductor Devices (3) I

Prerequisite: Physics 73.

Semiconductor physics, diode and transistor mechanisms, equivalent circuits and applications, thermal stability, switching theory and applications.

### 167B. Semiconductor Devices (3) II

Prerequisites: Physics 167A and 101.

Field effect devices, semiconductor lasers and photo detectors, four layer devices including SCR's, tunnel diodes, varactors and other microwave devices, thermoelectricity, Hall effect.

### 170. Electromagnetic Theory (3) I, II

Prerequisites: Physics 110 and credit or concurrent registration in Mathematics 170.

Electrostatics and magnetostatics treated by vector methods; Maxwell's equations. electromagnetic induction, radiation and wave propagation.

### 173A. Physical Electronics (3) I

Prerequisites: Physics 101, 110, 112, and Mathematics 170.

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.

### 173B. Physical Electronics (3) II

Prerequisites: Physics 160 and 173A, each with a minimum grade of C and credit or concurrent registration in Physics 163.

Field approach to transmission lines, coaxial cables, wave guides, resonant cavities, stub matching, radiation and antenna phenomena, interaction of fields and electronic beams and power extraction from fields.

### 175. Advanced Mechanics (2) I

Prerequisites: Physics 105 and Mathematics 119.

Special theory of relativity, generalized coordinates, Lagrangian and Hamiltonian formulations, normal coordinates and theory of vibrations.

### 180. Solid State Physics (3) II

Prerequisites: Physics 101, 112, and 170.

Elastic, thermal, electric, magnetic and optical properties of solids. Introduction to the energy band theory of solids, with applications to dielectrics, semi-conductors, and metals.

### 190. Introductory Quantum Mechanics (3) I, II

Prerequisites: Physics 101, 105, 112, Mathematics 119 and 170.

The physical basis of the quantum theory and its mathematical formulation in terms of Schroedinger's wave equation.

### 196. Advanced Physics (2 or 3)

Prerequisite: Consent of instructor.

Selected topics in classical and modern physics. May be repeated with the approval of the instructor for a total of six units.

## Physics

### 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.

### 198B. Senior Research (2) I, II

Two discussion periods and four additional hours per week to be arranged.

Prerequisite: Physics 198A with grade of C or better.

Laboratory work, progress reports, oral and written final reports.

### 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. Six units maximum credit.

## GRADUATE COURSES

### 200. Seminar (2 or 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.

### 205. Theoretical Mechanics (3)

Prerequisite: Physics 175.

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.

### 210A-210B. Mathematics of Physics (3-3)

Prerequisites: Mathematics 119 and 170 or equivalent. Physics 210A is prerequisite to Physics 210B.

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.

### 214. Advanced Acoustics (2)

Prerequisite: Physics 114.

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.

### 219. Statistical Mechanics (3)

Prerequisites: Physics 112, 175, and 190.

Classical and quantum statistics, kinetic theory, low pressure phenomena, Boltzmann transport equation, irreversible processes.

### 220. Radiation Physics (2) I

Prerequisites: Physics 148 and 151.

Topics in nuclear radiation phenomena, including interaction of radiation with matter; radiation detectors.

### 221. Radiological Physics (2) II

Prerequisites: Physics 148 and 151.

Topics and problems in radiological physics.

### 245A-245B. Reactor Theory (2-2)

Prerequisite: Physics 151 and 190.

Theory of chain reactions and their application to the operation of various types of reactors. Kinetics, theoretical design, and control of reactors in relation to the fundamental nuclear processes.



## Political Science

### 248. Reactor Laboratory (2)

Prerequisites: Chemistry 170, Physics 148, and concurrent registration in Physics 245A-245B.

Measurement of the static and dynamic characteristics of a reactor. Reactor operation, reactor radiation, neutron flux properties and temperature effects. Use of the reactor as an experimental tool.

### 251. Nuclear Physics (3)

Prerequisites: Physics 151, 175, and 190.

Theory of nuclear forces, nuclear reactions, interaction of radiation with matter, radioactivity, nuclear structure and high energy physics.

### 260. Advanced Electronics (3)

Prerequisite: Physics 173B.

Advanced topics in contemporary electronics.

### 270A-270B. Electromagnetic Theory (3-3)

Prerequisite: Physics 170. Physics 270A is prerequisite to 270B.

Boundary value problems; time varying electric and magnetic fields; propagation of radiation; antennas, wave guides.

### 275A-275B. Quantum Mechanics (3-3)

Prerequisites: Physics 151, 175. Physics 275A is prerequisite to 275B.

Quantum theory of radiation, molecular and nuclear systems. Approximation methods.

### 280. Theory of the Solid State (3)

Prerequisites: Physics 175, 180, and 190.

The band theory of solids, with applications to the electrical and optical properties of dielectrics, semi-conductors, and metals.

### 297. Research (1-3)

Prerequisite: Consent of department chairman.

Research in one of the fields of physics. Maximum credit six units applicable on a master's degree.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis in physics for the master's degree.

## POLITICAL SCIENCE

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Professors: Bushnell, Feierabend, Generales, Gripp, Janssen, Leiffer, Padgett  
Associate Professors: Andrain, Crain, Hobbs, Johns (Acting Chairman), Kahng, Miles

Assistant Professors: Anderson, Byrne, Conniff, Cutter, Jutkowitz, Keiser, Lewin, Moe, Nesvold, Pedersen, Schultze, Terrell  
Lecturer: Crippens

#### Offered by the Department

Master of Arts degree in political science (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in political science with the A.B. degree in liberal arts and sciences.

Minor in political science.

Teaching minor in political science with specialization in secondary teaching.

## 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 82 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 1, 2, 3, and a three unit course in statistics.

**Major.** A minimum of 24 upper division units to include (a) three units in Political Science 128 or 197, 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 II.

Group I, Research Methods. Courses numbered 100 to 104.

Group II, Political Theory. Courses numbered 105 to 114.

Group III, Politics. Courses numbered 115 to 134.

Group IV, Public Law. Courses numbered 135 to 139.

Group V, International Relations. Courses numbered 165 to 179.

Group VI, Comparative Government. Courses numbered 180 to 195.

### POLITICAL SCIENCE MINOR

The minor in political science consists of from 15 to 22 units in political science, to include Political Science 1 and 2 (or 1 and 3), six units of upper division political science, and electives in political science to complete the minor.

### POLITICAL SCIENCE MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

##### Specialization in Secondary Teaching

The minor in political science for secondary teaching consists of not less than 20 units to include six units of lower division work and the remaining 14 or more units in upper division courses under advisement.

#### PROGRAMS FOR GOVERNMENTAL SERVICE

Students preparing to work in government service may wish to follow one of the programs named above, take minor work in political science or public administration, or advanced study for a master's degree. Also available is a program in Latin American Studies.

#### GRADUATION REQUIREMENT IN AMERICAN INSTITUTIONS

The graduation requirement in American institutions, to include demonstration of competency in U.S. history, U.S. Constitution, and California government, may be met by satisfactory completion of appropriate tests and courses listed in one of the following groups:

(1) Political Science 1 and 2.

(2) Political Science 115, and 117 or 118 or Public Administration 142 or 143.

For further information on American Institutions, refer to the section of this catalog on Graduation Requirements.

#### LOWER DIVISION COURSES

##### 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 1 and 2 will meet all requirements in American Institutions.

##### 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.



## Political Science

Completion of both Political Science 1 and 2 will meet all requirements in American Institutions. Political Science 2 will meet the requirements in U.S. Constitution and California government.

### 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.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### Research Methods (Group I)

#### 100A-100B. Research Methods in Political Science (3-3)

Prerequisite: Political Science 1, 2, and a three unit course in statistics. Political Science 100A is a prerequisite to Political Science 100B.

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.

### Political Theory (Group II)

#### 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.

#### 111A-111B. Theory of the State (3-3)

Prerequisite: Political Science 111A is prerequisite to 111B.

The nature of the State, its organization and activities, and its relation to the individual and other states.

#### 112. Modern Political Thought (3) I, II

Concepts concerning the nature of the state from Burke to the present.

#### 113. The Theory of Political Inquiry (3)

Prerequisite: Political Science 1, 2, and 3.

Philosophical bases of science with reference to political science. Concepts, concept formation, theory building, and verification.

#### 114. Problems in Political Theory (3)

Prerequisite: Six units of upper division political theory.

Research methods in political theory; intensive development of selected issues.

### Politics (Group III)

#### 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 117 or 118, or Public Administration 142 or 143 will also meet requirements in American history, institutions, and ideals. Not open to students with credit in Political Science 2.

#### 116. American National Government (3) I, II

Prerequisite: Political Science 2 or 115, or History 17A and 17B.

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.

#### 117. State and Local Government (3)

A study of public policy-making within the context of statewide politics, state-federal and state-local relations, including both official and unofficial institutions.

## Political Science

Emphasis on California. Meets the graduation requirement in California Government. (Formerly numbered and entitled: Political Science 142, State Government; and Political Science 143, Municipal and County Government.)

#### 118. Urban Politics (3)

Prerequisite: Political Science 1 or 2.

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. (Formerly numbered and entitled: Political Science 148, Government and Politics of Metropolitan Areas.)

#### 119. Community Political Behavior (3)

Prerequisite: Political Science 1 or 2.

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. (Formerly numbered Political Science 150.)

#### 120. Political Parties (3) I, II

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.

#### 121. Political Behavior (3)

Prerequisite: Political Science 1.

Social and attitudinal variables in political behavior. Quantitative research data as used in electoral studies. (Formerly numbered Political Science 124.)

#### 122. Political Communication (3)

Prerequisites: Political Science 121.

Communication as a political process; the effects of political communications on individuals and groups.

#### 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.

#### 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.

#### 127A-127B. Constitutional Government (3-3)

Modern government and politics; its theoretical foundations, institutions, and problems. Emphasis will be on American experience with useful comparisons with other countries. Either semester may be taken first.

#### 128. Internship in Politics (2-6) I, II, S

Prerequisites: Political Science 120 and consent of instructor.

Students will be assigned selectively to functional areas of politics, such as political party headquarters, elective public offices and non-partisan political groups for work under joint supervision of activity heads and the course instructor. Participation will include project and internship conferences.

#### 130. Government and Public Policy (3)

Prerequisite: Political Science 116 or 117.

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. (Formerly numbered Political Science 147.)



## Political Science

### Public Law (Group IV)

#### 135. The Supreme Court and Contemporary Issues (3)

Recent decisions of the Supreme Court of the United States and their relationship to contemporary political and social issues. Not open to students with credit in Political Science 139A or 139B.

#### 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.

#### 139A-139B. American Constitutional Law (3-3)

Prerequisite: Political Science 139A is prerequisite to 139B.

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.

### Honors Course

#### 166. Honors Course (1-3), I, II

Refer to the Honors Program.

### International Relations (Group V)

#### 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.

#### 168-S. Institute on World Affairs (3) S

Contemporary problems in international relations. May be repeated once for course credit with permission of the instructor.

#### 170A-170B. International Relations (3-3)

A 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." Fall semester: Origins and development through the nineteenth century. Spring semester: Twentieth century experimentation and conflict.

#### 171. The Conduct of American Foreign Relations (3) I

The legal, administrative, and political organizations by which American foreign policies are formulated and implemented.

#### 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.

#### 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.

#### 174. National Security Policy (3)

Objectives, instruments, and consequences of national security policy.

#### 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.

#### 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.

## Political Science

#### 177. Comparative Foreign Policies (3)

Prerequisite: Six units of political science.

Comparison of foreign policies of nations in various regional, socio-economic, and ideological areas.

### Comparative Government (Group VI)

#### 180. Government of England (3) II

The structure and functioning of the English parliamentary system with emphasis upon present day political principles and parties.

#### 181. Government of the Soviet Union (3) I

Theory and practice of government in the Soviet Union, with some attention to foreign affairs.

#### 183. Governments and Politics of South and Southeast Asia (3)

The internal political systems and foreign policies of India, Pakistan, Thailand, and Indochinese area, Indonesia, and the Philippines.

#### 184. The Mexican Political System (3)

Prerequisite: Political Science 1 or 3.

Principal factors in Mexican governmental decision-making. Ideology, political groups, tactics of leaders and governmental structure.

#### 185. Governments of Continental Europe (3) I, II

The political systems of the countries of western continental Europe.

#### 186. Comparative Communist Governments (3) I, II

The interrelations between the theory and practice of modern communism as found in representative communist systems.

#### 187. Governments and Politics of the Far East (3)

The internal political structure and foreign policies of China, Japan, and Korea.

#### 188. Governments and Politics of the African States (3) I

Domestic and international politics of specific African states.

#### 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.

#### 190. Comparative Political Systems (3) I, II

Prerequisite: Political Science 3.

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.

#### 191. Governments and Politics of the Developing Areas (3) I, II

Prerequisite: Political Science 1 or 3.

Internal political systems, governmental structures, and the foreign policies of developing nations.

#### 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.

#### 193. Proseminar in Cross-National Studies (3)

Prerequisites: Political Science 3 and Political Science 100A.

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.

#### 194. Political Change in Latin America (3)

Prerequisite: Political Science 1 or 3.

General pattern of politics and political development in Latin America with an emphasis on those features which condition domestic and foreign policy-making.



## Political Science

### 195. Political Systems of Latin America (3)

Prerequisite: Political Science 194.

Domestic and international politics of selected Latin American states.

### 196-S. Institute of Public Affairs (1-3) S

Study of selected phases of American or Comparative Government. May be repeated to a maximum of six units of course credit with new content and consent of instructor.

### 197. Investigation and Report (3) I, II

Analysis of special topics. Admission by permission of instructor.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisites: Twelve units of upper division political science and consent of the instructor.

## GRADUATE COURSES

### 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.

### 210. Seminar in Political Theory (3)

Maximum credit six units applicable on a master's degree.

### 215. Seminar in American National Government (3)

Maximum credit six units applicable on a master's degree.

### 220. Seminar in Politics (3)

Prerequisite: Six units of upper division political science, three units of which must come from Political Science courses 115 through 134.

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.

### 221. Seminar in Political Participation (3)

Prerequisite: Six units of upper division political science, three of which must be from Political Science courses 115 through 134.

American political culture and subculture groupings as related to various dimensions of political behavior.

### 225. Seminar in the Legislative Process (3)

Prerequisite: Six units of upper division political science.

Legislative institutions and processes. Emphasis on U.S., national, state, and local legislatures.

### 226. Seminar in Political Psychology (3)

(Same course as Psychology 226.)

Prerequisites: Six units selected from Psychology 110, 112, 145; Political Science 100A-100B, 121, 122, 190.

Psychological factors on the individual's political behavior; psychological theory as it applies to political variables such as: ideology, conflict, consensus, and participation.

### 230. Seminar in Public Law (3)

Maximum credit six units applicable on a master's degree.

### 250. Seminar in Local Government (3)

Selected problems of state and local government and inter-governmental relations. Maximum credit six units applicable on a master's degree.

### 255. Seminar in Metropolitan Government and Politics (3)

Prerequisite: Political Science 117 or 118 or 119.

Government and politics in the world's major metropolitan areas. Maximum credit six units applicable on a master's degree.

## Political Science

### 270. Seminar in International Relations (3)

Maximum credit six units applicable on a master's degree.

### 272. Seminar in International Organization (3)

Prerequisite: Political Science 172.

Analysis of selected problems of international organization with special reference to those of the United Nations. Oral and written reports.

### 275. Seminar in Theories of International Relations (3)

Prerequisite: Political Science 170A or 170B.

Theoretical concepts used in the study of international political systems. Maximum credit six units applicable on a master's degree.

### 280. Seminar in General Comparative Political Systems (3)

Prerequisites: Political Science 190 or 191, and three additional units of upper division 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.

### 281. Seminar in Western Political Systems (3)

Prerequisites: Six units of upper division 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.

### 282. Seminar in the Political Systems of the Developing Nations (3)

Prerequisites: Six units of upper division 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.

### 283. Seminar in Latin American Political Systems (3)

Prerequisites: Political Science 190 or 191, and three additional units of upper division political science.

Political developments in selected Latin American nations, with an emphasis on the Mexican political systems.

### 284. Seminar in Communist Political Systems (3)

Prerequisites: Six units of upper division 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.

### 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.

### 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 projects or thesis.

### 297. Research in Political Science (3)

Prerequisite: Consent of department chairman.

Research in political theory, political parties, comparative government, international relations, public law, or American government.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with the department chairman and instructor.



## Portuguese/Psychology

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## PORTUGUESE

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Assistant Professor: Windsor

#### Offered by the Department of Spanish and Portuguese

Courses in Portuguese.

Major or minor work is not offered.

### LOWER DIVISION COURSES

#### 1. Elementary (4)

Four lectures and one hour of laboratory.  
Pronunciation, oral practice, reading on Luso-Brazilian culture and civilization, essentials of grammar.

#### 2. Elementary (4)

Four lectures and one hour of laboratory.  
Prerequisite: Portuguese 1.  
Continuation of Portuguese 1.

#### 3. Intermediate (4)

Prerequisite: Portuguese 2.  
A practical application of the fundamental principles of grammar. Reading in Portuguese of cultural material, short stories, novels or plays; oral practice.

#### 4. Intermediate (4)

Prerequisite: Portuguese 3.  
Continuation of Portuguese 3.

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

#### 134. Portuguese Literature (3)

Prerequisites: Portuguese 131 and 132 with grade of C or better.  
A study of important movements, authors and works in the literature of Portugal from its beginnings to the present.

#### 135. Brazilian Literature (3)

Prerequisites: Portuguese 131 and 132 with grade of C or better.  
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, Steinmetz, Treat

Professors: Alf, Dicken, Grossberg, Harrison, Hillix, Hunrichs, Kaplan, Kass, Kinnon, Leukel, McCollom, O'Day, Penn (Chairman), Radlow, Rumbaugh, Stevens, Turner, Voeks

## Psychology

Associate Professors: Feierabend, Gallo, Gilbreath, Harari, Karen, Koppman, Leckart, Levine, Linton, Lynn, McDonald, Parker, Psomas, Sand, Sattler, Schulte, Smith, J.

Assistant Professors: Bowen, Emami, Franzini, Graf, Gunderson, Hornbeck, Hufford, Jacobson, McCordick, Ohnesorge, Pollack, Richards, Rodin, Sheposh, Spear, Yaremko

Lecturers: Johnson, Wertz

#### Offered by the Department

Master of Arts degree in psychology; a Master of Arts degree for teaching service with a concentration in psychology; and a Master of Science degree in psychology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in psychology with the A.B. degree in liberal arts and sciences.

Major in psychology with the A.B. degree in applied arts and sciences for students admitted to Secondary Teacher Education.

Minor in psychology.

Teaching major in psychology with specialization in secondary teaching.

Teaching minor in psychology with specialization in both elementary and secondary teaching.

### 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 82 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 40 and 50. 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 106, 131, 145, and 150. 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 159, 160; Economics 102; and courses in home economics.

#### 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.** Psychology 40, 50, and 70. 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 105, 110, 178, and one of the following: 111, 112, 113, 114, 115, 116, 117, or 118; and ten units selected from courses in consultation with the departmental adviser.



## Psychology

### PSYCHOLOGY MAJOR

#### WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

##### (For students in Secondary Teacher Education)

This major is available in applied arts and sciences only to students who have been admitted to and continue in Teacher Education to time of graduation.

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Psychology 40, 50, and 70. 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 105, 110, 131, 151, and twelve additional units in psychology selected with approval of the departmental adviser.

### PSYCHOLOGY MINOR

The minor in psychology consists of from 15 to 22 units in psychology, nine units of which must be in upper division courses.

### PSYCHOLOGY MAJOR

#### FOR THE STANDARD 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.

##### Specialization in Secondary Teaching

The major in psychology for secondary teaching is the same as the undergraduate major for the A.B. degree in applied arts and sciences described above.

**Postgraduate Year.** Six units of postgraduate courses acceptable toward the credential.

### PSYCHOLOGY MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

##### Specialization in Elementary Teaching

The minor in psychology for elementary teaching consists of 21 units to include in the lower division, Psychology 1 and one other three-unit course in psychology; and in the upper division, Psychology 106, 131, 145, and six units of electives from upper division psychology courses.

##### Specialization in Secondary Teaching

The minor in psychology for secondary teaching consists of 21 units to include in the lower division, Psychology 1 and one other three-unit course in psychology; and in the upper division, Psychology 106, 131, 145, and six units of electives from upper division psychology courses.

#### LOWER DIVISION COURSES

##### 1. General (3) I, II

Facts, principles, and concepts which are basic to understanding human behavior.

##### 2. Studies in General Psychology (3)

Prerequisite: Psychology 1.

Readings in great experiments from various fields of psychology to illustrate scientific method applied to human behavior. Lectures, demonstrations, and participation in classroom experiments to emphasize scientific method as a way of thinking. Designed as a general course for non-majors.

## Psychology

##### 3. Psychology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Psychology 1.

Application of experimental methods to psychological problems. Includes design and execution of experiments.

##### 11. Applied Psychology (3) I, II

Prerequisite: Psychology 1.

The application of the basic principles of psychology to business, education, industry, government, law, medicine and related fields.

##### 12. Psychology of Individual Adjustment (3) I, II

Prerequisite: Psychology 1.

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.

##### 40. Principles of Learning and Perception (3) I, II

Prerequisite: Psychology 1.

The nature of psychological inquiry. Emphasis on principles and basic experimental data of learning and perception.

##### 50. Introduction to Physiological Psychology (3) I, II

Prerequisite: Psychology 1.

Physiological mechanisms underlying the psychological phenomena of sensation, perception, emotion, motivation, learning and psychosomatic disorders.

##### 70. Statistical Methods in Psychology (3) I, II

Prerequisites: Psychology 1 and Mathematics 3 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 for, or concurrent enrollment in, another statistics course.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

##### 100. Selected Topics in Psychology (1-3)

Prerequisite: Six units of psychology.

An intensive study in specific areas of psychology, topic to be announced in the class schedule.

##### 105. Psychological Testing (3) I, II

Prerequisite: One of the following courses: Psychology 70, Education 120, 151, or 152, or a semester of statistical methods in any other department.

The basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement.

##### 106. Developmental Psychology (3) I, II

Prerequisite: Psychology 1.

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.

##### 107. Psychology of Later Maturity (3) II

Prerequisite: Psychology 1.

The psychological, physiological, and sociological factors influencing behavior in the later years of life.



## Psychology

### 108. Advanced Developmental Psychology (3) I, II

Prerequisite: Psychology 106.

Selected topics in the areas of infancy, childhood and adolescence.

### 109. Mental Deficiency (3) I, II

Prerequisite: One of the following: Psychology 106, Education 110, 112, 113, or equivalents.

The nature and causes of mental retardation, including the psychological effects of brain injury. Characteristics of the mentally defective.

### 110. Introduction to Experimental Psychology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 40 and 70.

Understanding of experimental design, quantitative methods, and experimental reports as they are applied to all areas of psychology.

### 111. Experimental Psychology: Perception (4)

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of perception.

### 112. Experimental Psychology: Social (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of social psychology.

### 113. Experimental Psychology: Physiological (4)

Two lectures and six hours of laboratory.

Prerequisites: Psychology 50 or 142 or six units of biology; and Psychology 110.

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.

### 114. Experimental Psychology: Comparative (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of comparative psychology.

### 115. Experimental Psychology: Personality and Clinical (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 110 and 150.

Experimental and theoretical literature, assigned and original laboratory projects in the field of personality and clinical psychology.

### 116. Experimental Psychology: Learning (4)

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of learning.

### 117. Experimental Psychology: Primate Behavior (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original observational and experimental projects in the field of primate learning and behavior.

### 118. Experimental Psychology: Child Development (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 106 and 110.

Methods, techniques and principles used in the scientific study of child behavior.

## Psychology

### 120. Consumer Psychology (3) I, II

Prerequisite: Six units of psychology.

A review of the research literature and methods relevant to the individual as a consumer in our society. Attitudes, values, and decision making abilities of people when functioning as a consumer.

### 121. Personnel and Industrial Psychology (3) I, II

Prerequisite: Psychology 70 or statistics in another field.

Psychological principles applied to industrial problems of selection, placement, training, development, and motivation of employees.

### 122. Public Opinion Measurement (3) I

(Same course as Journalism 122)

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.

### 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.

### 124. Engineering Psychology (3) I, II

Prerequisite: Psychology 1.

Psychological problems of man-machine systems. Visual, auditory, and other sensory factors involved in the interrelations between man and machines. Survey of origin and basic data of engineering psychology.

### 125. Human Factors Psychology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 1 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 systems. Government and industry job requirements, routines and practices.

### 131. Psychology of Personality (3) I, II

Prerequisite: Six units of psychology.

The principles of personality and their application to problems of adaptation and mental hygiene.

### 133. Principles of Interviewing (3)

Prerequisite: Six units of psychology. Recommended: Psychology 12 or 131.

Psychological factors in interviewing; interviewing techniques. Supervised practice in interviewing for purposes of personnel appraisal and development.

### 141. Neural Bases of Behavior (4) I, II

Two lectures and three hours of laboratory.

Prerequisites: Psychology 50 or six units in the biological sciences.

Elements of neurology and psychobiology with emphasis on sensory, central, and motor mechanisms.

### 142. Physiological Psychology (3) I, II

Prerequisites: Psychology 40 and 50 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.

### 145. Social Psychology (3) I, II

Prerequisite: Psychology 1.

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 140.



## Psychology

### 146. Advanced Topics in Social Psychology (3)

Prerequisites: Psychology 40 and 145.

An intensive exploration of selected areas within social psychology. Maximum credit six units with the approval of the instructor.

### 147. Psychology of Contemporary Social Problems (3)

Prerequisite: Psychology 1.

Discussion of social issues and problems of importance to the contemporary world, from the point of view of psychological theory, method and knowledge.

### 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.

### 151. Introduction to Clinical Psychology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 105 and 150.

History and current status of the profession; professional ethics and interprofessional concerns; clinical assessment and prediction; theory and practice of behavior change.

### 152. Introduction to Methods of Counseling (3) I, II

Two lectures and two hours of activity periods.

Prerequisites: Senior standing in psychology or presocial work, and consent of instructor.

An introduction to problems and methods of counseling and adjustment. The utilization of psychological principles and techniques in dealing with various types of guidance situations. Not open to students with credit in Psychology 233 or Education 233.

### 153. Advanced Abnormal Psychology (3)

Prerequisite: Psychology 150.

An intensive study and evaluation of research methodology and current literature concerning the neuroses, psychoses, aphasia, ataxia, mental defect, and psychopharmacology.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 167A-167B. Statistical Method and Experimental Psychology (4-4)

Prerequisites: Psychology 40 and mathematical aptitude examination. (See Honors Program.)

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 70 and 110.

### 170. Advanced Statistics (3) I, II

Prerequisite: Psychology 70.

A further study of quantitative methods in psychology with particular emphasis on methods of correlation, chi-square, and contingency, and an introduction to the analysis of variance.

### 171. Intermediate Correlational Analysis (3)

Prerequisite: Psychology 70.

Quantitative methods in psychology with emphasis on methods of correlation, multiple correlation, partial correlation, and factor analysis.

### 174. Theories of Perception (3) I, II

Prerequisite: Psychology 110.

Study of research and theory in the areas of sensation, perception, and attention.

### 175. Theories of Learning (3) I, II

Prerequisites: Psychology 1, 40, and 70.

The facts, principles, and major theories of learning.

## Psychology

### 176. Principles and Practice of Personnel Training (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 121, 175, and consent of instructor.

Techniques and apparatus appropriate for training of personnel. Supervised practice in analyzing training needs, designating required terminal behavior, devising a training technique, writing and validating a training aid.

### 177. History of Psychology (3) I, II

Limited to psychology majors with senior standing.

The historical background of modern psychology.

### 178. Theories of Personality (3) I, II

Prerequisites: Major in psychology and six upper division units in psychology.

Representative personality theories and supporting evidence.

### 179. Philosophical Issues in Psychology (3) II

Prerequisite: Twelve units in psychology.

Modern empiricism and the philosophy of science as related to issues in contemporary psychology.

### 180-S. Contemporary Problems in Psychology (1) S

Lectures open to the public.

Enrollment for credit limited to upper division and graduate majors in psychology; or consent of instructor.

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.

### 197. Senior Project (1-3) I, II

Prerequisites: Twelve units in psychology and consent of instructor.

An individual investigation and report on a research project. Maximum credit six units.

### 199. Special Study (1-3) I, II

Individual study, including library or laboratory research and a written report. Six units maximum credit.

Prerequisite: 24 upper division units of psychology or consent of instructor.

## GRADUATE COURSES

### 200. Seminar (3)

Prerequisite: 24 upper division units of psychology or consent of instructor.

An intensive study in advanced psychology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

### 201. Seminar (3)

Prerequisites: 24 units in psychology, which may include educational psychology courses in the Education Department.

A review, integration, and supplementation of the student's knowledge of psychology.

### 202A-202B. Contemporary Psychology (3-3)

Prerequisite: Bachelor's degree in psychology.

A comprehensive survey of contemporary literature in psychology, dealing with recent developments in the areas of learning and motivation, perception, psychophysiology, personality and psychodynamics, social behavior, and experimental inference.

### 204. Psychological Assessment I (4)

Two lectures and six hours of laboratory.

Prerequisites: Psychology 105, 150, 178, and consent of the graduate adviser.

Theory and practice in assessment of intelligence and special abilities.

### 205. Psychological Assessment II (4)

Two lectures and six hours of laboratory.

Prerequisites: Psychology 151, 204, and consent of the graduate adviser.

Theory and practice in assessment of personality and behavior disorders.



## Psychology

### 211. Behavior Disorders of Childhood and Adolescence (3)

Two lectures and three hours of laboratory.  
Prerequisites: Psychology 106, 150, 151, and consent of the graduate adviser.  
Contemporary approaches to emotional and behavioral problems of children and youth. Considers developmental, cognitive, and social variables as well as theory and treatment.

### 212. Behavior Disorders of Adults (3)

Two lectures and three hours of laboratory.  
Prerequisites: Psychology 150, 151, and consent of the graduate adviser.  
Contemporary approaches to emotional and behavioral problems of adults. Considers developmental, cognitive and social variables as well as theory and treatment.

### 219. Seminar in Personnel Psychology (3) Offered once a year

Prerequisites: Psychology 121, and consent of the 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.

### 220. Seminar in Organizational Psychology (3)

Prerequisite: Psychology 121 or Business Administration 145, and consent of the 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.

### 221. Seminar in Problems in Social Psychology (3)

Prerequisites: Psychology 110, 145, 175, and consent of the 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.

### 222. Seminar in Theoretical Psychology (3)

Prerequisites: Psychology 175, 178, and consent of the graduate adviser.  
Basic concepts and principles integrating information in the areas of learning, emotion, motivation, personality, and social interaction. Relationships of scientific methods to the formation and testing of hypotheses and other conceptualizations.

### 223. Experimental Design (3)

Prerequisites: Psychology 110, 170, and consent of the 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.

### 224. Advanced Experimental (3)

One lecture and six hours of laboratory.  
Prerequisite: Psychology 223, and consent of the graduate adviser.  
Methods, techniques, and apparatus applicable to questions of various types. Special attention is given to sources of error, limitations on interpretation, and psychophysical methods. Students will design and carry out experiments in preparation for original independent investigations.

### 225. Principles of Test Construction (3)

Prerequisites: Psychology 105, 170, and consent of the graduate adviser.  
Detailed consideration of adequate sampling techniques, item construction, item analysis, determination and enhancement of reliability and validity of tests.

### 226. Seminar in Political Psychology (3)

(Same course as Political Science 226.)  
Prerequisites: Six units selected from Psychology 110, 112, 145, Political Science 100A-100B, 121, 122, 190; and consent of the graduate adviser.

## Psychology

Psychological factors on the individual's political behavior; psychological theory as it applies to political variables such as: ideology, conflict, consensus, and participation.

### 230. Seminar in Physiological Correlates of Behavior (3)

Prerequisites: Psychology 50, 113 or 142, or nine units of biology; and consent of the graduate adviser.  
An exploration of current research and theory in physiological psychology with emphasis on behavioral correlates and psycho-physiology.

### 231. Seminar in Ethology and Comparative Psychology (3)

(Same course as Biology 231.)  
Prerequisite: Psychology 114 or Biology 110, and consent of the graduate adviser.  
Current problems in ethology and comparative animal behavior. Maximum credit six units applicable on a master's degree.

### 233. Counseling and Psychotherapy Laboratory (4)

Two lectures and six hours of laboratory.  
Prerequisites: Psychology 110, 151, 152, 175, and 178, and consent of the graduate adviser.  
Supervised research and practice in interpersonal encounter, with emphasis on the attainment of personality change.

### 270. Statistical Theory (3) I, II

Prerequisites: Psychology 70, 105, and consent of the graduate adviser.  
Study of quantitative methods in psychology with emphasis on theories of chi-square, and the analysis of variance and co-variance.

### 275. Advanced Principles of Learning (3) I, II

Prerequisites: Psychology 110, and consent of the graduate adviser.  
The empirical data, basic principles and theoretical positions of major learning theorists.

### 277. Seminar in the History of Psychology (3) I, II

Prerequisites: Psychology 110, and consent of the graduate adviser.  
The history of modern psychology.

### 296. Directed Field Experience (1-3)

Limited to classified graduate students in psychology, with appropriate qualifications in a field of professional skill.  
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.

### 297. Research (1-3)

Research in one of the fields of psychology. Maximum credit six units applicable on a master's degree.

### 298. Special Study (1-3)

Prerequisite: Consent of instructor.  
Individual projects involving library or laboratory research in any area of psychological investigation or interest. Maximum credit six units.

### 299. Thesis (3)

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.



## PUBLIC ADMINISTRATION AND URBAN STUDIES

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Professors: Bigger, Haak, Kitchen, Walker, Wilcox (Director)  
Assistant Professors: Clapp, Gazell, Gitchoff, Hamilton, Walshok  
Lecturers: Corso, Morris

#### Offered by the Department

Master of public administration and a Master of city planning. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in public administration with the A.B. degree in applied arts and sciences.  
Major in criminal justice administration with the B.S. degree in applied arts and sciences.

Minor in public administration.

Certificate 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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Political Science 2 and Economics 1A-1B. (9 units.) A three-unit course in statistics must be taken either in lower division or as part of the upper division courses in the major.

**Major.** A minimum of 36 upper division units to include Public Administration 140 and 197, or 198; Economics 131 or Public Administration 162, and additional upper division courses to complete the major, selected with approval of the departmental adviser, including a three-unit course in statistics if not taken in the lower division.

#### 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 listed on page 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Political Science 2, Sociology 1, and a lower division course in statistics. Students who plan to enter police work are strongly advised to take a minimum of 21 units of lower division course work in police science at an institution offering work in this field.

**Major.** A minimum of 36 upper division units to include Political Science 105, Public Administration 140, and 197 or 198; six units selected from Public Administration 116, Sociology 110, 113, 114, 123, 125, 140, 157; and twenty-one additional units selected from these sociology courses, or from Political Science 122, Public Administration 110, 111, 112, 116, X141, 143, 144, 146, 147, 148, 152; Social Welfare 180; Psychology 106, 150.

#### PUBLIC ADMINISTRATION MINOR

The minor in public administration is available to students majoring in fields other than public administration. The minor consists of from 15 to 22 units to include Political Science 2, Public Administration 140, and six units of upper division courses selected from Public Administration 197, 198, or other upper division courses approved by an adviser in public administration.

#### CERTIFICATE IN PUBLIC ADMINISTRATION

A Certificate in Public Administration (a non-degree program) is also offered. The certificate program is designed primarily for persons who hold administrative or managerial positions and those who seek to prepare for such responsibility.

Previous academic experience is not a prerequisite for beginning work on the certificate program. Candidacy will be established, however, by approval of the Director of the Public Administration Certificate Program. To receive the Certificate in Public Administration, the candidate must complete an approved pattern of eight courses, with a grade point average of 2.5.

Candidates for this certificate program may obtain further information on requirements by writing to the Director, Public Administration Certificate Program, San Diego State College.

#### UPPER DIVISION COURSES

##### Public Administration (Group I)

##### 110. Law Enforcement Administration (3)

Prerequisite: Sociology 1.

Administrative relationships within the criminal justice process with special reference to problems of courts and police and probation agencies.

##### 111. Administration of Juvenile Justice (3)

Prerequisite: Sociology 114 or Public Administration 110 or 146.

Administration of programs for treatment of juvenile offenders by police, probation and courts.

##### 112. The Administration of Criminal Law (3)

Prerequisite: Public Administration 110 or 146 or Political Science 135 or 139A.

Basic concepts of the criminal law; elements of crime and the administrative processes of law enforcement.

##### 116. Contemporary Correctional Administration (3) II

Prerequisite: Sociology 113 or 114.

The problems encountered in administering modern correctional institutions, forestry and road camps, detention homes, and jails. (Formerly numbered Sociology 116.)

##### 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. (Formerly numbered Political Science 136.)

##### 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. (Formerly numbered and entitled: Political Science 140, Introduction to Public Administration.)

##### 142. Management of State Governments (3) I, II

Administrative and constitutional problems of state management in the American federal system. Emphasis on California. When taken with Political Science 115, will also meet requirements in American history, institutions, and ideals, and in the U.S. Constitution.

##### 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. When taken with Political Science 115, will also meet requirements in American history, institutions, and ideals, and in the U.S. Constitution.

##### 144. Public Personnel Administration (3) I, II

Prerequisite: Consent of instructor.

Problems in recruitment, placement and supervision of public employees.



## Public Administration and Urban Studies

### 145. Administrative Behavior (3) I

Social, psychological, and behavioral theories of organization; concepts of administrative leadership; organization and the individual; emphasis on governmental organizations.

### 146. Administration of Justice (3) I, II

Prerequisite: Public Administration 140 or Political Science 138 or 139A.

Fundamental problems in judicial administration in law enforcement, organization and management, and issues in judicial reform and in public safety.

### 147. Administration and Public Policy Development (3) I, II

Process of formulating public policy with emphasis on the role of public agencies. Case studies.

### 149. Comparative Public Administration (3) II

Prerequisite: Public Administration 140.

Administrative organization and process selected foreign and American governments. Analysis of the cultural basis of administrative systems.

### 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.

### 153. Management of the Federal Government (3) I, II

Prerequisite: Public Administration 140.

Problems in the administration of the federal government: for example, leadership, specialization, unity of command, oversight.

### 155. Regulatory Administration (3) I, II

Prerequisite: Public Administration 140 or 146 or Political Science 139A-139B. Fundamental structure, problems and criticisms of the regulatory systems in the United States.

### 156. Administrative Systems Analysis (3)

Two lectures and two hours of laboratory.

Prerequisites: Public Administration 140 and a statistics course.

Systems and organization analysis; survey of electronic systems; work standards and units; procedures analysis; administrative planning.

### 157. Public Relations of Public Agencies (3) I

Prerequisite: Public Administration 140.

Theory and practice of public relations in government. Public opinion and clientele groups in relation to administrative agencies. Problems in public relations of public agencies. Techniques of public relations.

### 161. Field Studies in Government (3) II, S

Prerequisite: Public Administration 140.

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.

### 162. Fiscal and Budgetary Policy (3) I, II

Prerequisite: Public Administration 140.

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.

### 188. Probation and Parole (3) I

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. (Formerly numbered Social Welfare 188.)

## Public Administration and Urban Studies

### Honors Course

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 197. Investigation and Report (3) I, II

Analysis of special topics. Admission by permission of instructor.

### 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.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisites: Twelve units of upper division public administration and consent of the instructor.

### Urban Studies (Group II)

### 148. The Metropolitan Area (3) I, II

Prerequisite: Public Administration 142 or 143.

Problems of government and administration arising from population patterns and physical and social structures of metropolitan areas.

### 150. Decision-Making in the Urban Community (3) I, II

Prerequisite: Public Administration 143.

Processes of decision-making in the management of urban communities.

### 154. Intergovernmental Relations in the United States (3) II

Prerequisite: Political Science 2.

Constitution, political and administrative characteristics of American federalism, including regionalism, interstate compacts, and grants-in-aid.

### 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.

### EXTENSION COURSES

### X-141. Studies in Public Administration (1 to 3) I, II

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 and consent of instructor.

### X-151. California Law of Municipal Corporations (3) I, II

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.

### GRADUATE COURSES IN PUBLIC ADMINISTRATION AND URBAN STUDIES

### 201. Scope and Method of Public Administration (3)

Prerequisite: Six units of upper division political science.

Evolution of large-scale public bureaucracies; development of public administration as an academic discipline; research methodologies of public administration.

### 203. Seminar in Theory of Administrative Organization (3)

Prerequisite: Public Administration 201.

Organization and management; the executive role, decision making; bureaucracy; authority and power; communication and control and organizational system; tactics and strategies in effective management.



## Public Administration and Urban Studies

- 210. Seminar in the Administration of Criminal Justice (3)**  
Prerequisite: Public Administration 110 or 146.  
Administrative problems of criminal justice systems.
- 216. Seminar in Correctional Administration (3)**  
Prerequisite: Public Administration 116.  
Selected problems in the administration of correctional problems and institutions. Maximum credit six units applicable on a master's degree.
- 230. Seminar in Public Financial Management (3)**  
Prerequisite: Public Administration 162.  
Problems in the administration and budgeting of public revenues.
- 240. Seminar in Public Administration (3)**  
Maximum credit six units applicable to a master's degree.
- 241. Seminar in Public Personnel Administration (3)**  
Prerequisite: Public Administration 144.  
Analysis of special problems of public service recruitment; recent developments in government pay administration; planning administration, and evaluation of executive development and other training programs; collective bargaining in government; construction and administration of tests; evaluation of total personnel program.
- 242. Seminar in Public Administration in Developing Nations (3)**  
Prerequisite: Public Administration 140.  
Selected problems in administration of economic and technical assistance programs; problems of administration in developing areas.
- 243. Science, Technology, and Public Policy (3)**  
Prerequisite: Political Science 200, Public Administration 201, 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.
- 245. Readings in Public Administration (3) I, II**  
Prerequisite: Political Science 200, Public Administration 201, or six graduate units of political science.  
Selected readings in the literature of public administration.
- 249. Seminar in Comparative Administration (3)**  
Prerequisite: Public Administration 140.  
Selected problems in administration, organization, and processes of foreign and international governments. Maximum credit six units applicable to a master's degree.
- 250. Management of Urban Governments (3) I, II**  
Selected problems in the management of urban governments. Maximum credit six units applicable on a master's degree.
- 255. The Metropolitan Area (3) I, II**  
Prerequisites: Public Administration 143, 148, or 150.  
Selected problems in the government and administration of the world's major metropolitan areas.
- 260. Administration and Public Policy Development (3)**  
Prerequisite: 12 upper division units in social science.  
Social, political, and administrative problems involved in governmental program development and change.
- 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.

## Public Administration and Urban Studies

- 296. Internship in Public Administration (1-3)**  
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.  
Maximum credit six units.
- 297. Research in Public Administration (3)**  
Prerequisite: Consent of Director, Public Administration and Urban Studies.  
Research in one of the areas of public administration.
- 298. Special Study (1-3)**  
Individual study. Six units maximum credit.  
Prerequisite: Consent of staff; to be arranged with the Director and instructor.
- 299. Thesis (3)**  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.

### GRADUATE COURSES IN CITY PLANNING

- CP 261. Urban Design and Land Use Planning Studio (6)**  
Two lectures and eight hours of laboratory.  
Prerequisites: City Planning 266A and 266B.  
Laboratory course concerned with graphic expression, principles of land use planning, land development, and urban design. Project integrating principles. (Formerly numbered Public Administration 261A-261B.)
- CP 262. History of Urban Planning (3)**  
History of urban development and of the field of urban planning.
- CP 265. 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.
- CP 266A. Seminar in Urban Planning (3)**  
Prerequisite: Public Administration 160.  
Introductory seminar to the Master of City Planning Program, focusing upon the planner's perspective of urban problems and goal formation. (Formerly numbered City Planning 266.)
- CP 266B. Seminar in Urban Planning Methodologies (3)**  
Prerequisite: City Planning 266A.  
Procedures and analytical techniques in urban planning.
- CP 266C. Seminar in Urban Planning Implementation (3)**  
Prerequisite: City Planning 266B.  
Analysis of the content and function of zoning, subdivision regulation, codes, capital budgeting, urban renewal, model cities, and other implementation methods and programs.
- CP 266D. Seminar in Urban Planning Theory (3)**  
Prerequisite: City Planning 266C.  
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.
- CP 267. Readings in Urban Planning (3)**  
Selected topics in urban planning. Maximum credit six units applicable on a master's degree.
- CP 296. 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. (Formerly numbered City Planning 293.)



## Recreation

### CP 297. Research in Urban Planning (3)

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.

### CP 298. Special Study (1-3)

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

Associate Professor: Hanson  
Assistant Professors: Butler (Chairman), Haffly  
Lecturer: Lamke

#### Offered by the Department

Major in recreation administration with the A.B. degree in applied arts and sciences.  
Minor in recreation.

### 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 78 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.** Recreation 40, 60, 70, 80; Physical Education 32A, 33A, 33B; Music 2; and Sociology 1. (17½ units.)

**Major.** A minimum of 37 upper division units to include Recreation 140, 165, 184 (two semesters); Psychology 106; Industrial Arts 101; Health Science and Safety 146; Physical Education 151, 175 (or Drama 110), 176 (or Art 110); Sociology 114, 125 and three units of upper division electives from sociology or psychology.

#### EMPHASIS IN OUTDOOR RECREATION

**Preparation for the major.** Recreation 40, 60, 80; Biology 1 and 2; Geology 2; Geography 1; Botany 1; Economics 1A; Zoology 50. (27 units.)

**Major.** A minimum of 36 upper division units to include Recreation 165, 175, 185; Geography 170, 171, 175; Industrial Arts 101; Biology 115; and twelve units selected from the following: Biology 110, 165; Botany 112; Journalism 180; Political Science 117; Psychology 145; Zoology 114, 117, 135.

#### EMPHASIS IN PARK AND RECREATION MANAGEMENT

**Preparation for the major.** Recreation 40, 60, 70, 80; Physical Education 32A, 33A, 33B; Music 2; and Sociology 1. (17½ units.)

**Major.** A minimum of 38 upper division units to include Recreation 140, 165, 175, 184 (two semesters); Journalism 180; Industrial Arts 101; Psychology 106; Public administration 140, 143, 144; Botany 112 and three units to be selected from Sociology 114, 125, or 157.

## Recreation

### EMPHASIS IN RECREATION REHABILITATION

**Preparation for the major.** Recreation 40, 60, 70, 80; Physical Education 32A, 33A, 33B; Music 2; Sociology 1. (17½ units.)

**Major.** A minimum of 38 upper division units to include Recreation 150, 165, 184 (two semesters); Industrial Arts 101; Psychology 106, 107 or 109, 145, 150, 152; Physical Education 151; Drama 110 or 142, and three units selected from Sociology 113, 121, 123, or Recreation 151.

### RECREATION MINOR

The minor in recreation consists of from 15 to 22 units to include the following: Lower Division: Recreation 60, 70, 80, and two units from the fields of art, dance, drama, or music. Upper Division: Recreation 140, or Drama 110; Recreation 165 and 184. Recommended: Physical Education 151, 175, 176, Industrial Arts 101, Psychology 106, Public administration 144, and Recreation 150.

#### LOWER DIVISION COURSES

##### 40. Theory of Leisure (3) I, II

History of leisure; the challenge of automation and shortened work-weeks; changing attitudes with regard to recreational pursuits; creative use of leisure.

##### 60. Introduction to Community Recreation (2) I, II

Scope of community recreation; basic philosophy of leisure time agencies; leadership theory; organizations for youth; program planning; and playground practices.

##### 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.

##### 80. Camp Leadership (2) I, II

Consideration of camp administration and principles of good camp leadership. Lectures and practical sessions aimed at general training in all phases of outdoor education and camp leadership, including skills in axemanship, outdoor cooking, nature projects, camp crafts, campfire and special camp programs.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

##### 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.

##### 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.

##### 151. Practicum in Recreation for Special Groups (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Credit for or concurrent enrollment in Recreation 70.

Developing community recreation programs for one of the following groups: aging, mentally retarded, mentally ill and physically handicapped. May be repeated twice in different areas of exceptionality.

##### 165. Administration of Recreation Programs (3) I, II

Prerequisite: Recreation 60.

Administrative authority and responsibility to plan, implement, finance, staff and evaluate organized programs of recreation. The use of social and human resources.



## Religious Studies

**166. Honors Course (1-3) I, II**  
Refer to the Honors Program.

**175. Management of Recreation Areas and Facilities (3) II**

Prerequisite: Credit for or concurrent registration in Recreation 165.  
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.

**184. Field Work in Recreation (3) I, II, S**

Prerequisites: Recreation 60, 70.  
For recreation majors and minors only.  
Observation and participation in supervised group activities in the field. Practical experience in the various public and semipublic community recreation agencies. Maximum credit six units.

**185. Principles of Outdoor Recreation (3) I**

Prerequisite: Minimum of one summer work experience in a federal or state recreational area.  
Objectives and practices related to administration of recreational systems in regional, state, and federal parks and forests. Interpretation; enforcement problems; planning and operational techniques.

**199. Special Study (1-3) I, II**

Individual study. Six units maximum credit.  
Prerequisite: Consent of special study adviser.

### GRADUATE COURSES

**204. Problems in Recreation (3) (Alternate years)**

(Same course as Physical Education 204)  
Current problems facing the recreation profession, a review of literature, and discussion of trends, together with the analysis and evaluation of actual problems. Written reports are required.

**205. Park Management (3) (Alternate years)**

Prerequisite: Recreation 165.  
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.

**260. Recreation Administration and Supervision (3) (Alternate years)**

Prerequisites: Recreation 165 and 184.  
Methods, techniques and evaluation systems used by chief administrators, department heads and supervisors in both public and private agencies.

**261. Seminar in Specialized Facilities (3)**

Prerequisite: Recreation 175.  
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, A. W., Snyder  
Associate Professors: Jordan (Chairman), McClurg  
Assistant Professor: Khalil

#### Offered by the Department

Major in religious studies with the A.B. degree in liberal arts and sciences.  
Minor in religious studies.

## 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 82 of this catalog.  
A minor is not required with this major.

**Preparation for the major.** Religious Studies 20, 50, and Philosophy 1A-1B.

**Major.** A minimum of 24 upper division units in religious studies to include either Religious Studies 100A or 100B, 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 at least three units from Group IV. 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 II and Group III below.

Group I: Religious Studies 110, 111A-111B, 114, 115, and 116.

Group II: Religious Studies 121A-121B, Philosophy 150A-150B.

Group III: Religious Studies 130, 132, Philosophy 135, Sociology 138, Anthropology 153.

Group IV: Religious Studies 190, 191.

### RELIGIOUS STUDIES MINOR

The minor in religious studies consists of from 15 to 22 units to include at least three lower division units in religious studies, at least three units from Group I, at least three units from Group II, and at least three units from Group III.

Group I: Religious Studies 110, 111A-111B, 114, 115, 116.

Group II: Religious Studies 121A-121B, Philosophy 150A-150B.

Group III: Religious Studies 130, 132, Philosophy 135, Sociology 138, Anthropology 153.

Group IV: Religious Studies 190, 191.

### LOWER DIVISION COURSES

**20. World Religions (3)**

Major figures, attitudes and teachings of world religions.

**50. Problems of Religion (3)**

Problems in the study of religions, based on the study of scripture selected from Eastern and Western religions.

**99. Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 129. 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

**100A-100B. The Bible (3-3)**

Prerequisite: Three units of religious studies.

The problems of composition and historical significance in the context of religious meanings. First semester: the Pentateuch, the Prophets and the Writings. Second semester: the New Testament.

**110. Greek and Latin Fathers (3)**

Prerequisite: Six units of religious studies.

Readings in patristic thought from Ignatius of Antioch through Augustine.

**111A-111B. The Western Christian Tradition (3-3)**

Prerequisite: Religious Studies 110, 111A is prerequisite to 111B.

Readings in source materials illustrative of the doctrinal and institutional development of the Western Church. First semester: the Medieval Church and early stages of the Reformation. Second semester: the Reformation and the Enlightenment.

**114. The Eastern Orthodox Tradition (3)**

Prerequisite: Religious Studies 110.

Major doctrines, practices, and developments in the Eastern Church after the Patristic period up to the present.



## Russian

### 115. Judaism (3)

Prerequisite: Three units of religious studies.  
Major trends and teachings from the Talmudic period to the present.

### 116. Islam (3)

Prerequisite: Three units of religious studies.  
Major doctrines, practices, and developments from the time of Mohammed to the present.

### 121A-121B. Oriental Religions (3-3)

Prerequisite: Three units of religious studies.  
Phenomenological studies in the major religious traditions of south and east Asia.  
First semester: religions of India—especially Hinduism and Buddhism. Second semester: religions of the Far East.

### 130. Theory and Practice of Worship (3)

The symbolic structure of devotional performance.

### 131A-131B. Religion and Culture (3-3)

The relations between religion and aspects of major cultural traditions. First semester: primarily the plastic arts and music. Second semester: primarily literature and drama.

### 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. (Formerly numbered 125.)

### 136. Religion and Relevance (3) I, II

Prerequisite: Religious Studies 100A or 100B.  
A critical exploration of the contemporary understanding of biblical religion in relationship to social action as exemplified in the writings of theologians and concerned laity.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 190. Advanced Studies in Religious Practices (3)

Prerequisite: Nine upper division units in religious studies including at least three units in Oriental traditions and three in Western traditions.  
Research in the function and significance of ritual, prayer, and meditation.

### 191. Advanced Studies in Religious Doctrines (3)

Prerequisite: Nine upper division units in religious studies including at least three units in Oriental traditions and three in Western traditions.  
Research in the significance of selected teachings of the major religions.

### 192. Recent Christianity (3)

Prerequisite: Religious Studies 111B; 114 is recommended.  
Themes in the development of Christian institutions and doctrines in the 19th and 20th centuries.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.  
Prerequisite: Twelve upper division units in religious studies.

## RUSSIAN

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Professor: Dukas (Chairman, German-Russian)  
Associate Professor: Kozlik  
Assistant Professors: Bialy, Fetzer

## Russian

### Offered by the Department of German and Russian

Master of Arts in Russian. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in Russian with the A.B. degree in liberal arts and sciences.

Minor in Russian.

Teaching major in Russian with specialization in secondary teaching.

Teaching minor in Russian with specialization in both elementary and secondary teaching.

### 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 82 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 1, 2, 3, 4, 10, and 11. (20 units.) Recommended: History 4A-4B.

**Major.** A minimum of 24 upper division units in Russian to include Russian 101A-101B, 102A-102B, and 12 units in the period literature of the language.

### RUSSIAN MINOR

The minor in Russian consists of from 15 to 22 units in Russian, six units of which must be in upper division courses.

### RUSSIAN MAJOR

#### FOR THE STANDARD 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.

**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 German and Russian. The candidate must consult with the chairman of the Department of German and Russian concerning this examination.

#### Specialization in Secondary Teaching

**Preparation for the major.** Russian 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

**Teaching Major (Undergraduate).** A minimum of 25 upper division units in Russian to include Russian 101A, 101B, 102A, 102B, 130 or 131, 140, 141, and six upper division units of Russian in the period literature of the language.

**Postgraduate Year.** Six units of graduate courses in Russian.

### RUSSIAN MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

**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 German and Russian. The candidate must consult with the chairman of the Department of German and Russian concerning this examination.

#### Specialization in Elementary Teaching

The minor in Russian for elementary teaching consists of not less than 20 units in Russian, six units of which must be in upper division courses.



**Specialization in Secondary Teaching**

The minor in Russian for secondary teaching consists of not less than 20 units in Russian, exclusive of course equivalents, to include in the lower division, Russian 1, 2, 3, 4, 10, and 11 (or equivalents); and in the upper division, Russian 101A, 101B, 102A, 102B, 130 or 131.

**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 1; three years the equivalent of Russian 2; and four years the equivalent of Russian 3. 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****1. Elementary (4) I, II**

Four lectures and one hour of laboratory.  
Pronunciation, oral practice, reading in Russian literature, minimum essentials of grammar.

**2. Elementary (4) I, II**

Four lectures and one hour of laboratory.  
Prerequisite: Russian 1.  
Continuation of Russian 1.

**3. Intermediate (4) I**

Prerequisite: Russian 2 or three years of high school Russian.  
A practical application of the fundamental principles of grammar. Reading in Russian of cultural material, short stories, novels or plays; oral practice.

**4. Intermediate (4) II**

Prerequisite: Russian 3.  
Continuation of Russian 3.

**8A-8B. Scientific Reading (2-2)**

Prerequisite: Russian 2 or three years of high school Russian. 8A is prerequisite to 8B.  
Intensive reading in scientific fields.

**10. Conversation (2) I**

Prerequisite: Russian 2 or three years of high school Russian.  
Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

**11. Conversation (2) II**

Prerequisite: Russian 10 or Russian 3, or four years of high school Russian.  
Continuation of Russian 10.

**40. Russian Civilization (2) I**

(Same course as Humanities 52)  
Conducted in English.  
The major currents and characteristics of Russian culture, as expressed through the centuries in literature, art, philosophy, and music.

**41. Russian Civilization (2) II**

(Same course as Humanities 53)  
Conducted in English.  
Continuation of Russian 40.

**99. Experimental Topics (2-4)**

Refer to the catalog statement on Experimental Topics on page 129. 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****101A-101B. Conversation and Composition (3-3)**

Prerequisite: Russian 4.  
Translation into Russian from moderately difficult English prose, with written reports in Russian. Readings and oral discussions of Russian plays and short stories.

**102A-102B. Survey of Russian Literature (3-3)**

Prerequisite: Russian 4.  
Russian literature from its beginnings, with emphasis on the nineteenth and twentieth centuries.

**103. Old Russian Literature (3)**

Prerequisite: Russian 4.  
Masterpieces of Russian literature before 1700.

**104. Russian Literature of the 18th Century (3)**

Prerequisite: Russian 4.  
Russian Classicism and Sentimentalism.

**105A-105B. The Russian Short Story, Drama, and Poetry of the 19th Century (3-3)**

Prerequisite: Russian 4.  
Development of the Russian short story, drama, and poetry of the 19th Century.

**110A-110B. The Russian Novel of the 19th Century (3-3)**

Prerequisite: Russian 4.  
Development of the Russian novel of the 19th Century.

**130. Russian Syntax and Stylistics (3)**

Prerequisite: Russian 101A-101B.  
The structure of contemporary Russian.

**131. Russian Phonology and Morphology (3)**

Prerequisite: Russian 4 and 11.  
The sounds and forms of contemporary Russian.

**140. Russian Civilization (2) I**

(Same course as Humanities 152)  
Conducted in English.  
An advanced course in Russian culture of the past and present, with emphasis on the arts, philosophy, literature, and music.

**141. Russian Civilization (2) II**

(Same course as Humanities 153)  
Conducted in English.  
Continuation of Russian 140.

**166. Honors Course (1-3) I, II**

Refer to the Honors Program.

**199. Special Study (1-3) I, II**

Individual study. Maximum credit six units.  
Prerequisite: Consent of instructor.

**GRADUATE COURSES****201. History of the Russian Language (3)**

Prerequisite: Twelve units of upper division Russian.  
The historical development of the Russian language.



## Social Welfare

### 202A-202B. Old Church Slavic (3-3)

Prerequisite: Twelve units of upper division Russian.  
Structure of Old Church Slavic with readings and analysis of medieval Slavic texts.

### 203. Slavic Linguistics (3)

Prerequisite: Twelve units of upper division Russian.  
Selected topics in historical and comparative Slavic linguistics.

### 204A-204B. The Soviet Novel and Short Story (3-3)

Prerequisite: Twelve units of upper division Russian.  
Intensive study of major writers of Soviet prose fiction.

### 205. Russian Poetry from Pushkin to the Present (3)

Prerequisite: Twelve units of upper division Russian.  
The major Russian poets of the nineteenth and twentieth centuries.

### 253. Russian Literary Criticism (3)

Prerequisite: Twelve units of upper division Russian.  
Literary criticism from the early 18th century to the present.

### 255. Seminar: A Major Author or Movement (3)

Prerequisite: Russian 290.  
A major author or movement. Maximum credit six units applicable on a master's degree.

### 290. Research and Bibliography (3)

Prerequisite: Twelve units of upper division Russian.  
Purposes and methods of research in Russian literature and Slavic linguistics.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.  
Prerequisite: 18 units of upper division Russian and consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.

## SOCIAL WELFARE

### IN THE SCHOOL OF SOCIAL WORK

#### Faculty

Associate Professors: Kessel, Pilcher, A., Pilcher, D. (Associate Dean)  
Assistant Professors: Anderson, D., Fort, Griffin, Rikkers, Watson  
Lecturers: Andresen, Gotkowitz, Guidry, Haworth, J.

#### Appointment Under Grant from Outside Funds

Lecturer: Kelley

#### Offered by the School of Social Work

Major in social welfare with the A.B. degree in liberal arts and sciences.  
Minor in social welfare.

### SOCIAL WELFARE 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 82 of this catalog.

A minor is not required with this major.

The major in social welfare is offered by the School of Social Work. This curriculum provides preparation for: (1) more effective participation in community affairs, based on an understanding of modern society's complex social welfare pro-

## Social Welfare

grams; (2) immediate employment in those social welfare positions which do not require professional social work education at the graduate level; and (3) admission to graduate professional schools of social work. This curriculum should be pursued by those who plan careers in federal, state, or local social welfare agencies.

**Preparation for the major.** Anthropology 1C; Economics 1A-1B; Sociology 1, 10 and 60; and Psychology 1 and 40 (24 units). Recommended: Biology 1 and 2, Political Science 1 and 2, and courses in physiology.

**Major (undergraduate):** A minimum of 30 upper division units to include: Social Welfare 100A-100B, 180A-180B, 182, and 189A-189B; Sociology 140 or Psychology 145; three units selected from Psychology and three units selected from Sociology.

**Recommended:** Social Welfare 187 (strongly recommended for those students planning to seek admission to the San Diego State School of Social Work), Sociology 122, Psychology 106, Biology 159, 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 from 15 to 22 units in social welfare, at least nine units of which must be in upper division courses.

#### LOWER DIVISION COURSES

### 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 Home Economics 35, Sociology 35, or other lower division course in courtship and marriage or marriage and the family. (Formerly numbered Social Welfare 35.)

### 80. Introduction to Social Welfare (3) I, II

Two lectures and three hours of field observation.  
Orientation to the field of social welfare. Readings, class discussions, and observation of social welfare activities in the community.

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 100A-100B. Man in Society (3-3) I, II

Prerequisites: Biology 1 and 2, Psychology 1, and Sociology 1; Social Welfare 100A is a prerequisite to 100B.

Biological, psychological, and social aspects of human growth and development from birth to death. Integration of concepts from various disciplines.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 180A-180B. Social Welfare as a Social Institution (3-3) I, II

Prerequisites: Sociology 1 and 10; Social Welfare 180A is prerequisite to 180B.  
The institutional nature of social welfare and its relationship to other institutions in society.

### 182. Social Work as a Profession (3) I, II

Prerequisite: Social Welfare 100B and 180B.

Social work as a profession; its philosophical bases, values, norms, functions, methods, and occupational roles.



## Social Work

### 185. Public Welfare (3) I, II

A historical and current perspective of public welfare. Analysis of current programs of social insurance, public assistance, general relief, and other public welfare policies and programs.

### 187. Current Developments in Social Work (3) I, II

Prerequisites: Sociology 60; Social Welfare 100B and 180B.

Sources, nature, and uses of social work theory and research. Application of the principles of scientific analysis to the study of social welfare institutions and the practice of social work.

### 189A-189B. Field Experience in Social Welfare (3-3) I, II

Two lectures and eight hours of field experience.

Prerequisites: Social Welfare 100B and 180B; Social Welfare 189A and credit or concurrent registration in 182 are prerequisite to 189B.

Laboratory field assignments in selected social welfare activities.

### 197. Investigation and Report (3) I, II

Prerequisite: Consent of instructor.

Analysis of special topics in social welfare.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

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: Guzzetta, Lee, Maxwell, Morgan, Ontell, Stumpf, Tebor (Acting Dean), Weinberger

Associate Professors: Brennan, Haworth, G., Horowitz (Associate Dean), Ishikawa, Kessel, Manis, Pilcher, A., Pilcher, D. (Associate Dean)

Assistant Professors: Anderson, D., Baily, Bistriz, Fort, Griffin, Herman, Johnston, Kahn, Pappas, Perry, Smith, Watson

Lecturers: Kooi, Lucius, Raymer, Sardinias, Seargeant, Travis

#### Appointments Under Grants from Outside Funds

Assistant Professor: Schlatler

Lecturers: Aikens, Anderson, Brewer, Clary, Cohen, Hall, Kelley, Kukkonen, Peer, Schiffrin, Shenko, Treske, Weissman

#### Offered by the School of Social Work

Master of Social Work, a two-year degree. Master of Science in Social Work, a one-year degree. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

#### GRADUATE COURSES

Prerequisite for enrollment in all graduate courses: admission to the School of Social Work.

### 200. Social Welfare Policy and Services I (2)

Social welfare as a societal institution; philosophical, historical, and comparative analysis of welfare functions, issues, and problems, with special focus on personal and social deprivation.

## Social Work

### 201. Social Welfare Policy and Services II (2)

Prerequisite: Social Work 200

Conceptual analysis of social welfare programs related to income maintenance and other social service areas, including social insurance, child welfare, and community development.

### 202. Social Welfare Policy and Services III (2)

Prerequisite: Social Work 201.

Problems and issues in emerging social welfare programs, including analysis of the structure of social services and of social work as a profession.

### 203. Social Welfare Policy and Services IV (2)

Prerequisite: Social Work 202.

Analysis of existing or projected social welfare programs or service.

### 205. Social Work Administration I (2)

Prerequisite: Social Work 202 or consent of the Dean.

Administration as an aspect of all social work practice. Nature of social work administration involving board and staff participation in determining goals and in planning programming and management operations to achieve goals. Administrative organization; interagency policy and control; management processes.

### 220. Human Behavior and Social Environment I (4)

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.

### 221. Human Behavior and Social Environment II (2)

Prerequisite: Social Work 220.

Examination of deviant behavior from relative frameworks of a medical model and a career process model. Selected social problem areas are used as illustrations.

### 222. Human Behavior and Social Environment III (2)

Prerequisite: Social Work 221.

Theories of natural and induced change in human behavior which have utility for social work practice.

### 230. Social Work Practice I (2)

Prerequisite: Concurrent registration in Social Work 250.

Principles of social work practice with individuals, families, groups, and communities. Attention is given to social work objectives, principles and skills.

### 231. Social Work Practice II (2)

Prerequisites: Social Work 230 and concurrent registration in Social Work 251.

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.

### 232. Social Work Practice III (2)

Prerequisites: Social Work 231 and concurrent registration in Social Work 252.

Analysis of social work intervention to motivate individuals, families, and groups toward change and problem solving. The implications for practice of the physical, social and emotional factors influencing people, and their interaction with social and economic groups of which they are a part.

### 233. Social Work Practice IV (2)

Prerequisites: Social Work 232 and concurrent registration in Social Work 253.

Designed to offer opportunity for integration and application of the student's knowledge of an array of problem-solving methods in social work. Case material focuses on the specific content relevant to selected models of social problems experienced by individuals, families, and groups.



## Social Work

### 234. Social Work Practice V (2)

Prerequisites: Social Work 231 and concurrent registration in Social Work 255.  
Examination of applications of major theories of social change in organized behavior to improve the social environment. Use of selected model problems in social welfare planning; mobilization of resources; analysis of issues and resistances; designing programs and structures; and reassessment.

### 235. Social Work Practice VI (2)

Prerequisites: Social Work 234 and concurrent registration in Social Work 256.  
Exploration of collaborative social work role with other professional roles in planned institutional change. Differential applications of values, strategies, and power in social welfare and host settings, by and on behalf of various population groupings.

### 236. Social Work Practice VII (4)

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.

### 237. Social Work Practice VIII (4)

Prerequisite: Social Work 236.  
Continuation of Social Work Practice VII with emphasis on refinements of skills in intervention with individuals, families, groups, organizations and communities.

### 238. Social Work Practice IX (8) S

Prerequisite: Social Work 237.  
Continuation of Social Work Practice VIII with emphasis on the further development of skills with individuals, families, groups, organizations, and communities.

### 250. Field Instruction I (4)

Prerequisite: Concurrent registration in Social Work 230.  
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.

### 251. Field Instruction II (4)

Prerequisites: Social Work 250 and concurrent registration in Social Work 231.  
Continuation of field instruction initiated in Social Work 250. Opportunities are provided for the application of social study and social problem analysis through experience with interactional and small group processes.

### 252. Field Instruction III: Individuals, Families, and Groups (4-5)

Prerequisites: Social Work 251 and concurrent registration in Social Work 232.  
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.

### 253. Field Instruction IV: Individuals, Families, and Groups (4-5)

Prerequisites: Social Work 252 and concurrent registration in Social Work 233.  
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.

### 255. Field Instruction V: Organizations and Communities (4-5)

Prerequisites: Social Work 251 and concurrent registration in Social Work 234.  
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.

### 256. Field Instruction VI: Organizations and Communities (4-5)

Prerequisites: Social Work 255 and concurrent registration in Social Work 235.  
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 and community development.

## Sociology

### 269. Supervision for Field Instructors I (2)

Prerequisite: Consent of the Dean of the School of Social Work.  
Designed for field instructors who will be teaching graduate students in selected field agencies. Objectives, content, and methods of instruction related to the administrative and educational functions of the field instructor in the education of social workers.

### 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.

### 271. Seminar. Current Social Issues (1-4)

Prerequisite: Advancement to candidacy or consent of Dean.  
Current developments and issues in contemporary society and their meaning for social work practice. Maximum credit four units applicable on a master's degree.

### 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.

### 291 Seminar (2-3)

Selected topics in social work and/or social welfare. Topics to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

### 297A-297B. Research (2-2)

Prerequisite: Social Work 290.  
Research in the field of social work and completion of a research project. Individual or group project.

### 298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with Dean and instructor.  
Individual study. Six units maximum credit.

## SOCIOLOGY

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Emeritus: Barnhart  
Professors: Daniels, DeLora, J. R., Johnson (Chairman), Kirby, Klapp, Milne, Mouratides, Wendling  
Associate Professors: El-Assal, Gillette, Winslow  
Assistant Professors: Buck, Chandler, Cottrell, DeLora, J. S., Emerick, Kennedy, Lally, Scheck, Schulze, Somerville, Sorenson, Stephenson, Vellekoop, Werner  
Lecturers: Arfman, Dickason

#### Offered by the Department of Sociology

Master of Arts degree in sociology. (See also Master of Arts degree for teaching service in social science. Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)  
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 82 of this catalog.

Students majoring in sociology must complete a minor in another field.

**Preparation for the major.** Sociology 1, 10, and 60. (9 units.) Advanced students in junior and senior years entering the major may take Sociology 102 in place of Sociology 1, but may not use 102 to fulfill minimal upper division requirements in the sociology major.



## Sociology

**Major.** A minimum of 24 upper division units in sociology to include Sociology 101, 122, and 140.

### SOCIOLOGY MINOR

The minor in sociology consists of from 15 to 22 units in sociology, nine units of which must be in upper division courses (except Sociology 102.)

#### LOWER DIVISION COURSES

##### 1. Introductory Sociology (3) I, II

This course, or Sociology 102, 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. Not open to students with credit in Sociology 102.

##### 10. Contemporary Social Problems (3) I, II

Prerequisite: Sociology 1.

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 110 or Mexican-American Studies 10.

##### 35. Marriage and the Family (3) I, II

Analysis of dating, engagement, marriage and family relationships. The married couple as a small group viewed through contemporary sociological and social psychological principles and research findings. Factors predictive of marital behavior. Not open to students with credit in Home Economics 35, Social Welfare 35, or other course in marriage and the family, or in courtship and marriage.

##### 60. Elementary Social Statistics (3) I, II

Prerequisites: Sociology 1 and Mathematics 3.

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 for, or concurrent enrollment in, another course in statistics.

##### 64. Sociological Analysis (3) I, II

Prerequisite: Sociology 1 or 102.

Development and use of fundamental procedures of sociological investigation.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

##### 100. History of Social Thought (3) I, II

Prerequisite: Sociology 1 or 102.

Development of social thought prior to the appearance of sociology as a distinct scientific discipline. Major emphasis on European contributions.

##### 101. Classical Sociological Theory (3) I, II

Prerequisite: Sociology 1 or 102.

Theories of the major early European and American sociologists, including Marx, Weber, Durkheim, Pareto, Cooley, Mead, and others.

##### 102. Principles of Sociology (3) I, II

Development and use of the concepts that are applied to sociological analysis. A more intensive introduction to sociology than given in Sociology 1. Not open to students with credit in Sociology 1. Sociology 102 may not be used to fulfill the minimal upper division requirements in the sociology major or minor or the special major.

## Sociology

##### 103. Contemporary Sociology Theory (3) I, II

Prerequisite: Sociology 101.

Types and trends of contemporary sociological theory. Selected theoretical works.

##### 110. Social Disorganization (3) I, II

Prerequisite: Sociology 1 or 102.

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.

##### 111. Current Social Issues (3) I, II

Prerequisite: Sociology 1 or 102.

Selected controversial and currently relevant social issues. Maximum opportunity provided for student initiative in determining course content and procedures.

##### 112. Sociology of Conflict (3) I, II

Prerequisite: Sociology 1 or 102.

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.

##### 113. Criminology and Penology (3) I, II

Prerequisite: Sociology 1 or 102.

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.

##### 114. Juvenile Delinquency (3) I, II

Prerequisite: Sociology 1 or 102.

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.

##### 120. Industrial Sociology (3) I, II

Prerequisite: Sociology 1 or 102.

Group relationships within economic organizations. Problems of leadership, morale and conflict. Some attention to the sociology of occupations and professions.

##### 121. Sociology of Occupations and Professions (3) I, II

Prerequisite: Sociology 1 or 102.

Division of labor, status ranking of occupations, authority structures, occupational and professional organization, occupational socialization, problems of identity and role conflict.

##### 122. Social Organization (3) I, II

Prerequisite: Sociology 1 or 102.

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.

##### 123. The Sociology of Mental Illness (3) II

Prerequisite: Sociology 1 or 102.

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.

##### 124. Social Stratification (3) I, II

Prerequisite: Sociology 1 or 102.

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.



## Sociology

### 125. Minority Group Relations (3) I, II

Prerequisite: Sociology 1 or 102.

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.

### 126. Medical Sociology (3) I

Prerequisite: Sociology 1 or 102.

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 socio-economic factors. Not open to students with credit in Health Science and Safety 176. (Formerly numbered Sociology 121.)

### 132. Formal Organization (3) II

Prerequisites: Sociology 1 or 102, and 122.

The structure and dynamics of various types of complex formal organizations. Their development, internal structure and processes, external relations and function in contemporary society.

### 135. Dynamics of Family Development (3) II

Prerequisite: Sociology 1 or 102.

Analysis of the history of families; how they form, function, and grow to maturity. Focus on the development and interaction of family members throughout all stages of family life cycle from marriage to dissolution. (Not open to students with credit in another upper division course in marriage and the family.)

### 136. Sociology of the Family (3) II

Prerequisite: Sociology 1 or 102. Recommended: Sociology 101 and 146.

A comparative study of family systems in different societies. Changing role-structure and functions of the modern family; rural-urban, social class, racial and ethnic differences in family organization; marriage and family as a developing system of interpersonal relationships.

### 137. Political Sociology (3) I

Prerequisites: Sociology 1 and 122.

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.

### 138. Sociology of Religion (3) II

Prerequisite: Sociology 1 or 102. Recommended: Sociology 101 and 146.

The role of religion in society as cult and institution, including primitive religion, modern sects and churches, ritual, secularization, and religious movements.

### 139. Sociology of Education (3) I

Prerequisite: Sociology 1 or 102.

Social organization of education, teaching as a profession. Class, ethnic and other social factors affecting the educational process. Educational institutions and the community.

### 140. Social-Psychology: Sociological Approaches (3) I, II

Prerequisites: Sociology 1 or 102 and Psychology 1.

The major problems and findings of social-psychological studies with reference to group behavior and group membership, the socialization of the individual, and processes of social interaction. Not open to students with credit in Psychology 145.

### 145. Sociology of Mass Communication (3) I, II

Prerequisite: Sociology 1 or 102. Sociology 140 and 146 are recommended.

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.

## Sociology

### 146. Collective Behavior (3) I, II

Prerequisites: Sociology 1 or 102, and 140.

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.

### 147. Sociology of Social Movements (3) I, II

Prerequisite: Sociology 1 or 102. Sociology 122 and 146 are recommended.

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.

### 148. Small Groups (3) I

Prerequisites: Sociology 1 or 102, and 140.

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.

### 150. Population Problems (3) I

Prerequisite: Sociology 1 or 102.

Problems of population relative to age, sex, and racial distribution. Population practices and theories. Biological and geographical aspects of population problems. International population movements.

### 151. Research Methods in Demography (3) II

Prerequisites: Sociology 60 or Economics 2, and Sociology 150.

Standard procedures in the measurement of fertility, mortality, natural increase, migration, population growth and manpower, and working activities. Appraisal of source materials. Students to complete one project during term.

### 157. Urban Sociology (3) II

Prerequisite: Sociology 1 or 102.

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.

### 160. Quantitative Methods in Social Research (3) I

Prerequisite: Sociology 60.

The use of parametric and non-parametric techniques in the analysis of social research data; including analysis of variance; covariance; multiple and partial correlational techniques.

### 164. Methods of Social Research (3) I, II

Prerequisites: Sociology 1 or 102, and 60.

Research methods and interpretation used in the study of communities, institutions, and social conditions.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 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.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

## GRADUATE COURSES

### 200. Seminar in Social Theory (3)

Prerequisites: Sociology 101 and 164.

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.



## Sociology

### 205. Directed Readings in Social Theory (3)

Prerequisites: Sociology 101 and 164.

Selected readings providing comprehensive coverage of the field of social theory.

### 210. Seminar in Social Disorganization (3)

Prerequisites: Sociology 110 and 164.

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.

### 215. Directed Readings in Social Disorganization (3)

Prerequisites: Sociology 110 and 164.

Selected readings providing comprehensive coverage of the field of social disorganization.

### 220. Seminar in Social Organization (3)

Prerequisites: Sociology 122 and 164.

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.

### 225. Directed Readings in Social Organization (3)

Prerequisites: Sociology 122 and 164.

Selected readings providing comprehensive coverage of the field of social organization.

### 230. Seminar in Social Institutions (3)

Prerequisites: Sociology 122 and 164.

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.

### 235. Directed Readings in Social Institutions (3)

Prerequisites: Sociology 122 and 164.

Selected readings providing comprehensive coverage of the field of social institutions.

### 240. Seminar in Social Psychology: Sociological Approaches (3)

Prerequisites: Sociology 140 and 164.

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.

### 245. Directed Readings in Social Psychology: Sociological Approaches (3)

Prerequisites: Sociology 140 and 164.

Selected readings providing comprehensive coverage of the field of social psychology.

### 250. Seminar in the Community (3)

Prerequisites: Sociology 157 and 164.

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.

### 255. Directed Readings in the Community (3)

Prerequisites: Sociology 157 and 164.

Selected readings providing comprehensive coverage of the sociological study of human communities.

### 260. Seminar in Research Methods (3)

Prerequisites: Sociology 101 and 164.

Analysis of methods used in current sociological research, including evaluation of reported findings. Discussion of research designs appropriate to particular types

## Spanish

of projects. Evaluation of research in progress by members of the seminar. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

### 265. Directed Readings in Research Methods (3) I, II

Prerequisite: Sociology 164.

Selected readings providing comprehensive coverage of sociological research methods.

### 270. Seminar in Population and Demography (3)

Prerequisites: Sociology 164 and 150 or 151.

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.

### 275. Directed Readings in Population and Demography (3)

Prerequisites: Sociology 164 and 150 or 151.

Selected readings providing comprehensive coverage of the fields of population and demography.

### 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.

### 297. Research (3)

Prerequisite: Sociology 164.

Independent investigation of special topics.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## SPANISH

### IN THE COLLEGE OF ARTS AND LETTERS

#### Faculty

Emeritus: Brown, L. P.

Professors: Baker, Case, Lemus

Associate Professors: Head, Sender, Walsh (Chairman Spanish-Portuguese), Williams

Assistant Professors: Barrera, Christensen, Fornoff, O'Brien, Santalo, Segade, Weeter, Windsor

#### Offered by the Department of Spanish and Portuguese

Master of Arts degree in Spanish. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in Spanish with the A.B. degree in liberal arts and sciences.

Teaching major in Spanish with specialization in both elementary and secondary teaching.

Minor in Spanish.

Teaching minor in Spanish with specialization in both elementary and secondary teaching.



## 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 82 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 1, 2, 3, 4, 10, and 11. (20 units.)

**Major.** A minimum of 24 upper division units in Spanish to include Spanish 101A-101B, 102A-102B, and 12 units of courses in the period literature of the language.

### SPANISH MINOR

The minor in Spanish consists of from 15 to 22 units in Spanish, six units of which must be in upper division courses.

### SPANISH MAJOR

#### FOR THE STANDARD 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, with specialization in either elementary or secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

#### Specialization in Elementary Teaching

**Preparation for the major.** Spanish 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

**Teaching Major.** A minimum of 24 upper division units to include Spanish 101A, 101B, 102A, 102B, 150, 190, and six upper division units of electives in Spanish. In addition to the major, credential candidates must complete Education 136.

#### Specialization in Secondary Teaching

**Preparation for the major.** Spanish 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

**Teaching Major (Undergraduate).** A minimum of 24 upper division units in Spanish to include Spanish 101A, 101B, 102A, 102B, 150, 190, and six units of upper division electives.

**Postgraduate Year.** Six units of graduate courses (200 numbered courses) in Spanish.

### SPANISH MINOR

#### FOR THE STANDARD TEACHING CREDENTIAL

#### Specialization in Elementary Teaching

The minor in Spanish for elementary teaching consists of not less than 20 units in Spanish, six units of which must be in upper division courses.

#### Specialization in Secondary Teaching

The minor in Spanish for secondary teaching consists of a minimum of 20 units in Spanish exclusive of course equivalents, to include in the lower division, Spanish 1, 2, 3, 4 (or equivalents), 10, and 11; and in the upper division, Spanish 101A, 101B, 102A, and 102B.

#### 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.

## Spanish

The first two years of high school Spanish may be counted as the equivalent of Spanish 1; three years the equivalent of Spanish 2; and four years the equivalent of Spanish 3. 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 with five or six years of high school Spanish may enroll in Spanish 4; the department recommends, however, that they take Spanish 21, 22, or 23.

#### LOWER DIVISION COURSES

##### 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.

##### 2. Elementary (4) I, II

Four lectures and one hour of laboratory.  
Prerequisite: Spanish 1 or two years of high school Spanish.  
Continuation of Spanish 1.

##### 3. Intermediate (4) I, II

Prerequisite: Spanish 2 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.

##### 4. Intermediate (4) I, II

Prerequisite: Spanish 3 or four years of high school Spanish.  
Continuation of Spanish 3. Special sections available for the Spanish speaking.

##### 10. Conversation (2) I, II

Prerequisite: Spanish 2 or three years of high school Spanish.  
Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

##### 11. Conversation (2) I, II

Prerequisite: Spanish 10 or Spanish 3, or four years of high school Spanish.  
Continuation of Spanish 10.

##### 21. Intermediate Oral and Written Composition (3)

Prerequisites: Spanish 4 and 11.  
Directed written composition with stress on current usage. Oral reports on assigned topics.

##### 22. Introduction to Syntax and Style (3)

Prerequisites: Spanish 4 and 11.  
Study of structure and idiomatic usage. Analysis of style based on passages chosen from modern literature.

##### 23. Introduction to Literature (3)

Prerequisites: Spanish 4 and 11.  
Selected readings from Peninsular and Latin American prose. Oral and written reports and class discussions. Course conducted in Spanish.

##### 40. Spanish Civilization (2) I

The major currents and characteristics of Spanish culture, as expressed through the centuries in literature, art and philosophy.

##### 41. Spanish-American Civilization (2) II

The major currents and characteristics of Spanish-American culture, as expressed through the centuries in literature, art, and philosophy.

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

**101A-101B. Advanced Oral and Written Composition (3-3)**

Prerequisites: Spanish 4 and 11, with a grade of C or better.

Translation into Spanish of moderately difficult English prose passages. Free composition in Spanish. Outside reading of modern Spanish plays, with written reports in Spanish. Oral practice on colloquial Spanish with extensive use of phonograph recordings. Special sections available for the Spanish speaking.

**102A-102B. Survey Course in Spanish Literature (3-3)**

Prerequisite: Spanish 4 with a grade of C or better.

Important movements, authors, and works in Spanish literature from the Middle Ages to the present.

**104A-104B. Spanish-American Literature (3-3)**

Prerequisites: Spanish 4 and 11 with grade of C or better.

Reading from representative Spanish-American authors during the colonial, revolutionary and modern periods. Lectures, class reading, collateral reading and reports.

**105A-105B. Modern Spanish Drama (3-3)**

Prerequisites: Spanish 4 and 11 with grade of C or better.

The development of the drama of Spain from the beginning of the nineteenth century to the present time.

**106A-106B. Mexican Literature (3-3)**

Prerequisites: Spanish 4 and 11 with grade of C or better.

Aspects of Mexican culture. The first semester, a rapid survey of Mexican literature from the colonial period to the twentieth century. The second semester, the twentieth century, with emphasis on the contemporary Mexican novel and theater.

**107. Caribbean Area Countries Literature (3)**

Prerequisites: Spanish 4 and 11.

Literature of Caribbean Islands, Central America, Colombia and Venezuela, from colonial period to present. Special emphasis on contemporary era.

**108. Andean Countries Literature (3)**

Prerequisites: Spanish 4 and 11.

Literature of Ecuador, Peru, Bolivia and Chile from the period immediately preceding the Spanish conquest to today.

**109. River Plate Literature (3)**

Prerequisites: Spanish 4 and 11.

Literature of Argentina, Paraguay and Uruguay from colonial period to present.

**110. Nineteenth Century Spanish Novel and Short Story (3)**

Prerequisites: Spanish 4 and 11.

The development of the novel and short story in Spain in the nineteenth century.

**111. Twentieth Century Spanish Novel and Short Story (3)**

Prerequisites: Spanish 4 and 11.

The development of the novel and short story in Spain to 1936, with emphasis on the novel of the generation of 1898.

**112. Contemporary Spanish Novel (3)**

Prerequisites: Spanish 4 and 11.

The development of the novel and short story in Spain since 1936.

**130. Poetry of the Spanish Golden Age (3)**

Prerequisites: Spanish 4 and 11.

Major poets of the Siglo de Oro.

**131. Prose of the Spanish Golden Age (3)**

Prerequisites: Spanish 4 and 11.

Major prose writers of the Siglo de Oro.

**132. Drama of the Spanish Golden Age (3)**

Prerequisites: Spanish 4 and 11.

The major dramatists of the Siglo de Oro.

**140. Spanish Civilization (2) I**

An advanced course in Spanish culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

**141. Spanish-American Civilization (2) II**

An advanced course in Spanish-American culture. From the period of the Spanish Conquest to the present, with emphasis on the arts, literature, and philosophy. Lectures, class discussions, outside readings, written reports on individual topics.

**149. Spanish Linguistics (3)**

Prerequisites: Spanish 4 and 11.

Structural, historical, and applied Spanish linguistics.

**150. Phonetics and Phonemics (3) II**

Prerequisites: Spanish 4 and 11 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.

**166. Honors Course (1-3) I, II**

Refer to Honors Program.

**170. Spanish-American Poetry (3)**

Prerequisites: Spanish 4 and 11.

Spanish-American poetry of the 19th and 20th centuries.

**171. Spanish-American Short Story (3)**

Prerequisites: Spanish 4 and 11.

Principal Spanish-American short story writers.

**172. Spanish-American Theatre (3)**

Prerequisites: Spanish 4 and 11.

Principal Spanish-American dramatists and movements.

**180. Modern Spanish Poetry (3)**

Prerequisites: Spanish 4 and 11.

Spanish poetry of the 19th and 20th centuries.

**190. Advanced Grammar (3)**

Prerequisites: Spanish 101A and 101B.

Significant systematic features of modern Spanish grammar with analysis of passages from literature. Recommended for credential applicants.

**199. Special Study (1-3) I, II**

Individual study. Six units maximum credit. 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 staff.

## GRADUATE COURSES

NOTE: All graduate courses have a prerequisite of twelve units of upper division Spanish, including specific prerequisites in Spanish, or consent of the instructor.

**201. History of the Spanish Language (3)**

Prerequisite: Credit or concurrent enrollment in Spanish 149 or 150.

The development of the Spanish language in Spain and Spanish America, with particular attention to the phonology, morphology, and syntax of medieval Spanish.

**202. Cervantes (3)**

The principal prose works of Cervantes: The *Novelas ejemplares* and *Don Quixote*.



## Spanish

- 203. Lope de Vega and Calderon (3)**  
The works of Lope de Vega and Calderon.
- 204. The Spanish-American Novel (3)**  
The Spanish-American novel to 1935.
- 205. The Gaucho Epic (3)**  
The *Poesía gauchesca*, with particular emphasis on *Martín Fierro*, *Fausto*, and *Santos Vega*.
- 206. Modernism (3)**  
The *Modernista* movement in Spanish America, with special attention to representative poets.
- 207. Medieval Spanish Literature (3)**  
Prerequisite: Spanish 201.  
The literature of Spain from the earliest extant works to the *Celestina*.
- 208. The Modern Spanish Essay (3)**  
The thinkers, essayists, and philosophers of Spain from the generation of 1898 to the present.
- 209. The Spanish-American Essay (3)**  
Principal Spanish-American essayists of the 19th and 20th centuries.
- 210. Contemporary Spanish-American Prose Fiction (3)**  
The principal writers of prose fiction in Spanish America from the mid-thirties to today.
- 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.
- 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.
- 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.
- 250. Seminar in Spanish-American Literature (3)**  
A genre or movement of Spanish America. Maximum credit six units applicable on a master's degree.
- 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.
- 260. Seminar in Medieval Spanish Literature (3)**  
A representative author of the medieval period. Maximum credit six units applicable on a master's degree.
- 270. Applied Spanish Linguistics for Teachers (3)**  
Prerequisite: Spanish 149 or 150.  
The application of linguistic theory to the teaching of Spanish at the secondary and college levels.
- 290. Research and Bibliography (3)**  
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. Recommended for the first semester of graduate work.

## Speech Communication

- 294. Comprehensive Reading and Survey Course (3)**  
Prerequisite: Consent of graduate adviser and department chairman.  
Important movements, authors, and works in Spanish literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the M.A. degree.
- 298. Special Study (1-3)**  
Individual study. Six units maximum credit.  
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
- 299. Thesis (3)**  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.

## SPEECH COMMUNICATION

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Professors: Ackley, Adams, Benjamin, Mills (Chairman)  
Associate Professor: Samovar  
Assistant Professors: Sanders, Smith, C.

#### Offered by the Department

Master of Arts degree in speech. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)  
Major in speech with the A.B. degree in applied arts and sciences.  
Minor in speech.  
Teaching major in speech with specialization in secondary teaching.  
Teaching minor in speech with specialization in both elementary and secondary teaching.

#### SPEECH 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 78 of this catalog.  
A minor is not required with this major.

**Preparation for the major.** Speech Communication 4, 11A or 11B, 60, and 62. (12 units.)

**Major.** A minimum of 28 upper division units to include Speech Communication 101, 108, 130, 135, 162, 190, 192B, and nine units of electives in speech communication.

#### SPEECH MINOR

The minor in speech consists of a minimum of 23 units in speech communication to include Speech Communication 3 or 4, 11A or 11B, 60, 62, and twelve units of upper division electives in speech communication.

#### SPEECH MAJOR

##### FOR THE STANDARD 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 the students in Teacher Education as an undergraduate major for the A.B. degree in applied arts and sciences.



## Speech Communication

### Specialization in Secondary Teaching

**Preparation for the major.** Speech Communication 4, 11A or 11B, 60, 62. (12 units.)

**Teaching major (undergraduate).** A minimum of 28 upper division units to include Speech Communication 101, 108, 130, 135, 162, 190, 192B, and nine units of electives in speech communication.

**Postgraduate Year.** Six upper division or graduate units in speech communication. These may include any 100-numbered course not previously taken or any 200-numbered course.

## SPEECH MINOR

### FOR THE STANDARD TEACHING CREDENTIAL

The minor in speech for elementary and secondary teaching consists of a minimum of 23 units to include Speech Communication 3 or 4, 11A or 11B, 60 and 62 and twelve units of upper division electives drawn from the speech communication major pattern.

### LOWER DIVISION COURSES

#### 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 3 or 4 recommended in general education. Not open to students with credit for Mexican-American Studies 2A. (Formerly numbered Speech Arts 3.)

#### 4. Intermediate 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 3 or 4 recommended in general education. Not open to students with credit for Mexican-American Studies 2A. (Formerly numbered Speech Arts 4.)

#### 11A. Fundamentals of Interpretation (3) I, II

Application of the principles involved in "making words come alive": response to thought and mood, sensory association, emphasis, climax. Practice selections in poetry and prose. (Formerly numbered Speech Arts 11A.)

#### 11B. Intermediate Interpretation (3)

Prerequisite: Speech Communication 11A.

Oral reading of various types of material suitable for popular audiences: stories, humorous sketches, light and sentimental verse. (Formerly numbered Speech Arts 11B.)

#### 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. (Formerly numbered Speech Arts 60.)

#### 61. Intercollegiate Debate (1) I, II

Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. Maximum credit four units, for 61 and 161. (Formerly numbered Speech Arts 61.)

#### 62. Interpersonal Communication (3)

Prerequisite: Speech Communication 3 or 4.

Principles and application of interpersonal communication. Special emphasis on listening, interviewing, group dynamics, serial transmission, feedback and general semantics. (Formerly numbered Speech Arts 62.)

#### 64. Principles of Parliamentary Procedures (1) I, II

Two hours.

The rules which govern discussion and procedures in organized assemblies. The class will be arranged as a parliamentary body to afford practice in the application of the rules. (Formerly numbered Speech Arts 64.)

## Speech Communication

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

#### 101. Management of Speech Activities (1) I, II

Planning, preparation, management and supervision of speech tournaments and other interscholastic activities under the supervision of the speech communication staff. Maximum credit two units. (Formerly numbered Speech Arts 101.)

#### 108. Advanced Interpretation (3) I, II

Prerequisite: Speech Communication 11A or 11B.

Analysis of techniques of literary composition as guides to oral interpretation. Achievements of the creative artists as they affect the interpretative artist. (Formerly numbered Speech Arts 108.)

#### 109. Workshop in Speech (1-3)

Study of some problem in speech communication. Maximum credit six units. (Formerly numbered Speech Arts 109.)

#### 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. (Formerly numbered Speech Arts 130.)

#### 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. (Formerly numbered Speech Arts 135.)

#### 161. Intercollegiate Debate (1) I, II

Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. Maximum credit four units for 61 and 161. (Formerly numbered Speech Arts 161.)

#### 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. (Formerly numbered Speech Arts 162.)

#### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

#### 190. Rhetorical Theory (3) I, II

An analysis of rhetorical theory with special attention to Plato, Aristotle, Cicero, Quintilian, Cox, Wilson, Blair, Campbell, Whately, Bain, and modern authors on public speaking. The development of a theory and rhetorical criticism, culminating in a critical evaluation of contemporary public address. (Formerly numbered Speech Arts 190.)

#### 191. Group Communication (3) I, II

The 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. (Formerly numbered and entitled: Speech Arts 191, Organized Discussion.)

#### 192A. Advanced Public Speaking (3) I

Prerequisite: Speech Communication 4.

The preparation and delivery of longer speeches. Study of classic models of public address. (Formerly numbered Speech Arts 192A.)



## Speech Communication

### 192B. Oral Persuasion (3) II

Prerequisite: Speech Communication 4.

Oral persuasion with an emphasis on motivation and the evaluation of persuasive techniques. Research project on a significant current problem. Results of research and persuasive principles used in actual speech. (Formerly numbered Speech Arts 192B.)

### 193. Mass Persuasion (3) I, II

Prerequisite: Speech Communication 4.

An historical and critical analysis of the theories, techniques and ethics of oral communicators who employ radio and television as a means of presenting social, political and religious issues. (Formerly numbered Speech Arts 193.)

### 194. History of Public Address (3) II

Prerequisite: Speech Communication 4.

Speakers and speaking from Ancient Greece to the present. Functions of public speaking in the growth and development of ideas, ideals, and institutions. (Formerly numbered Speech Arts 194.)

### 195. Rhetorical Criticism (3) II

Prerequisite: Speech Communication 190.

Principal philosophies of speech criticism. Formulation of standards for critical judgment. Experience in analyzing, interpreting, and evaluating speeches. (Formerly numbered Speech Arts 195.)

### 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.

### 199. Special Study (1-3) I, II

Individual Study. Six units maximum credit.

Prerequisite: Consent of instructor.

## GRADUATE COURSES

### 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.

### 208. Seminar in Oral Interpretation (3)

Prerequisite: Speech Communication 108.

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 applicable on a master's degree. (Formerly numbered Speech Arts 208.)

### 235. Seminar in Communication Theory (3)

Prerequisite: Speech Communication 135.

Theories of communication; communication models, codes, perception and effects. (Formerly numbered Speech Arts 235.)

### 262. Seminar in Argumentation (3)

Prerequisite: Speech Communication 162.

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. (Formerly numbered Speech Arts 262.)

### 282. Seminar: Contemporary American Public Address (3)

Prerequisites: Speech Communication 190 and 192A or 192B. (Formerly numbered Speech Arts 297.)

## Speech Pathology and Audiology

### 290. Experimental Procedures in Speech Communication (3)

Prerequisite: Credit or concurrent registration in Speech Communication 200.

Examination and evaluation of appropriate experimental procedures and traditional methods; special problems in research design. (Formerly numbered Speech Arts 290.)

### 291. Seminar in Group Discussion Theory (3)

Prerequisite: Speech Communication 191.

A study of descriptive and experimental literature on group discussion covering such topics as interaction, leadership, and means of evaluation. (Formerly numbered Speech Arts 291.)

### 293. Seminar: Greek and Roman Public Address (3)

Prerequisites: Speech Communication 190 and 192A or 192B. (Formerly numbered Speech Arts 293.)

### 294. Seminar: 18th Century British Public Address (3)

Prerequisites: Speech Communication 190 and 192A or 192B. (Formerly numbered Speech Arts 294.)

### 295. Seminar: American Public Address—1700-1900 (3)

Prerequisites: Speech Communication 190 and 192A or 192B. (Formerly numbered Speech Arts 295.)

### 298. Special Study (1-3)

Individual Study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis or Project (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## SPEECH PATHOLOGY AND AUDIOLOGY

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Professors: Earnest (Chairman), Pfaff

Associate Professors: Nichols, Riedman, Thile

Assistant Professor: Harris

#### Offered by the Department

Master of Arts degree in speech arts. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in speech pathology and audiology with the A.B. degree in applied arts and sciences.

Minor in speech arts with emphasis in speech pathology and audiology.

Restricted Credential for Speech and Hearing Specialist.

Teacher of Deaf and Severely Hard of Hearing Applicable to Standard Teaching Credential in place of Minor. (See the section of this catalog on the School of Education.)

### 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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Drama 10; Speech Pathology and Audiology 5 and 6; Speech Communication 3 or 4; Psychology 1 and 40. (16-17 units.)

**Major.** A minimum of 24 upper division units selected with the approval of the adviser from the following: Speech Pathology and Audiology 120, 121, 122, 123, 126, 127, 128, 129, 133, 140, 141, 142, 145, 150, 151, 152, 190, and 198.



## Speech Pathology and Audiology

### SPEECH ARTS MINOR

The minor in speech arts with emphasis in speech pathology and audiology consists of from 15 to 22 units in speech pathology and audiology, nine units of which must be in upper division courses.

#### LOWER DIVISION COURSES

##### 1. Speech for International Students (3)

Training in production of American speech sounds, blending and assimilation, American prose rhythm and oral communications. Emphasis on clarity and intelligibility. Practical work in aural comprehension. Prerequisite: Designation by speech testing committee. (Formerly numbered Speech Arts 1-X.)

##### 2. Oral Communications for International Students (2) I

Oral expression; obtaining, organizing material; outlining; pronunciation. May substitute for Speech Communication 3 or 4. (Formerly numbered Speech Arts 1-Y.)

##### 3. Oral Communication Laboratory (1) I, II

Two hours of laboratory.  
Individual laboratory training on specific speech problems. Students chosen through testing by Department of Speech Pathology and Audiology. (Formerly numbered Speech Arts 2.)

##### 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. (Formerly numbered Speech Arts 71.)

##### 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. Twenty-five hours of observation or project required. (Formerly numbered Speech Arts 70.)

##### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

##### 101. Management of Clinical Activities (1) I, II

Assisting in running a modern speech and hearing clinic. Practice in many problems of contacting parents; setting up diagnostic services, running equipment, screening assessment, etc. Maximum credit three units. (Formerly numbered and entitled: Speech Arts 101, Management of Speech Arts Activities.)

##### 120. Phonetics (3) I, II

Auditory and kinesthetic analysis of the sounds of the English language. Problems of foreign and bilingual dialect. (Formerly numbered Speech Arts 100.)

##### 121. Anatomy, Physiology and Pathology of Speech (3) I, II

Prerequisite: Speech Pathology and Audiology 6.  
Anatomy, physiology and pathology of speech. Survey of aphasia, cerebral palsy, cleft palate, voice disorders, including study of multiply handicapped child.

##### 122. Functional Problems of Speech (3) I

Prerequisite: Speech Pathology and Audiology 121.  
Genetic and cultural aspects of speech and language; phenomena of human communication; theories of learning and behavior, relation between disorders of personality and difficulties in communication; i.e., speech disorders of emotional etiology. (Formerly numbered Speech Arts 173.)

## Speech Pathology and Audiology

##### 123. Mechanics of Speech Production (3) I

Two lectures and two hours of laboratory.  
Prerequisite: Psychology 50.  
Functional anatomy of head, neck and thorax including laboratory exercises and demonstrations of charts, models, histological materials and cadavers. (Formerly numbered Speech Arts 172.)

##### 124. Principles and Methods of Speech Correction (3) I

(Same course as Education 174)  
Prerequisites: Speech Pathology and Audiology 120 and 121.  
Etiology and treatment of the more common speech disorders, including physiology of speech, voice disorders, cleft palate, foreign dialect. (Formerly numbered Speech Arts 174.)

##### 125. Stuttering and Neurological Disorders (3) II

(Same course as Education 176)  
Prerequisites: Speech Pathology and Audiology 120 and 121.  
Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy speech problems and aphasia in adults and children. Study of child or adult who presents multiple problems. (Formerly numbered Speech Arts 176.)

##### 126. Field Work in Clinical Practice in Speech Pathology (1-3) I, II, S

Prerequisites: Speech Pathology and Audiology 120, 121 and three additional upper division units in speech pathology and audiology.  
Supervised work with representative speech problems: "staffing" cases, testing; record keeping. Maximum credit eight units for both 126 and 145. One unit represents 26 hours of direct clinical practice. (Formerly numbered Speech Arts 180A.)

##### 127. Diagnostic Methods in Speech Pathology (3) I, II

Prerequisite: Credit or concurrent registration in Speech Pathology and Audiology 126.  
Case history taking, testing, interviews, clinical reporting, child, parent and teacher counseling with all types of speech cases, including disorders of delayed speech, articulation, and mental retardation. (Formerly numbered and entitled: Speech Arts 179A, Clinical Methods in Speech Correction.)

##### 128. Diagnostic Methods in Speech Pathology (3) I, II

Prerequisites: Speech Pathology and Audiology 120, 121, 127, and 140.  
Supervised clinical experience of diagnostic techniques in speech pathology; testing, parent interviewing, report writing, and staffing of cases. Practicum minimum of six hours. (Formerly numbered and entitled: Speech Arts 179B, Diagnostic Methods in Speech Pathology.)

##### 129. Speech Therapy in the Public Schools (3) I

Prerequisites: Speech Pathology and Audiology 6 and 121.  
Knowledge, goals, organization, procedures in public education as related to speech and hearing; conducting surveys; preparing reports. (Formerly numbered Speech Arts 170B.)

##### 133. Clinical Practice in Public Schools (3) I, II

Clinical practice in elementary or secondary schools in speech therapy. (Applies only toward Restricted Credential, Speech and Hearing Specialist. Meets the minimum of 90 clock hours required by State of California.)

##### 140. Audiometry: Principles (3) I, S

(Same course as Education 177)  
Prerequisite: Psychology 50.  
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. (Formerly numbered Speech Arts 171A.)



## Speech Pathology and Audiology

### 141. Audiometry: Application (3) II

Two lectures and two hours of laboratory.

Prerequisite: Speech Pathology and Audiology 140.

Tuning fork assessment, speech testing, masking, tests for nonorganic and for sensorineural hearing loss, industrial audiometry and hearing aid evaluation. (Formerly numbered Speech Arts 171B.)

### 142. Techniques of Audiometry (1-3) I, II

Three hours of laboratory per unit.

Prerequisite: Credit for or concurrent registration in Speech Pathology and Audiology 140.

Provides the laboratory experience necessary for the California School Audiometrist Certificate when taken concurrently with 171A. Duplicates classic auditory experiments when taken in conjunction with 143 or 244. Maximum credit three units. (Formerly numbered Speech Arts 171C.)

### 143. Hearing Amplification (3) II

Prerequisites: Speech Pathology and Audiology 140 and 141.

Specific application of amplification for rehabilitation of the impaired hearing mechanism; devices, methods for their evaluation, historical perspective and practical considerations. (Formerly numbered Speech Arts 175.)

### 145. Field Work in Clinical Practice in Testing Hearing (1-3) I, II, S

Prerequisite: Speech Pathology and Audiology 141 or 151.

Supervised work with pure tone and speech audiometric testing and hearing therapy (i.e., not deaf). Maximum credit eight units for both 126 and 145. One unit represents 26 hours of direct clinical practice. (Formerly numbered Speech Arts 180B.)

### 150. Education of Deaf Children (3) I

Educational programs, services and resources for hearing impaired, historical background, philosophy, sociological and psychological problems. (Formerly numbered and entitled: Speech Arts 169, Education of Hearing Impaired Children.)

### 151. Communication Skills for the Deaf (3) II

(Same course as Education 178A)

Prerequisite: Speech Pathology and Audiology 140.

History, theory and methods of lipreading; auditory training. (Formerly numbered Speech Arts 178A.)

### 152. Speech Skills for the Deaf (3) I

Prerequisites: Speech Pathology and Audiology 121 and 150.

Theory and methods of teaching speech to the deaf. Twenty-six hours of observation in programs for deaf, severely hard of hearing. (Formerly numbered and entitled: Speech Arts 178B, Communication Skills for the Deaf.)

### 153. Language Skills for the Deaf (3) I

Prerequisites: Speech Pathology and Audiology 121 and 150.

General theoretical framework of language development; linguistic problems inherent in deafness. Principles and methods of teaching language to the deaf. Twenty-six hours of observation in programs for deaf and severely hard of hearing.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 190. Workshop in Speech Pathology and Audiology (1-3) I, II

Study of some problem in speech pathology or audiology. Maximum credit six units. (Formerly numbered Speech Arts 109.)

### 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.

## Speech Pathology and Audiology

### GRADUATE COURSES

### 200. Research and Bibliography (3) I

Bibliographical 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.

### 201. Voice Science (3)

Prerequisite: Speech Pathology and Audiology 203.

Relationship of basic principles of sound to the speech mechanism. Analysis of speech sound production. Application of mechanical and electronic equipment to speech. (Formerly numbered Speech Arts 276.)

### 202. Problems of Aphasia (3)

Prerequisites: Speech Pathology and Audiology 121, 123, and 125.

Principles of evaluation of aphasia, familiarity with diagnostic tools, theories of aphasia and therapy for persons with disorders of symbolization: i.e. adult and congenital aphasia. Evaluation of current research in aphasia studies. (Formerly numbered Speech Arts 271.)

### 203. Problems of Cerebral Palsy (3)

Prerequisites: Speech Pathology and Audiology 121, 123, and 124.

Principles of evaluation, theories of treatment and therapy for persons with speech disorders in cerebral palsy. Evaluation of current research in cerebral palsy. (Formerly numbered Speech Arts 272.)

### 204. Problems of Cleft Palate (3)

Prerequisites: Speech Pathology and Audiology 121, 123, and 124.

Principles of diagnosis and therapy for persons with cleft palate speech problems. Evaluation of current research in this area. (Formerly numbered Speech Arts 273.)

### 205. Problems of Stuttering (3)

Prerequisites: Speech Pathology and Audiology 121, 122, and 125.

Principles of evaluation of theories, individual and group therapy for child and adult stutterer; evaluation of current research in this area. (Formerly numbered Speech Arts 274.)

### 206. Problems of Voice Pathology (3)

Prerequisites: Speech Pathology and Audiology 121, 123, 124, and 125.

Structural, medical and functional voice problems. Diagnosis, theories and therapy for vocal problems. Evaluation of current research. (Formerly numbered Speech Arts 275.)

### 226. Advanced Field Work in Clinical Practice in Speech Pathology (1 or 2) I, II, S

Prerequisites: Speech Pathology and Audiology 124 and 125.

Supervised work with representative advanced speech cases such as stuttering, aphasia, laryngectomies, etc. Maximum credit four units. Maximum credit four units of 226 and 255 applicable on a master's degree. (Formerly numbered Speech Arts 280A.)

### 228. Advanced Diagnostic Methods in Speech Therapy (3)

Prerequisites: Speech Pathology and Audiology 126, 127, and 128.

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. (Formerly numbered Speech Arts 279.)

### 240. Medical Audiology (3) II

Prerequisites: Speech Pathology and Audiology 145 and 244.

Problems of diagnosis, referral and report writing. Testing in a medical setting and medically significant hearing pathologies. (Formerly numbered Speech Arts 278.)



## Telecommunications and Film

### 244. Audiology (3) I

Prerequisite: Speech Pathology and Audiology 141.  
Psychophysical concepts underlying clinical audiology. Relationship of audiologic test results to the conditions under which they were obtained. (Formerly numbered Speech Arts 177.)

### 250. Seminar in Audiology (3)

Prerequisite: Speech Pathology and Audiology 244.  
Major research in clinical audiology. Audiologic techniques used in differential diagnosis. Maximum credit six units applicable on a master's degree. (Formerly numbered Speech Arts 277.)

### 255. Advanced Field Work in Clinical Practice in Hearing Problems (1 or 2) I, II, S

Prerequisites: Speech Pathology and Audiology 140, 151, and 244.  
Advanced casework in hearing evaluation, record keeping, research problems, and therapy (auditory training, lipreading, speech correction for hard of hearing or deaf, and language building). Maximum credit four units. Maximum credit four units of 226 and 255 applicable on a master's degree. (Formerly numbered Speech Arts 280B.)

### 298. Special Study (1-3)

Individual study. Six units maximum credit.  
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.

## TELECOMMUNICATIONS AND FILM

### IN THE COLLEGE OF PROFESSIONAL STUDIES

#### Faculty

Professors: Jones, Lee (Chairman)  
Associate Professors: Madsen, Wylie  
Assistant Professors: Anderson, Jameson, Johnson, E., Johnson, J., Martin, Meador

#### Offered by the Department

Master of Arts degree in speech arts. (Described in the Graduate Bulletin. Also refer to the section of this catalog on the Graduate Division.)  
Major in telecommunications with the A.B. degree in applied arts and sciences.  
Major in drama with emphasis in design for telecommunications. (Refer to this section of the catalog on Drama.)  
Major in radio, television, and film with the B.S. degree in applied arts and sciences.  
Minor in telecommunications.

### TELECOMMUNICATIONS 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 129 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.

## Telecommunications and Film

**Preparation for the major.** Telecommunications and Film 1, 3, 10, 20, 30, 67 and 83. (21 units.)

**Major.** A minimum of 24 upper division units in telecommunications and film to include Telecommunications and Film 101 or 105, 162, 196 and fifteen 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, AND FILM 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 78 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 1, 3, 10, 20, 30, 67 and 83. (21 units.)

**Major.** A minimum of 36 upper division units to include Telecommunications and Film 162 and 196, a core professional sequence, and a minimum of six units in an allied professional sequence.

#### Core Professional Sequence.

TV Production: Telecommunications and Film 101 or 105, 110, 156, 183, 184. (18 units.)

Management: Telecommunications and Film 101, 103, 105, 130, and Psychology 122. (15 units.)

Film: Telecommunications and Film 101 or 105, 110, 150, 156, 168. (17 units.)

Allied Professional Sequences. (Courses taken in Core Professional Sequences cannot be counted toward the Allied Professional Sequence.)

Advertising. Telecommunications and Film 103, Business Administration 150, 153, and Journalism 153.

Art. Art 107, 114A, 114B, 190, and Industrial Arts 115.

Communication. Speech Communication 135, 193, Journalism 117, 121, and 162.

Criticism. Humanities 138, Music 151, Philosophy 142, Comparative Literature 152A, 152B, and Speech Communication 195.

Education. Telecommunications and Film 170, Education 101, 111, and 144.

Information Systems. Business Administration 184, 185, 186, and 187.

International Media. Telecommunications and Film 108, 163, and Journalism 118.

Management. Telecommunications and Film 101, Business Administration 140, 143 and 145.

News. Telecommunications and Film 105, 112, and Journalism 102, 124, and 125.

Performance. Telecommunications and Film 180, 181, and Speech Communication 108.

Playwriting. Telecommunications and Film 110, Drama 120, 122, and English 106.

Scene Design. Telecommunications and Film 150, 156, and Drama 140A and 148.

### TELECOMMUNICATIONS MINOR

The minor in telecommunications consists of from 15 to 22 units in telecommunications and film to include Telecommunications and Film 1 and 3, and at least six units in upper division courses.

#### LOWER DIVISION COURSES

##### 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



## Telecommunications and Film

broadcasting and the organization of commercial and educational radio and television stations. (Formerly numbered Speech Arts 80.)

### 3. Technical Operations for Broadcasting (3) I, II

Two lectures and more than three hours of scheduled activity.  
Control room and studio techniques necessary for radio and television operation. Includes camera operation, video control, television lighting, television recording, and operation of audio equipment. Students work on crews of KEBS-FM and TV, and ETV productions. (Formerly numbered Speech Arts 81.)

### 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. Students provide continuity for KEBS-FM. (Formerly numbered Speech Arts 79.)

### 20. Introduction to Photography (3) I, II

(Same course as Industrial Arts 40.)  
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 50. (Formerly numbered Speech Arts 85.)

### 30. Radio Production (3) I, II

Two lectures and more than three hours of scheduled activity.  
Prerequisite: Telecommunications and Film 3.  
Theory of radio production augmented by practice in program planning and production for KEBS-FM. (Formerly numbered Speech Arts 82.)

### 32. Workshop in Educational Radio Broadcasting (6) S (9 weeks)

Practice and theory in educational radio broadcasting operations, to include program planning, staff administration, and announcing. Students in the workshop will function in staff duties for KEBS-FM. Offered jointly with Telecommunications and Film 132. Not open to students with credit for Telecommunications and Film 132. (Formerly numbered Speech Arts 44S.)

### 56. Staging and Art for Television and Film (3) I, II

Two lectures and three hours of laboratory.  
Technical practices, aesthetic considerations, and organization of production for television and film. (Formerly numbered and entitled: Speech Arts 56, Dramatic Production.)

### 67. Cinema as Art and Communication (3) I, II

Prerequisite: Sophomore standing.  
An appreciative survey of cinema, with emphasis upon the feature film and the documentary. Historical and stylistic influences upon the aesthetic values and social implications of cinema. Illustrated by screen examples. (Formerly numbered Speech Arts 67.)

### 70. Broadcasting Activities for Schools (3) I

Two lectures and three hours of scheduled activity.  
The planning and production of radio and television broadcasts. Designed for students interested in handling broadcast activities in speech and drama classes and workshops for high schools and junior colleges. Not open to students with credit in Telecommunications and Film 1. (Formerly numbered Speech Arts 86.)

### 83. Television Production and Directing (3) I, II

Two lectures and more than three hours of scheduled activity.  
Prerequisites: Telecommunications and Film 3 and 10.  
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. (Formerly numbered Speech Arts 83.)

## Telecommunications and Film

### 90. Broadcast and Film Performance (3) I, II

Two lectures and more than three hours of scheduled activity.  
Prerequisites: Drama 10 or Speech Communication 11A, and Drama 30.  
Preparation and delivery of materials before the microphone and camera. Participation in productions for KEBS-FM, KEBS-TV, ETV, ITV and motion pictures. (Formerly numbered Speech Arts 88.)

### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

### 101. Broadcast Management (3) I, II

Prerequisites: Telecommunications and Film 1, 30, and 83.  
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. (Formerly numbered Speech Arts 181.)

### 103. Broadcast Advertising (3) I

Theory, procedures, and the role of broadcast advertising, including marketing and media research, campaign planning, media strategy, time purchasing, and evaluation. (Formerly numbered Speech Arts 147.)

### 105. Regulation of Broadcasting (3) I, II

Prerequisites: Telecommunications and Film 1, 30, and 83.  
Responsibilities of broadcasters as prescribed by law, governmental policies and regulations, and significant court decisions. (Formerly numbered Speech Arts 120.)

### 108. International Broadcasting (3) II

Prerequisite: Telecommunications and Film 105.  
Comparative study of broadcasting in various world areas; economic, social, and political determinants of broadcasting patterns. (Formerly numbered Speech Arts 121.)

### 110. Writing and Producing for Broadcasting and Film (3) I, II

Prerequisites: Telecommunications and Film 1, 30, and 83.  
Scripting of dramatic and documentary forms, to include the development of original materials and adaptations for the broadcast media and film, as well as problems in the post-writing process of preparing scripts for production, and the development of program and series ideas. (Formerly numbered Speech Arts 186.)

### 112. Radio and Television News (3) I, II

(Same course as Journalism 104)  
Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures and kinescopes; filming, editing and scripting news on motion pictures; using recorders to report special events. (Formerly numbered Speech Arts 187.)

### 130. Radio Programming (3) II

Two lectures and more than three hours of scheduled activity.  
Prerequisites: Telecommunications and Film 1 and 30.  
Formats, policies, production practices, and research in modern programming. Student work is broadcast on KEBS-FM. (Formerly number Speech Arts 146.)

### 132. Workshop in Educational Radio Broadcasting (6) S (9 weeks)

Practice and theory in educational radio broadcasting operation to include program planning, staff administration, and announcing. Students in this workshop will function in staff duties for KEBS (FM). Offered jointly with Telecommunications and Film 32. (Formerly numbered Speech Arts 144S.)

### 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



## Telecommunications and Film

transmission. Work on KEBS-TV, ETV, CCTV, and formal films. (Formerly numbered and entitled: Speech Arts 145A-145B, Stage Lighting.)

### 156. Advanced Lighting and Staging for Television and Film (4) I, II

One lecture and more than nine hours of scheduled activity.

Prerequisites: Telecommunications and Film 3, 20, 56.

Production elements of television and film, to include lighting and staging techniques, art and graphics, scene design and scene decoration. Experience in various technical and production specialties of television and film, as demonstrated principally by work for KEBS-TV and ETV. (Formerly numbered Speech Arts 182.)

### 162. Film Techniques (3) I, II

Two lectures and three hours of scheduled activity.

Prerequisite: Telecommunications and Film 20.

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. (Formerly numbered Speech Arts 167.)

### 163. International Cinema (3) I

Prerequisite: Telecommunications and Film 67.

Foreign feature films as expressions of national attitudes. (Formerly numbered Speech Arts 189.)

### 165. Animated Film Techniques (3) I, II

Screening of representative examples and production of a filmograph or animated motion picture. (Formerly numbered Speech Arts 197.)

### 166. Honors Course (1-3) I, II

Refer to Honors Program.

### 168. Film Production (4) I, II

One lecture and nine hours of scheduled activity.

Prerequisite: Telecommunications and Film 162.

Advanced practicum in film production. Studio and location work in the preparation of filmed materials, and complete nontheatrical films. (Formerly numbered Speech Arts 168.)

### 170. Educational Broadcasting (3) II

Prerequisites: Telecommunications and Film 1, and Education 101.

The role of educational broadcasting in the United States: social and educational impact of noncommercial radio and television; introduction to production techniques for instructional television; and procedures for the utilization of television in the classroom. (Formerly numbered Speech Arts 185.)

### 172. Workshop in Educational Television (6) S

(Same course as Education 143-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. (Formerly numbered Speech Arts 143S.)

### 180. Directing Television and Film Drama (3) I, II

Planned for prospective directors of plays for television and film. The student will become acquainted with principles, procedures and methods. (Formerly numbered and entitled: Speech Arts 159, Dramatic Production Directing.)

### 181. Acting for TV and Film (3) I, II

Prerequisite: Drama 55A.

Interrelationship of acting and the various media—radio, television, film. Experience in film and television productions. (Formerly numbered Speech Arts 123.)

## Telecommunications and Film

### 183. Advanced Programing and Development for Television (4) I, II

One lecture and more than nine hours of scheduled activity.

Prerequisites: Telecommunications and Film 110, 162, and consent of instructor.

The development of program ideas into formats for television productions of all types. Experience in developing and producing programs for CCTV and ETV. (Formerly numbered Speech Arts 183.)

### 184. Advanced Television Directing (4) I, II

One lecture and more than nine hours of scheduled activity.

Prerequisites: Telecommunications and Film 1, 56, 83, 162, 180 and consent of instructor.

Presentational techniques and individual projects in the direction and production of television programs for CCTV and ETV. (Formerly numbered Speech Arts 184.)

### 195. Workshop in Broadcasting (1-3) I, II

Study of some problem in radio, television or film. Maximum credit six units. (Formerly numbered and entitled Speech Arts 109, Workshop in Speech.)

### 196. Senior Project in Telecommunications and Film (3) I, II

Limited to students in Telecommunications and Film.

Student must demonstrate proficiency in a phase of broadcasting from development of a program idea through production for either radio, television, or film. A research paper may be substituted at the discretion of the adviser if the project chosen does not involve production. (Formerly numbered and entitled Speech Arts 188, Senior Project in Broadcasting.)

### 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.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

## GRADUATE COURSES

### 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 speech. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.

### 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. (Formerly numbered Speech Arts 283.)

### 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 upon broadcasting in the U.S. (Formerly numbered Speech Arts 282.)

### 205. Mass Communications Research (3)

Prerequisite: Telecommunications and Film 200.

Design and execution of a media research project; audience and message analysis; experimental design and survey research methodology. (Formerly numbered and entitled Speech Arts 281, Survey Research in Broadcasting.)

### 210. Seminar in Writing for Broadcast and Film (3)

Prerequisites: Telecommunications and Film 110, 162, and 163.

Dramatic structures as they apply to broadcasting and cinema. Writing a full-length script or scenario. (Formerly numbered Speech Arts 286.)



## Zoology

### 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. (Formerly numbered Speech Arts 287.)

### 268. Directing the Dramatic Film (3)

Prerequisites: Telecommunications and Film 168, 180 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. (Formerly numbered Speech Arts 268.)

### 270. Seminar in Educational Broadcasting (3)

Prerequisite: The equivalent of an undergraduate major in telecommunications and film.

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. (Formerly numbered Speech Arts 285.)

### 272. Seminar in Mass Communication Theory (3)

Prerequisite: Speech Communication 135.

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. (Formerly numbered Speech Arts 288.)

### 273. Mass Communications Message Design (3)

Prerequisite: Speech Communication 135.

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.

### 284. Seminar in Programing and Production (3)

Prerequisite: The equivalent of an undergraduate major in telecommunications and film.

Theory and analysis of programming and production of broadcasting. (Formerly numbered Speech Arts 284.)

### 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

## ZOOLOGY

### IN THE COLLEGE OF SCIENCES

#### Faculty

Emeritus: Harwood

Professors: Bohnsack, Crawford, Crouch, Etheridge (Chairman), Huffman, Hunsaker, Olson

Associate Professors: Carpenter, Cohn, Collier, McLean, Norland, Plymale, Wilson

Assistant Professors: Catlett, Chen, Dexter, Lillegraven

Lecturer: Kaston

## Zoology

### Offered by the Department

Master of Arts degree in biology and an emphasis in zoology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

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.

Minor in zoology.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

### 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 82 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 1, 2, and 15; Zoology 50 and 60 or 106; Chemistry 1A-1B and 11 or 12; Physics 1A-1B or 2A-2B; and Mathematics 21 or 40. (38-42 units.) Recommended: Mathematics 22 or 50, and physics 3A and 3B if 2A-2B were taken.

**Major.** A minimum of 24 upper division units in biology, botany, microbiology and zoology to include the following: Biology 101 or Zoology 140; Biology 110 and 155; Botany 101 or 102 or 103; Biology 101 or 103, or Microbiology 101, or Zoology 108; Biology 156 or Zoology 102.

### 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 78 of this catalog.

A minor is not required with this major.

**Preparation for the major.** Biology 1, 2, and 15; Zoology 50, and 60 or 106; Chemistry 1A-1B and 11 or 12; Physics 1A-1B or 2A-2B; and Mathematics 21 or 40. (38-42 units.) Recommended: Mathematics 22 or 50, and Physics 3A and 3B if 2A-2B were 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 101 or Zoology 140; Biology 110 and 155; Botany 101 or 102 or 103; Biology 101 or 103, or Microbiology 101, or Zoology 108; Biology 156 or Zoology 102. Units to complete the major must be selected with the approval of the adviser; up to 8 upper division units can be in chemistry, geology, mathematics and physics.

### ZOOLOGY MINOR

The minor in zoology consists of from 15 to 22 units in biological sciences, six units of which must be in upper division courses, with the approval of the zoology adviser.

### BIOLOGICAL SCIENCES MAJOR

#### FOR THE STANDARD TEACHING CREDENTIAL

##### Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the Life Science Division adviser for biological sciences teaching programs.

**Postgraduate Year.** A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences. Courses must



## Zoology

have approval of the adviser for biology teaching programs. (Six units of graduate course work toward completion of a minor may be substituted for this requirement.)

### LOWER DIVISION COURSES

#### 8. Human Anatomy (4) I, II

Two lectures and six hours of laboratory.  
Prerequisite: An introductory course in high school or college biology or zoology.  
Systems of the human body and their interrelationships.

#### 50. Invertebrate Zoology (4) I, II

Two lectures and six hours of laboratory.  
Prerequisites: Biology 1 and 2.  
Structure, function, relationships and significance of invertebrate animals as shown through a study of selected invertebrate types.

#### 60. Vertebrate Zoology (4) I, II

Two lectures and six hours of laboratory.  
Prerequisites: Biology 1 and 2.  
An introductory course in the biology of the vertebrates with emphasis on the vertebrate organism as a whole: anatomy, physiology, development and evolution.

#### 99. Experimental Topics (2-4)

Refer to the catalog statement on Experimental Topics on page 129. 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

#### 102. Invertebrate Embryology (3)

Two lectures and three hours of laboratory.  
Prerequisite: Zoology 50.  
Description and experimental analysis of the development of invertebrates.

#### 106. Comparative Anatomy of the Vertebrates (4) I, II

Two lectures and six hours of laboratory.  
Prerequisites: Biology 1 and 2.  
Dissection, study and comparison of organ systems of typical vertebrates.

#### 108. Histology (4) I, II

Two lectures and six hours of laboratory.  
Prerequisites: Biology 1 and 2. Recommended: Zoology 8 or 60 or Microbiology 101.  
The microscopic structures and differentiation of tissues and organs of the vertebrates, especially mammals.

#### 112. Marine Invertebrate Zoology (4) I, II

Two lectures and six hours of laboratory.  
Prerequisites: Zoology 50 and Biology 110.  
Ecology, morphology, behavior, and physiology of marine invertebrates. Frequent field trips to local marine environments.

#### 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.

#### 115. Ichthyology (4) I, II

Two lectures and six hours of laboratory.  
Prerequisite: Zoology 60 or 106.  
Evolution, interrelationships, structure, identification, habits, and ecology of fishes.

## Zoology

#### 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.

#### 117. Ornithology (4) II

Two lectures and six hours of laboratory or field excursions, and a field project.  
Prerequisites: Biology 1 and 2 and consent of instructor.  
The study and identification of birds, especially those of the Pacific Coast and the San Diego region.

#### 118. Mammalogy (4) I

Two lectures and six hours of laboratory.  
Prerequisites: Zoology 60 or 106.  
The evolution, systematics, distribution, and ecology of mammals of the world.

#### 119-5. Field Zoology (4) 5

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.

#### 121. General Entomology (4) I, II

Two lectures and six hours of laboratory.  
Prerequisite: Zoology 50.  
Structure, physiology, natural history, and classification of insects.

#### 122. Advanced Entomology (3)

Two lectures and three hours of laboratory.  
Prerequisite: Zoology 121.  
Advanced treatment of some phase of entomology such as physiology, morphology, systematics or ecology, topic to be announced in the class schedule. Maximum credit six units, not more than three of which may apply to a master's degree.

#### 123. Immature Insects (3) II

Two lectures and three hours of laboratory.  
Prerequisite: Zoology 121.  
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.

#### 125. Economic Entomology (4)

Two lectures and six hours of laboratory.  
Prerequisite: Zoology 50 or Botany 103.  
Course designed for students of agriculture and horticulture. Emphasis is placed on determination and control of insects affecting plants. Quarantine measures are also studied.

#### 126. Medical Entomology (3) II

Two lectures and three hours of laboratory.  
Prerequisite: Zoology 50 or 60 or Microbiology 101.  
The role of insects and other arthropods in transmission and causation of human diseases.

#### 128. Parasitology (4) I, II

Two lectures and six hours of laboratory.  
Prerequisite: Zoology 50 or Microbiology 101.  
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.



## Zoology

### 130. Advanced Invertebrate Zoology (3) I, II

One lecture and six hours of laboratory.  
Prerequisite: Zoology 50.  
Selected topics in advanced invertebrate zoology. May be repeated with new content for a maximum of six units.

### 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.

### 140. Physiological Zoology (4) I, II

Two lectures and six hours of laboratory.  
Prerequisites: Zoology 60 or 106, and Chemistry 12.  
A comparative and evolutionary study of the functions of organ systems and their environmental significance.

### 145A-145B. Experimental Animal Surgery (2-2) I, II

One lecture and three hours of laboratory.  
Prerequisites: A course in vertebrate anatomy and a course in animal physiology and consent of instructor; 145A is prerequisite to 145B.  
Fundamental principles of animal care, disease prevention, and aseptic surgery.

### 150. Marine Biology (3) I, II

Two lectures and three hours of laboratory.  
Prerequisite: Biology 1.  
An introduction to marine organisms and their environment. Not open to students with credit for Zoology 50 or Biology 110.

### 155. Principles of Taxonomy, Systematics and Phylogeny (3) II

Two lectures and three hours of laboratory.  
Prerequisites: Any one of the following: Zoology 50, 60, 106, Botany 101, 102, 103.  
Basis for the classification of organisms. Modern concepts and their application in zoology. Specific problems in laboratory and field.

### 160. Vertebrate Paleontology (3) II

Three lectures.  
Prerequisite: Zoology 106.  
Advanced studies in the evolution of vertebrates.

### 166. Honors Course (1-3) I, II

Refer to the Honors Program.

### 170. Animal Behavior (4) I, II

Two lectures and six hours of laboratory.  
Prerequisites: Zoology 50 and 60 or Psychology 40, 50, and consent of instructor.  
Biological bases of animal behavior with emphasis on the ethological approach, including the evolution and adaptive significance of behavior.

### 172. Neurobehavior (4) II

Two lectures and six hours of laboratory.  
Prerequisites: Zoology 170 or Psychology 113 or 114, and consent of instructor.  
Evolution of the senses and central nervous system and their significance in animal behavior. Invertebrates and lower vertebrates will be emphasized. Advanced laboratory training in neurophysiology and psychobiology.

### 190. Senior Investigation and Report in Invertebrate Zoology (2)

Prerequisite: Consent of instructor.  
Investigation and reports on the current literature of invertebrate zoology.

### 191. Senior Investigation and Report in Vertebrate Zoology (2)

Prerequisite: Consent of instructor.  
Investigation and reports on the current literature of vertebrate zoology.

## Zoology

### 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. Four units maximum credit for Zoology 198 or a combination of this course with Biology or Microbiology 198.

### 199. Special Study (1-3) I, II

Individual study. Six units maximum credit.  
Prerequisites: Fifteen units in biological sciences with a grade of A or B and consent of instructor.

## GRADUATE COURSES

### 200. Seminar (2 or 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.

### 201. Seminar in Marine Zoology (2)

Prerequisite: Biology 110.  
Recent developments in marine zoology. Maximum credit four units applicable on master's degree.

### 206. Seminar in Vertebrate Morphology (2)

Prerequisite: Zoology 106.  
Current problems in the descriptive, functional and evolutionary anatomy of vertebrates. Maximum credit four units applicable on a master's degree.

### 209. Seminar in the Biology of Cold-blooded Vertebrates (2)

Prerequisite: Zoology 60 or 106.  
Biology of ectothermic animals. Maximum credit four units applicable on a master's degree.

### 210. Seminar in the Biology of Warm-blooded Vertebrates (2)

Prerequisites: Zoology 60 or 106.  
Biology of endothermic animals. Maximum credit four units applicable on a master's degree.

### 212. Advanced Marine Invertebrate Zoology (3)

One lecture and six hours of laboratory.  
Prerequisite: Zoology 112.  
Selected topics in advanced marine invertebrate zoology.

### 290. Bibliography (1)

The use of basic reference books, journals, pertinent bibliographies preparatory to the writing of a master's thesis.

### 291. Research Techniques (3)

Prerequisite: Consent of graduate adviser.  
Analysis of research techniques in zoology.

### 297. Research (1-3)

Research in one of the fields of Zoology. Maximum credit six units applicable on a master's degree.

### 298. Special Study (1-3)

Individual study. Six units maximum credit.  
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

### 299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Preparation of a project or thesis for the master's degree.







# FACULTY DIRECTORY

FOR 1969-1970

- LOVE, MALCOLM A. (1952) President  
A.B., Simpson College; M.A., Ph.D., University of Iowa; LL.D., Simpson College; L.H.D., Colorado State College; LL.D., University of Nevada; LL.D., University of San Diego.
- ABBOTT, MITCHEL T. (1964) Associate Professor of Chemistry  
B.Sc., Ph.D., University of California, Los Angeles.
- ACCOMANDO, ALLAN J. (1966) Assistant Professor of Mathematics  
B.A., M.S., New York University.
- ACKERLY, ROBERT S., JR. (1963) Assistant to Vice President for Academic Affairs  
B.A., College of Wooster; A.M., Colgate University; Ed.D., Indiana University.
- ACKLEY, JOHN W. (1947) Professor of Speech Communication  
A.B., University of Redlands; A.M., Ph.D., University of Southern California.
- ADAMS, EILEEN (Mrs. H. L.) (1949) Campus Laboratory School Librarian  
A.B., Willamette University; B.S. in L.S., University of Denver.
- \*ADAMS, WILLIAM J. (1955) Professor of Speech Communication  
B.S., McMurry College; M.A., Northwestern University; Ph.D., Stanford University.
- ADMIRE, LESLIE J. (Mrs. G. D.) (1969) Assistant Humanities Librarian  
B.A., M.L.S., University of Hawaii.
- AGARWAL, SOHAN L. (1969) Assistant Professor of Civil Engineering  
B.Sc., Panjab Engineering College, India; M.E., Roorkee University, India; Ph.D., University of Texas.
- †AGUIRRE, EDWARD (1963) Associate Professor of Industrial Arts  
B.A., M.A., Ed.D., Arizona State University.
- 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, JAMES V. (1967) Assistant Professor of Botany  
A.B., San Diego State College; M.S., Ph.D., University of California.
- \*ALF, EDWARD F., JR. (1963) Professor of Psychology  
A.B., San Diego State College; Ph.D., University of Washington.
- †ALLISON, EDWIN C. (1960) Professor of Geology  
B.S., M.A., Ph.D., University of California.
- ALMOND, FRANK W. (1968) Assistant Professor of Music  
A.B., M.A., San Diego State College; Ph.D. candidate, Florida State University.
- ALTAMURA, NICHOLAS C. (1967) Assistant Professor of French  
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.
- AMBRIANO, JOHN D. (1969) Assistant Sciences Librarian  
B.A., University of Oklahoma; M.L.S., Columbia University.
- ANDERES, EUGENE A. (1968) Assistant Professor of Microbiology  
A.B., M.S., San Diego State College; Ph.D., Oregon State University.
- ANDERSON, ALLAN W. (1962) Professor of Philosophy  
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 College; M.A., Claremont Colleges; Ph.D., University of Southern California.
- ANDERSON, BETTYE V. (Mrs.) (1969) Placement Interviewer  
A.B., San Diego State College.
- ANDERSON, DEL M. (Mrs. E. F.) (1969) Assistant Professor of Social Work  
A.B., M.S.W., San Diego State College.
- ANDERSON, DWIGHT G. (1969) Assistant Professor of Political Science  
B.A., University of Montana; M.A., Ph.D. candidate, University of California.
- ANDERSON, EVANS L. (1954) Professor of Elementary Education  
A.B., 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.

\* On leave, fall 1969-70.  
† On leave, spring 1969-70.  
‡ On leave, year 1969-70.

## Faculty

- ANDERSON, HAYES L. (1966) Assistant Professor of Telecommunications and Film  
B.A., Oregon State University; M.A. and additional graduate study, Michigan State University.
- ANDERSON, LEE R. (1968) Assistant Professor of Physical Science  
B.S., Stanford University; M.A., University of Oregon; M.S., Ph.D., Oregon State University.
- ANDERSON, PAUL S. (1955) Professor of Elementary Education  
A.B., Colorado State College; M.S., Ph.D., University of Wisconsin.
- 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 Arts  
B.S., Nebraska State Teachers College; M.A., Ph.D., University of Minnesota.
- ANDERSON, ZOE E. (1965) Assistant Professor of Home Economics  
B.S., Illinois Institute of Technology; M.S., Ph.D., University of Illinois.
- ANDRAIN, CHARLES F. (1964) Associate Professor of Political Science  
B.A., Whittier College; M.A., Ph.D., University of California.
- ANDRESEN, GRACE E. (Mrs.) (1966) Lecturer in Social Work  
B.S., University of Illinois; M.S.W., Tulane University.
- 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) Assistant Professor of Astronomy  
A.B., M.S., San Diego State College; Ph.D. candidate, University of Texas.
- ANINGER, THOMAS (1967) Assistant Professor of English  
B.A., M.A., Ph.D., University of California, Los Angeles.
- ANTHONY, SALLY M. (Mrs.) (1965) Associate Professor of Secondary Education  
A.B., University of California, Los Angeles; Ed.M., Ed.D., Rutgers University.
- APPLE, JOE A. (1947) Professor of Secondary Education  
A.B., Southeastern State College; M.A., University of Oklahoma; Ed.D., Teachers College, Columbia University.
- APPLEBY, JOYCE O. (Mrs. A.) (1967) Assistant 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.
- AREFMAN, MARILYN B. (Mrs. H. T.) (1969) Lecturer in Sociology  
A.B., M.A., San Diego State College.
- ASHOUR, EUGENIA M. (Mrs. M.) (1968) Assistant Professor of Elementary Education  
B.E., M.A., San Diego State College.
- ATCHISON, THOMAS J. (1965) Associate Professor of Management  
A.B., Stanford University; M.B.A., University of California, Los Angeles; D.B.A., University of Washington.
- ATKINSON, BEATRICE (1954) Associate Professor of Nursing  
B.S., College of St. Scholastica; M.A., San Diego State College.
- AWBREY, FRANK T. (1964) Associate Professor of Biology  
B.A., University of California, Riverside; M.A., Ph.D., University of Texas.
- AYALA, REYNALDO (1969) Assistant Professor of Geography  
B.A., University of Minnesota; M.A., Ph.D. candidate, Southern Illinois University.
- BABILOT, GEORGE (1956) Professor of Economics  
A.B., Hastings College; M.A., University of Nebraska; Ph.D., University of Oregon.
- BACON, RICHARD P. (1963) Lecturer in Mathematics  
A.B., M.A., Miami University, Ohio.
- BAER, ADELA S. (1962) Associate Professor of Biology  
B.S., University of Illinois; Ph.D., University of California.
- BAILEY, ALLAN R. (1968) Assistant Professor of Accounting  
B.S., San Diego State College; M.B.A., Ph.D., University of California, Los Angeles.
- BAILEY, BARBARA ANN (Mrs. J. J.) (1966) Assistant Professor of Nursing  
B.S. (Nursing), College of St. Catherine, Minnesota; M.S., University of Michigan.
- BAILEY, GERALD D. (1964) Associate Professor of Industrial Arts  
B.A., M.A., Central Washington State College; Ed.D., University of Missouri.
- BAILY, KAMILLA U. (Mrs.) (1966) Assistant Professor of Social Work  
B.A., M.S.W., University of Denver; additional graduate work, University of Southern California and Bryn Mawr College.
- BAKER, CARROLL M. (1964) Associate Director of Libraries, Technical Services  
A.B., University of California, Los Angeles; M.A., University of Chicago.
- BAKER, CLIFFORD H. (1937) Professor of Spanish  
A.B., San Diego State College; M.A., University of California; Ph.D., University of Southern California.
- BAKER, DOUGLAS L. (1954) Professor of Elementary Education  
A.B., Lynchburg College; M.S., Ed.D., University of Southern California.



## Faculty

- BAKER, JAMES R. (1956, except 1961-62) \_\_\_\_\_ Professor of English  
B.A., M.A., Ph.D., University of Denver.
- BAKER, KEEFE L. (1965) \_\_\_\_\_ Associate Professor of Art  
B.F.A., University of Colorado; M.F.A., State University of Iowa.
- BALDOCK, ALVIN O. (1969) \_\_\_\_\_ Lecturer in Physical Education  
B.S., M.S., University of Southern California.
- BALDWIN, ELMER D. (1963) \_\_\_\_\_ Associate Professor of Education  
B.A., College of the Pacific; M.A., University of Connecticut; Ed.D., Washington State University.
- BALLANTINE, FRANCIS A. (1949) \_\_\_\_\_ Professor of Education  
A.B., Michigan State Normal College; A.M., Ph.D., University of Michigan.
- \*BARBER, WILLIAM F. (1959) \_\_\_\_\_ Professor of Marketing  
B.B.A., M.B.A., D.B.A., University of Washington.
- BARCKLEY, ROBERT E. (1955) \_\_\_\_\_ Professor of Economics  
B.S., University of North Dakota; M.A., Columbia University; Ph.D., University of Illinois.
- BARCLAY, A. BERNICE (1962) \_\_\_\_\_ Assistant Social Sciences Librarian  
A.B., San Diego State College; M.A. in L.S., University of Denver.
- BARNES, ALFRED C., JR. (1968) \_\_\_\_\_ Assistant Professor of Health Science and Safety  
B.A., M.A., Arizona State University; H.S.D., Indiana University.
- BARONE, JOAN F. (1960) \_\_\_\_\_ Assistant Professor of Physical Education  
B.S., Sargent College, Boston University; M.S., Springfield College, Massachusetts.
- BARRERA, ERNESTO M. (1969) \_\_\_\_\_ Assistant Professor of Spanish  
M.A. (Law and Science), University of Cartagena, Colombia; M.A. (Spanish), Ph.D. University of Southern California.
- BARRETT, R. CONRAD (1968) \_\_\_\_\_ Assistant Professor of Classical and Oriental Languages  
A.B., Stanford University; M.A., University of California, Los Angeles; Ph.D. candidate, University of Southern California.
- BARRY, JOHN J. (1969) \_\_\_\_\_ Assistant Professor of English  
B.A., College of William and Mary; M.B.A., Harvard University; Ph.D. candidate, University of Colorado.
- BARTHOLOMEW, FRANCIS M., JR. (1967) \_\_\_\_\_ Assistant Professor of History  
B.A., University of California; M.A., Ph.D., Princeton University.
- BASSETT, ALLEN M. (1961) \_\_\_\_\_ Associate Professor of Geology  
B.A., Amherst College; M.A., Ph.D., Columbia University.
- BAUER, EDWARD G. (1956) \_\_\_\_\_ Professor of Mechanical Engineering  
B.S., U.S. Naval Academy; M.S. and additional graduate study, University of California.
- BAXTER, ROBERT J. (1962) \_\_\_\_\_ Associate Professor of Art  
B.S., M.S., M.F.A., University of Wisconsin.
- BAXTER, WILLIAM L. (1963) \_\_\_\_\_ Associate Professor of Microbiology  
A.B., Ph.D., University of California, Los Angeles.
- BECKER, GEORGE J. (1969) \_\_\_\_\_ Assistant Professor of Elementary Education  
B.A., St. Peter's College; M.A., Fordham University; Ph.D., New School for Social Research.
- BECKER, GERALD A. (1958) \_\_\_\_\_ Professor of Mathematics  
B.A., M.S., Ph.D., State University of Iowa.
- BECKLUND, LESTER A. (1967) \_\_\_\_\_ Assistant 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) \_\_\_\_\_ Assistant Professor of Secondary Education  
B.A., M.A., Western Michigan University; Ph.D., Michigan State University.
- BELCHER, DAVID W. (1957) \_\_\_\_\_ Professor of Management  
B.B.A., M.A., Ph.D., University of Minnesota.
- BELLEW, JUANITA E. (1969) \_\_\_\_\_ Instructor in Nursing  
R.N., Central Washington Deaconess School of Nursing; B.S., Chico State College; M.P.H., University of California.
- BENJAMIN, ROBERT L. (1953) \_\_\_\_\_ Professor of Speech Communication  
A.B., University of California; M.S., Ph.D., University of Wisconsin.
- \*BENSON, JACKSON J. (1966) \_\_\_\_\_ Associate Professor of English  
A.B., Stanford University; M.A., San Francisco State College; Ph.D., University of Southern California.
- BENTON, CARL W. (1948) \_\_\_\_\_ Professor of Physical Education  
B.S., University of California, Los Angeles; M.S., Ed.D., University of Southern California.
- †BERG, ROBERT V. (1963) \_\_\_\_\_ Associate Professor of Art  
B.S., Moorhead State College, Minnesota; M.F.A., University of Minnesota.
- BERGE, DENNIS E. (1963) \_\_\_\_\_ Associate Professor of History  
A.B., M.A., San Diego State College; Ph.D., University of California.

\* On leave, fall 1969-70.  
† On leave, spring 1969-70.

## Faculty

- BERRY, RICHARD W. (1961) \_\_\_\_\_ Associate Professor of Geology  
B.S.E.M., Lafayette College; M.A., Ph.D., Washington University.
- BEVERAGE, DAVID G. (1968) \_\_\_\_\_ Assistant Professor of Mathematics  
A.B., San Diego State College; M.S., University of Wisconsin; Ph.D., University of Florida.
- BIALY, RENATE S. (Mrs. J. J.) (1969) \_\_\_\_\_ Assistant Professor of Russian  
B.A., M.A., University of California; Ph.D. candidate, University of California, Los Angeles.
- 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 of Graduate Studies  
B.M., Youngstown University; M.F.A., Ohio University; Ph.D., University of Iowa.
- BILTERMAN, HENRY L. (1956) \_\_\_\_\_ Assistant Professor of Mechanical Engineering  
B.S.E.E., University of Iowa; M.A., San Diego State College.
- \*BIRCH, AILEEN J. (Mrs. C. E.) (1949) \_\_\_\_\_ Assistant Professor of Elementary Education  
A.B., M.A., San Diego State College.
- BISHOP, ASHLEY L., III (1969) \_\_\_\_\_ Lecturer in Elementary Education  
A.B., graduate study, San Diego State College.
- BISTRITZ, RICHARD M. (1968) \_\_\_\_\_ Assistant Professor of Social Work  
A.B., Lehigh University, Pa.; M.S.W., University of Pennsylvania.
- BLACKMON, DORA M. (Mrs. J.) (1968) \_\_\_\_\_ Professor of Nursing  
B.S., University of Miami; A.M., Columbia University; Ph.D., University of Washington.
- BLANC, SAM S. (1966) \_\_\_\_\_ Associate 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) \_\_\_\_\_ Assistant Professor of Business Law  
A.B., San Diego State College; J.D., University of California.
- 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  
B.A., M.A., Ph.D. candidate, University of Arizona.
- BOHNSACK, KURT K. (1956) \_\_\_\_\_ Professor of Zoology  
B.S., Ohio University; M.S., Ph.D., University of Michigan.
- BONEY, ELAINE E. (1963) \_\_\_\_\_ Associate Professor of German  
A.B., University of Kansas; M.A., University of Wisconsin; Ph.D., University of Texas.
- BOSKIN, WARREN D. (1965) \_\_\_\_\_ Assistant 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) \_\_\_\_\_ Assistant Professor of Elementary Education  
B.S., M.S., Brockport State Teachers College; Ed.D., University of Rochester.
- BOWEN, ANDREW J., JR. (1968) \_\_\_\_\_ Assistant Professor of Psychology  
B.A., Aurora College; B.D., Garrett Theological Institute; M.A., Ph.D., University of Florida.
- BOWNE, WILLIAM F. (1959) \_\_\_\_\_ Assistant Professor of Art  
B.Ed., M.A., University of California, Los Angeles.
- BRADFORD, MARY (1969) \_\_\_\_\_ Physician and Surgeon  
A.B., Barnard College, Columbia University; M.D., Temple University.
- †BRADLEY, WALLACE W. (1961) \_\_\_\_\_ Assistant Professor of Secondary Education  
B.S., University of Maryland; M.A., San Diego State College.
- BRANAN, ALVORD G. (1969) \_\_\_\_\_ Assistant Professor of French  
B.A., University of Florida; M.A., Middlebury College; Ph.D. candidate, 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., State University of Iowa; Ph.D., Iowa State College.
- BRASHERS, HOWARD C. (1968) \_\_\_\_\_ Assistant Professor of English  
B.A., University of California; M.A., San Francisco State College; Ph.D., University of Denver.
- BRAY, HENRY G. (1962) \_\_\_\_\_ Associate Professor of Mathematics  
A.B., San Diego State College; M.S., Ph.D., Iowa State University.
- BRENNEN, EARL C. (1968) \_\_\_\_\_ Associate Professor of Social Work  
A.B., San Francisco State College; M.S.W., D.S.W., University of California.
- BRIDENSTINE, DON C. (1956) \_\_\_\_\_ Professor of Economics  
B.S., University of Oregon; A.M., Ph.D., University of Southern California.

\* On leave, fall 1969-70.  
† On leave, spring 1969-70.



## Faculty

- 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.
- BROADBENT, HARRY H. (1949)..... Associate Professor of Physical Education  
A.B., University of Oklahoma; M.S., University of Pennsylvania.
- BROADSHATZER, 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.
- BROGGER, KAYE E. (1969)..... Assistant Professor of Home Economics  
B.S., North Dakota State University; M.S., University of Wisconsin.
- BROOKES, JOHN A. (1964)..... Associate Professor of Biology  
A.B., Occidental College; M.S., San Diego State College; Ph.D., University of Southern California.
- BROSE, FRIEDRICH K. (1969)..... Assistant Catalog Librarian  
B.A., Australian National University; M.L.S., McGill University.
- BROWN, CAROL M. (Mrs. R. D.) (1969)..... Instructor in Nursing  
B.S., Walla Walla College; M.S., Loma Linda University.
- BROWN, WILLIAM L. (1962)..... Assistant Professor of Electrical and Electronic 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., State University of Iowa.
- †BRUDERER, CONRAD (1963)..... Associate Professor of Music  
B.M., Oberlin Conservatory; M.M., D.M., Indiana University.
- BRUNSON, THEODORE R. (1966)..... Assistant Professor of Music  
B.Sc., University of Minnesota; M.M., University of Nebraska; D.M.A., University of Arizona.
- BRYANT, STEVEN J. (1964)..... Associate Professor of Mathematics  
B.A., University of Chicago; M.A., University of North Carolina; Ph.D., University of Missouri.
- BRYDEGAARD, MARGUERITE A. (Mrs. H.) (1936)..... Professor of Elementary Education  
A.B., San Diego State College; M.A., Ph.D., Claremont Graduate School.
- BUCK, ROBERT E. (1969)..... Assistant Professor of Sociology  
B.S., M.S., Trinity University; Ph.D. candidate, University of Texas.
- BUCKALEW, JAMES K. (1967)..... Assistant Professor of Journalism  
A.B., M.A., Indiana State College; Ph.D., University of Iowa.
- BULMAN, DAVID M. (1967)..... Assistant Professor of Mathematics  
A.B., San Diego State College; Diplom-Math., and additional graduate study, Technische Hochschule, Munchen, Germany.
- BURDICK, DAVID L. (1968)..... Assistant 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.
- BURIAN, ROBERT J. (1968)..... Assistant Professor of Counselor Education  
B.A., M.A., University of Arizona; Ed.D., Arizona State University.
- BURNSIDE, HOUSTON M. (1968)..... Assistant Professor of Elementary Education  
B.S., Kent State University; M.A., Ph.D., Claremont Graduate School.
- †BURTON, CHARLES R. (1959)..... Professor of Mathematics  
B.A., M.A., University of Kansas; M.A., Ph.D., University of California.
- BURTON, JOHN W. (1968)..... Assistant Professor of Spanish  
B.A., University of Utah; M.A., University of Mexico; additional graduate study, Brigham Young University.
- BUSH, DOUGLAS P. (1968)..... Associate Director of Libraries, Reader Services  
B.S., Brigham Young University; M.L.S., University of Washington.
- BUSHNELL, ELEANORE (1969)..... Visiting Professor of Political Science  
A.B., University of Washington; Ph.D., University of California.
- BUTLER, GERALD J. (1968)..... Assistant Professor of English  
A.B., University of California; M.A., Ph.D., University of Washington.
- BUTLER, RAY R. (1967)..... Assistant Professor of Recreation  
B.A., M.Ed., University of Minnesota.
- BYRNE, GARY C. (1969)..... Assistant Professor of Political Science  
B.A., University of Redlands; Ph.D., University of North Carolina.
- CAMPBELL, L. BERYL (1947)..... Associate Professor of Elementary Education  
A.B., University of California; M.A., Teachers College, Columbia University.
- CANNON, NONA H. (Mrs. R. C.) (1959)..... Professor of Home Economics  
B.S., Harding College; M.S., University of California; Ed.D., Teachers College, Columbia University.
- CANTWELL, NATHALIA C. (Mrs. C.) (1958)..... Assistant Professor of English  
Special study at Barnard College, University of Madrid, and Sorbonne.
- 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.

† On leave, spring 1969-70.

## Faculty

- CARELLA, MICHAEL J. (1967)..... Assistant Professor of Philosophy  
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- CARMICHAEL, NANCY M. (1968)..... Assistant Professor of Botany  
B.A., Barnard College, Columbia University; M.A., doctoral candidate, Columbia University.
- CARNEVALE, JAMES P. (1967)..... Assistant Professor of Counselor Education  
B.A., University of California, Los Angeles; M.A., San Diego State College; Ph.D. candidate, University of Southern California.
- †CARPENTER, ROGER E. (1963)..... Associate Professor of Zoology  
B.A., University of Arizona; Ph.D., University of California, Los Angeles.
- CARRIER, WARREN P. (1969)..... Dean, College of Arts and Letters;  
Professor of English  
B.A., Miami University, Ohio; M.A., Harvard University; Ph.D., Occidental College.
- †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., State University of Iowa.
- CASE, THOMAS E. (1961)..... Professor of Spanish  
B.A., St. Thomas College; M.A., Ph.D., State University of Iowa.
- CASTANEDA, ESPERANZA, A. (1969)..... Assistant to Vice President, Administration  
B.A., B.S., Assumption Convent, Philippines; M.A., Ateneo University, Philippines; Ph.D., United States International University.
- CATLETT, ROBERT H. (1964)..... Assistant Professor of Zoology  
A.B., M.A., Colorado College; Ph.D., University of California, Davis.
- CATON, WILLIAM M. (1969)..... Assistant Professor of Electrical and Electronic Engineering  
B.Sc., M.Sc., Queen's University, Canada; Ph.D., University of California.
- CAVE, MARY F. (1946)..... Associate Professor of Physical Education  
B.S., University of North Dakota; M.A., San Diego State College.
- CHADWICK, LEONARD E. (1949)..... Associate Professor of Economics  
B.S. and additional graduate study at the University of California.
- CHAMLEY, JOHN D. (1969)..... Assistant Professor of Counselor Education  
B.A., Pacific Lutheran University; M.A., Ed.D., Arizona State University.
- CHAN, LILLIAN L. (Mrs. S. Y.) (1969)..... Assistant Catalog Librarian  
B.S., M.A.L.S., University of Michigan.
- CHAN, SHU-YUN (1965)..... Associate Professor of Electrical and Electronic 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)..... Assistant Professor of Sociology  
B.A., M.A., Ph.D., University of California, Los Angeles.
- CHANG, HAI-YAIN (1967)..... Assistant Professor of Aerospace Engineering  
B.S., Cheng Kung University, China; M.S., Ph.D., Colorado State University.
- CHAPARRO, JACQUELINE L. (Mrs. J.) (1968)..... Lecturer in Elementary Education  
A.B., M.A., San Diego State College.
- CHAPMAN, JAMES L. (1959, except 1961-63)..... Associate Professor of Business Law  
B.S., J.D., Northwestern University.
- CHARLES, CAROL M. (1961)..... Professor of Elementary Education  
B.A., M.A., Eastern New Mexico University; Ph.D., University of New Mexico.
- CHATER, ELIZABETH E. (Mrs. M.) (1964)..... Assistant Professor of English  
B.A., University of British Columbia; M.A., San Diego State College.
- CHEEK, WILLIAM F. (1968)..... Associate Professor of History  
B.A., Hampden-Sydney College; M.A., University of Richmond; Ph.D., University of Virginia.
- CHEN, LO-CHAI (1969)..... Assistant Professor of Zoology  
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- CHILDRESS, WILLIAM A. (1968)..... Assistant Professor of Art  
A.B., Florida State University; M.F.A., University of California, Los Angeles.
- CHOU, FANG-HUI (1969)..... Assistant Professor of Civil Engineering  
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- CHRISTENSEN, CLAY B. (1968)..... Assistant Professor of Spanish  
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- CHU, PAOCHIN (1967)..... Assistant Professor of History  
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- CHRYSLER, EARL (1970)..... Assistant Professor of Information Systems  
B.S., M.S., San Diego State College.
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† On leave, year 1969-70.



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- CLARK, MARY E. (Mrs. R. B.) (1969) Assistant Professor of Biology  
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- CLARK, ORRIN H. (1960) Professor of Physics  
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- † CLEMENT, NORRIS C. (1968) Assistant Professor of Economics  
B.A., Sacramento State College; Ph.D., University of Colorado.
- CLINGER, LAWRENCE A. (1969) Assistant Building Coordinator  
B.S., San Diego State College.
- COAKLEY, RUTH M. (1961) Professor of Nursing  
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- COHN, THEODORE J. (1964) Associate Professor of Zoology  
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- COLE, WALTER B. (1969) Visiting Professor of Accounting  
A.B., Lawrence University; M.S., University of Illinois. Certified Public Accountant.
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B.S., State University of New York, College at Oneonta; M.A., Teachers College, Columbia University.
- COLLIER, BOYD D. (1966) Associate Professor of Biology  
B.A., University of California; M.S.T., Ph.D., Cornell University.
- COLLIER, GERALD (1961) Associate Professor of Zoology  
B.A., M.A., Ph.D., University of California, Los Angeles.
- COLOMBO, ALBERT A. (1967) Assistant Professor of Geography  
B.S., California State College at Long Beach; M.A., San Diego State College.
- CONLY, JOHN F. (1962) Professor of Aerospace Engineering  
B.S.M.E., M.S.M.E., University of Pennsylvania; Ph.D., Columbia University.
- CONNIFF, JAMES J. (1968) Assistant Professor of Political Science  
B.A., M.A., Rutgers University; additional graduate study, Columbia University.
- CONWAY, ALICE E. (Mrs. J. C.) (1969) Instructor in Nursing  
B.S.N., Syracuse University; M.N., University of Pittsburgh.
- COOX, ALVIN D. (1964) Professor of History  
B.A., New York University; M.A., Ph.D., Harvard University.
- CORSO, ANTHONY W. (1968) Lecturer in Public Administration and Urban Studies  
B.S., Marquette University; M.C.R.P., University of Wisconsin.
- CORYELL, DONALD D. (1961) Professor of Physical Education  
B.A., M.S., University of Washington.
- COTTRELL, ANN W. (Mrs. D.) (1967) Assistant Professor of Sociology  
B.A., Miami University, Ohio; M.A., Ph.D. candidate, Michigan State University.
- COTTRELL, DON M. (1967) Assistant Professor of Physics  
B.S., Ph.D., University of Washington.
- COULOMBE, HARRY N. (1969) Assistant Professor of Biology  
B.A., M.A., Ph.D., University of California, Los Angeles.
- COVENY, CECELIA T. (1957) Professor of Nursing  
B.S., University of Minnesota; M.P.H., University of North Carolina.
- COVER, CLARENCE B. (1959) Facilities Planning Assistant  
B.S., M.A., Ohio State University.
- COVINGTON, DON P. (1965) Assistant Professor of Art  
B.A., Southern Methodist University; M.A., University of California, Los Angeles.
- † COX, GEORGE W. (1962) Professor of Biology  
B.A., Ohio Wesleyan University; M.S., Ph.D., University of Illinois.
- COX, THOMAS R. (1967) Assistant Professor of History  
B.S., Oregon State College; M.S., Ph.D., University of Oregon.
- CRAIG, GEORGE T. (1968) Assistant Professor of Mechanical Engineering  
B.S., Pennsylvania State University; M.S., Ph.D., Louisiana State University.
- CRAIG, ROBERT L. (1960) Assistant Professor of Physics  
A.B., Doane College; M.S., University of Nebraska; additional graduate study at Universities of Minnesota and Idaho.
- CRAIN, MELVIN (1959) Associate Professor of Political Science  
A.B., University of Redlands; M.A., Ph.D., University of Southern California.

## Faculty

- CRAWFORD, JAMES (1968) Physician and Surgeon  
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- CRAWFORD, MAURICE L. (1954) Professor of Information Systems  
B.S., M.S., University of Utah; Ed.D., University of California, Los Angeles.
- CRAWFORD, PATRICIA A. (1961) Associate Professor of Philosophy  
B.A., M.A., University of Rochester; Ph.D., University of Minnesota.
- CRAWFORD, RONALD W. (1953) Professor of Zoology  
A.B., San Diego State College; Ph.D., Cornell University.
- CRISLEY, CORNELIUS J. (1962) Social Sciences Librarian  
A.B., University of Pittsburgh; M.L.S., Carnegie Institute of Technology.
- CROOKER, ANDREW J. (1968) Assistant Professor of Aerospace Engineering  
B.S., University of New Hampshire; M.S., Ph.D., University of Illinois.
- CROUCH, JAMES ENSIGN (1932) Professor of Zoology  
B.S., M.S., Cornell University; Ph.D., University of Southern California.
- CROUSE, GALE K. (1967) Instructor in French  
B.S., Eastern Illinois University; M.A., University of Wisconsin.
- CRUM, CLYDE E. (1955) Professor of Secondary Education  
B.S., M.S., Kansas State Teachers College; Ed.D., University of Colorado.
- CULLEN, F. PATRICIA (1964) Associate Professor of Physical Education  
B.S., Illinois State University; M.A., State University of Iowa; Ph.D., University of Illinois.
- CUMMINS, EMERY J. (1966) Associate Professor of Counselor Education  
B.A., Wheaton College; M.S., University of Southern California; Ph.D., Michigan State University.
- CUNNIFF, ROGER L. (1967) Assistant Professor of History  
B.A., M.A., Colorado State College; Ph.D. candidate, University of Texas.
- CUTTER, CHARLES H. (1968) Assistant Professor of Political Science  
A.B., M.A., University of California; doctoral candidate, University of California, Los Angeles.
- DAETWEILER, ROBERT C. (1968) Assistant Professor of History  
B.A., Humboldt State College; M.A., San Francisco State College; Ph.D., University of Washington.
- DANIELS, MORRIS J. (1956) Professor of Sociology  
B.A., Southern Methodist University; M.A., Ph.D., University of Texas.
- DARBY, RICHARD L. (1966) Assistant Professor of Biology  
B.A., Ph.D., University of Oregon.
- DARLEY, RICHARD D. (1961) Professor of Marketing  
B.S., Cornell University; M.S., University of Missouri; Ph.D., Purdue University.
- DAUB, CLARENCE T., JR. (1967) Associate Professor of Astronomy  
B.A., Carleton College; Ph.D., University of Wisconsin.
- DAUGHERTY, WAYNE E., JR. (1966) Assistant Professor of Biology  
B.A., Long Beach State College; Ph.D., Johns Hopkins University.
- † DAVIES, THOMAS M., JR. (1968) Assistant Professor of History  
B.A., M.A., University of Nebraska; Ph.D., University of New Mexico.
- DAVIS, CRAIG H. (1967) Assistant Professor of Biology  
B.S., Oregon State University; M.S., Ph.D., University of Washington.
- DAVIS, GLOVER T., II (1966) Assistant Professor of English  
B.A., Fresno State College; M.F.A., State University of Iowa.
- DAVIS, RICHARD L. (1969) Lecturer in Physical Education  
B.S., M.S., University of California, Los Angeles.
- DAVIS, RONALD W. (1968) Assistant Professor of Mathematics  
B.A., Ph.D., University of Colorado.
- DEATON, EDMUND I. (1960) Professor of Mathematics  
B.A., Hardin-Simmons University; M.A., Ph.D., University of Texas.
- DEBYSINGH, MOLLY (1968) Lecturer in Geography  
M.A., St. Andrews University, Scotland; M.A., Ph.D. candidate, Syracuse University.
- DeLORA, JACK R. (1955) Professor of Sociology  
B.S., Bowling Green State University; M.A., Western Reserve University; Ph.D., Michigan State University.
- DeLORA, JOANN H. (Mrs. J.) (1967) Assistant Professor of Sociology  
B.A., M.A., Ph.D., University of Texas.
- DeMARINIS, FREDERICK M. (1969) Lecturer in English  
B.A., M.A., University of Montana.
- DESSEL, NORMAN F. (1961) Professor of Physical Science  
B.A., M.A., Ph.D., State University of Iowa.
- DEXTER, DEBORAH M. (1967) Assistant Professor of Zoology  
B.A., M.A., Stanford University; Ph.D., University of North Carolina.
- DHARMARAJAN, SANGIAH (1960) Professor of Aerospace Engineering  
B.Eng., College of Engineering, Madras, India; M.S., Ph.D., University of Illinois.



## Faculty

- DICKASON, MARY L. (1969) Lecturer in Sociology  
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- DICKEN, CHARLES F. (1962) Professor of Psychology  
B.A., M.A., Ph.D., University of Minnesota.
- DICKERSON, MARY E. (1967) Assistant Professor of Home Economics  
B.S., M.S., Kansas State University.
- DICKINSON, FIDELIA R. (Mrs. J. W.) (1966) Assistant Humanities Librarian  
B.A., M.A., Immaculate Heart College; Ph.D., University of California, Los Angeles.
- DICKINSON, JOHN W. (1962) Associate Professor of English  
A.B., University of California, Santa Barbara; A.M., Ph.D., University of California, Los Angeles.
- DIEHL, WILLIAM P. (1968) Assistant Professor of Biology  
B.S., University of Arizona; Ph.D., University of California, Los Angeles.
- DILL, ROBERT S., JR. (1970) Assistant Professor of History  
B.A., Kent State University; M.A., Ph.D. candidate, University of Michigan.
- DIRKS, JOHN H. (1947) Professor of Art  
A.B., San Diego State College; M.F.A., Claremont Graduate School.
- DIRKSEN, DENNIS A. (1969) Assistant Professor of Industrial Arts  
B.A., McPherson College; M.S., Kansas State Teachers College; Ed.D., Utah State University.
- DODDS, LOWELL J. (1957) Associate Professor of Accounting  
A.B., University of Redlands; M.B.A., University of Denver. Certified Public Accountant.
- DONAHUE, THOMAS S. (1968) Assistant Professor of English  
B.A., Denison University; M.A., Miami University, Ohio; Ph.D., Ohio State University.
- DORRIS, HELEN L. (1952) Professor of Home Economics  
B.S., Southern Illinois University; M.S. and additional graduate study, University of Illinois.
- DOWNEN, ROBERT E. (1965) Admissions Officer  
B.S., United States Naval Academy.
- DRAKE, GLENDON F. (1966) Assistant Professor of English  
A.B., Miami University, Ohio; M.A., Oklahoma State University; additional graduate study, Michigan State University and University of Michigan.
- DROBNIES, SAUL I. (1963) Associate Professor of Mathematics  
B.S., M.A., Ph.D., University of Texas; Post-Doctoral Fellow, Rice University.
- DUCKWORTH, JOSEPH B. (1968) Assistant Professor of Secondary Education  
B.A., Oglethorpe College; M.A.T., Oberlin College; Ed.D., Wayne State University.
- DUFALT, DAVID V. (1962) Assistant Professor of History  
B.A., M.A., Occidental College; additional graduate study, University of Oregon.
- DUKAS, VYTAS (1959) Professor of Russian  
A.B., M.A. (Russian), M.A. (German), Ph.D., University of Michigan.
- DUNHOUSE, WILLIAM B. (1968) Assistant Professor of French  
B.A., University of Illinois; M.A., Middlebury College; Ph.D. candidate, University of Wisconsin.
- DUNKLE, HARVEY I. (1963) Associate Professor of German  
A.B., New York University; M.A., Ph.D., University of California.
- DUNN, ROSS E. (1968) Assistant Professor of History  
B.A., State University of New York at Albany; M.A., Ph.D., University of Wisconsin.
- EAGLE, JOHN E. (1946) Professor of Mathematics  
B.S., Montana State College; M.A., Ed.D., Stanford University.
- EARNEST, SUE W. (Mrs. L. E.) (1947) Professor of Speech Pathology and Audiology  
A.B., San Diego State College; M.A., Ph.D., University of Southern California.
- EBERT, THOMAS A. (1969) Assistant Professor of Biology  
B.S., University of Wisconsin; M.S., Ph.D., University of Oregon.
- ECKBERG, CARL F. (1969) Assistant Professor of Mathematics  
B.A., Cornell University; M.S., Ph.D., Purdue University.
- EIDEMILLER, DONALD I. (1956) Professor of Geography  
A.B., San Diego State College; M.A., University of California; Ph.D., Indiana University.
- EL-ASSAL, MOHAMED M. E. (1967) Associate Professor of Sociology  
M.S., M.A., Ph.D., Indiana University.
- ELLIOTT, ELAINE Z. (Mrs.) (1967) Assistant Education Librarian  
A.B., University of California, Los Angeles; M.L.S., University of California.
- ELLIOTT, ROSALIE C. (1968) Assistant Professor of Elementary Education  
B.A., Mount Holyoke College; M.A., Bryn Mawr College; Ph.D., Claremont Graduate School.
- ELWIN, JOHN D. (1969) Assistant Professor of Mathematics  
B.S., University of Washington; Ph.D., Oregon State University.
- EMAMI, JAVAD (1967) Assistant Professor of Psychology  
B.A., University of California, Los Angeles; Ph.D., University of Arizona.

† On leave, spring 1969-70.  
‡ On leave, year 1969-70.

## Faculty

- EMERICK, ROBERT E. (1968) Assistant Professor of Sociology  
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- ERICKSON, PAUL (1963) Associate Professor of Secondary Education  
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- ESTES, RUSSELL G. (1963) Assistant Professor of Music  
B.M.E., M.M.E., Millikin University, Illinois; Ed.D., Colorado State College.
- ETHERIDGE, RICHARD E. (1961) Professor of Zoology  
B.S., Tulane University; M.S., Ph.D., University of Michigan.
- EZELL, PAUL H. (1956) Professor of Anthropology  
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- FAHY, WILLIAM L. (1966) Instructor in English  
A.B., St. Joseph's College, Pa.; M.A., San Diego State College.
- FARBER, GERALD H. (1968) Lecturer in English  
B.A., University of California, Los Angeles; M.A., California State College, Los Angeles; Ph.D. candidate, Occidental College.
- FARRIS, DAVID A. (1960) Professor of Biology  
A.B., Indiana University; Ph.D., Stanford University.
- FEARN, LEIF (1967) Assistant Professor of Elementary Education  
B.S., Shippensburg State College, Pa.; M.A., Ed.D., Arizona State University.
- FEENBERG, ANDREW L. (1969) Assistant Professor of Philosophy  
B.A., Johns Hopkins University; M.A., Ph.D. candidate, University of California, San Diego.
- FEIERABEND, IVO K. (1959) Professor of Political Science  
B.A., M.A., University of California; Ph.D., Yale University.
- FEIERABEND, ROSALIND A. (Mrs. I.) (1964) Associate Professor of Psychology  
B.A., Swarthmore College; M.A., University of California; Ph.D., Yale University.
- FELLERS, STANFORD (1966) Assistant Professor of Health Science and Safety  
A.B., Adams State College; M.A., Colorado State College; Ed.D., Boston University.
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B.S., LaCrosse College; M.B.A., D.B.A., University of Washington.
- FERREE, RICHARD J. (1969) Lecturer in Industrial Arts  
A.B., graduate study, San Diego State College.
- FERREL, DALE B. (1957) Professor of Accounting  
B.S., M.B.A., University of Denver. Certified Public Accountant.
- FETZER, LELAND A. (1966) Assistant Professor of Russian  
B.S., University of Utah; M.L.S., M.A., doctoral candidate, University of California.
- FINCH, WILLIAM A., JR. (1961) Associate Professor of Geography  
B.A., East Carolina College; M.A., University of Oklahoma; Ph.D., University of Illinois.
- FINKE, WARREN L. (1968) Lecturer in Biology  
B.A., University of Iowa; graduate study at Basel University, Switzerland, and Oxford University.
- FISCH, ARLINE M. (1961) Associate Professor of Art  
B.S., Skidmore College; M.A., University of Illinois.
- \*FISHBURN, CLARENCE E. (1955) Professor of Secondary Education  
A.B., Arizona State College, Tempe; M.A., Arizona State College, Flagstaff; Ed.D., Stanford University.
- FISHER, HORACE H. (1966) Associate Professor of Finance  
A.B., University of Utah; M.A., Ph.D., University of Southern California.
- FISHER, J. SHERRICK (1953) Professor of Elementary Education  
B.S., Bethany College; M.A., Teachers College, Columbia University; Ph.D., University of Pittsburgh.
- FISHER, ROBERT T. (1966) Assistant Professor of Business Law  
B.S., M.Ed., Wayne State University; Ed.D., Michigan State University; J.D., Wayne State University.
- FITZ, RICHARD A. (1959) Professor of Mechanical Engineering  
B.S., Baldwin-Wallace College; M.S. (Ch.E.), Ph.D., Ohio State University.
- FLAGG, DENIS A. (1955) Professor of Economics  
B.A., Harvard College; Ph.D., University of California.
- FLAGG, JOAN M. (Mrs. J. E.) (1969) Assistant Professor of Nursing  
B.S.N., State University of Iowa; M.S., University of California, San Francisco.
- FLEMION, PHILIP F. (1968) Assistant Professor of History  
B.A., B.S., M.A., Ohio State University; Ph.D., University of Florida.
- FLITTNER, GLENN A. (1970) Professor of Biology  
A.B., M.A., University of California; Ph.D., University of Michigan.
- FLYE, RICHARD C. (1950) Assistant Professor of Music  
B.A., University of Virginia; M.A. and Professional Diploma, Columbia University.
- FORBING, SHIRLEY E. (Mrs.) (1969) Assistant Professor of Special Education  
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\* On leave, fall 1969-70.



## Faculty

- FORD, DAVID H. (1967) Assistant Professor of Elementary Education  
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- FORD, LAWRENCE R. (1970) Assistant Professor of Geography  
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- FORD, RICHARD F. (1964) Associate Professor of Biology  
B.A., Pomona College; M.A., Stanford University; Ph.D., University of California, San Diego.
- †FORMAN, ROBERT B. (1963) Associate Professor of Music  
B.M.E., University of Kansas; M.A., Teachers College, Columbia University; Ed.D., Florida State University.
- FORREY, ROBERT J. (1968) Assistant Professor of English  
B.A., M.A., Wesleyan University; Ph.D. candidate, Yale University.
- FORNOFF, FREDERICK H. (1967) Assistant Professor of Spanish  
B.A., University of New Mexico; M.A., doctoral candidate, University of North Carolina.
- FORT, MARTHA (Mrs.) (1968) Assistant Professor of Social Work  
A.B., Oberlin College; M.S.W., University of Pittsburgh.
- FOUNTAIN, LEONARD D. (1960) Associate Professor of Mathematics  
A.B., S.M., University of Chicago; Ph.D., University of Nebraska.
- FOX, KATHLEEN (1962) Associate Professor of Physical Education  
B.S., Kansas State Teachers College; M.A., State University of Iowa; Ph.D., University of Southern California.
- FRANKLIN, ROBERT J. (1967) Assistant Professor of History  
B.A., Greenville College; M.A., University of Michigan; additional graduate study, California State College at Los Angeles and University of Southern California.
- FRANZ, EDWARD P. (1965) Assistant Professor of Physical Education  
B.S., M.A., Washington University.
- FRANZINI, LOUIS R. (1969) Assistant Professor of Psychology  
B.S., University of Pittsburgh; M.A., University of Toledo; Ph.D., University of Pittsburgh.
- FREDERIKSEN, NORMAN O. (1969) Assistant Professor of Geology  
B.A., Hamilton College; M.S., Pennsylvania State University; Ph.D., University of Wisconsin.
- FRENCH, HAROLD S., Major, USAF (1969) Assistant Professor of Aerospace Studies  
B.S., University of Missouri; M.B.A., University of Alabama.
- FREIDELL, THEODORE D. (1969) American Council on Education Intern  
B.A., M.A., University of Kansas City; Ph.D., University of Missouri at Kansas City.
- FREY, LEONARD H. (1956) Professor of English  
A.B., Dartmouth College; M.A., Ph.D., University of Oregon.
- FRIEDMAN, ABRAHAM M. (1963) Assistant Professor of Physical Education  
B.S., Springfield College, Massachusetts; graduate study, Columbia University, School of Social Work; M.A., San Diego State College.
- FRIEDRICH, KURT (1949) Professor of Secondary Education  
A.B., Columbia College; M.A., Columbia University; Ed.D., Teachers College, Columbia University.
- FUKAMIZU, RAYMOND H. (1969) Assistant Professor of Industrial Arts  
A.B., M.A., San Diego State College; additional graduate study, University of California, Los Angeles.
- FULKERSON, E. GLEN (1954) Director of Audio-Visual Services;  
B.E., Southern Illinois University; M.A., Ed.D., University of California, Los Angeles.  
Professor of Education
- FUTCH, DAVID G. (1967) Assistant Professor of Biology  
B.A., University of North Carolina; M.A., Ph.D., University of Texas.
- GALBRAITH, OLIVER, III (1955) Associate Professor of Management  
B.S., M.B.A., Northwestern University; Ph.D., University of California, Los Angeles.
- GALLO, PHILIP S., JR. (1963) Associate Professor of Psychology  
B.A., M.A., University of California, Santa Barbara; Ph.D., University of California, Los Angeles.
- GALLUP, AVERY H. (1952) Professor of Botany  
A.B., San Diego State College; M.A., Claremont Graduate School; Ph.D., University of Michigan.
- GANGE, SAMUEL J. (1969) Counselor  
B.A., Pacific Lutheran University; M.A., Ed.D., University of Wyoming.
- GARRISON, BETTY B. (Mrs. J.) (1962) Professor of Mathematics  
B.S., B.A., Bowling Green State University; M.A., Ohio State University; Ph.D., Oregon State University.
- GARRISON, JOHN D. (1956) Professor of Physics  
B.A., M.A., University of California, Los Angeles; Ph.D., University of California.
- GAST, DAVID K. (1963) Associate Professor of Elementary Education  
B.A., Occidental College; M.A., Arizona State College, Flagstaff; Ed.D., Arizona State University.
- GASTIL, R. GORDON (1959) Professor of Geology  
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† On leave, spring 1969-70.

## Faculty

- †GATES, GERALD F. (1955) Professor of Elementary Education  
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- GAZELL, JAMES A. (1968) Assistant Professor of Public Administration and Urban Studies  
B.A., M.A., Roosevelt University; Ph.D., Southern Illinois University.
- GEHA, PETER C. (1955) Professor of Elementary Education  
A.B., M.S., Ed.D., University of Southern California.
- GELFAND, CAROL E. (Mrs. D.) (1967) Assistant Professor of Social Work  
A.B., Stanford University; M.A., Southern Methodist University.
- GELLENS, JAY H. (1961) Professor of English  
B.A., Kenyon College; M.A., Ph.D., Yale University.
- GENERALE, MINOS D. (1949) Professor of Political Science  
Degree in Law and Political Science, University of Athens; additional graduate study at the University of Paris Law School and Institute of International Studies, Paris and Geneva.
- GENZLINGER, CLEVE K. (1957) Professor of Music  
B.M., M.M., University of Nebraska; additional graduate study, Teachers College, Columbia University.
- GERVAIS, RONALD J. (1969) Assistant Professor of English  
B.A., M.A., Michigan State University; Ph.D., University of Oregon.
- GILBERT, JEANNE S. (Mrs. H.) (1965) Assistant Professor of French  
B.A., B.Ed., University of Puget Sound; M.A., and additional graduate study, University of Washington.
- GHORPADE, JAISINGH V. (1965) Associate Professor of Management  
B.A., University of Poona, India; M.B.A., Ph.D., University of California, Los Angeles.
- †GIBSON, E. DANA (1947) Professor of Information Systems  
B.S., University of Minnesota; M.A., Colorado State College of Education; Ed.D., New York University.
- GIFFORD, ADAM (1954) Professor of Economics  
B.A., Portland University; M.A., Stanford University; Ph.D., University of Washington.
- GILBERT, CLAUDE L. (1967) Assistant Professor of Physical Education  
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- GILBERT, MARGARET L. (Mrs. A. V.) (1958) Administrative Analyst  
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- GILBREATH, STUART H. (1968) Associate Professor of Psychology  
B.A., Pacific Lutheran College; B.D., Pacific Lutheran Theological Seminary; Ph.D., Michigan State University.
- GILLETTE, THOMAS L. (1961) Associate Professor of Sociology  
A.B., University of Missouri; M.A., University of Kansas City; Ph.D., University of North Carolina.
- GINDLER, HERBERT A. (1960) Professor of Mathematics  
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- GITCHOFF, G. THOMAS (1969) Assistant Professor of Public Administration and Urban Studies  
B.A., Central Methodist College; M.Crim., D.Crim., University of California.
- GJERDE, CLAYTON M. (1948) Dean of Extended Services and Summer Sessions;  
A.B., Augsburg College; M.A., Ph.D., University of Minnesota.  
Professor of Education
- †GLASGOW, JANIS M. (1962) Associate Professor of French  
B.A., Western Reserve University; M.A., University of Wisconsin; Ph.D., University of California, Los Angeles.
- GOEBEL, KATHRYN E. (Mrs. L. E.) (1969) Assistant Education Librarian  
B.A., B.S., University of Minnesota; M.L.S., Indiana University.
- †GOLDKIND, VICTOR (1961) Professor of Anthropology  
B.S., George Washington University; M.A., Ph.D., Michigan State University.
- GOODRICH, MARGRIT (Mrs. M.) (1966) Assistant Professor of Nursing  
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- GOODSON, ROGER A. (1968) Assistant Professor of Elementary Education  
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- GOTTlieb, JUDITH M. (1967) Placement Counselor  
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† On leave, spring 1969-70.

† On leave, year 1969-70.



## Faculty

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- †GRANGER, BENJAMIN P. (1966) Assistant Professor of Social Work  
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- GRANRUD, CAROLYN A. (1960) Assistant Catalog Librarian  
B.A., St. Olaf College; B.S. in L.S., University of Minnesota.
- GRANT, RICHARD H. (1968) Assistant Professor of Health Science and Safety  
B.S., M.S., University of Oregon; M.P.H., University of California.
- GRAVES, LAWRENCE E. (1967) Assistant Professor of Information Systems  
A.B., San Diego State College; M.A., University of North Carolina.
- GRAYWUNDER, RALPH M. (1955) Professor of Health Science and Safety  
B.S., The Rice Institute; M.A., Ed.D., Teachers College, Columbia University.
- GRAY, ROBERT T. (1956) Professor of Secondary Education  
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- GREENE, JOANNE H. (1967) Assistant Catalog Librarian  
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- GREENE, MYRON (1968) Assistant Professor of History  
A.B., A.M., University of Colorado; Ph.D. candidate, Indiana University.
- GREENFELD, PHILIP J. (1969) Assistant Professor of Anthropology  
B.A., Pasadena College; M.A., Ph.D. candidate, University of Arizona.
- GREENWOOD, NED H. (1964) Associate Professor of Geography  
B.S., M.S., Brigham Young University; Ph.D., Ohio State University.
- GRIFFIN, RONALD W. (1967) Assistant 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  
A.B., Whittier College; A.M., Ph.D., University of Southern California.
- \*GROFF, PATRICK J. (1955) Professor of Elementary Education  
B.S., M.S., University of Oregon; Ed.D., University of California.
- GROOVER, DARRYL G. (1966) Assistant Professor of Art  
B.F.A., M.A., Kent State University; M.F.A., University of Arizona.
- GROSS, GEORGE C. (1961) Professor of English  
A.B., M.A., San Diego State College; Ph.D., University of Southern California.
- GROSSBERG, JOHN M. (1962) Professor of Psychology  
A.B., Brooklyn College; M.A., Ph.D., Indiana University.
- GRUBBS, EDWARD J. (1961) Professor of Chemistry  
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- GUENTZLER, WILLIAM D. (1968) Assistant Professor of Industrial Arts  
B.S., M.A., Kent State University.
- GUNDERSON, MAXINE M. (Mrs. E.) (1966) Assistant Professor of Psychology  
B.S., University of Chicago; M.A., Ph.D., University of California, Los Angeles.
- GUNNING, BARBARA E. (1969) Assistant Professor of Home Economics  
B.A., San Francisco College for Women; Ph.D., University of California.
- GUTOWSKI, JULIUS P., JR. (1967) Instructor in Physical Education  
A.B., San Diego State College.
- †GUZZETTA, CHARLES J. (1964) Professor of Social Work  
B.S., M.S., University of the State of New York; M.S.S., University of Buffalo; Ed.D., Temple University.
- GWINUP, THOMAS R. (1968) Assistant Humanities Librarian  
B.A., M.A., University of Denver; M.A., Indiana University.
- HAAS, HAROLD H. (1962) Dean, College of Professional Studies; Professor of Public Administration and Urban Studies  
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- HAAS, ROBERT W. (1967) Assistant Professor of Marketing  
B.B.A., St. Bonaventure University; M.S., D.B.A., Arizona State University.
- HABERSTROH, JACK (1969) Assistant Professor of Journalism  
B.A., Loyola University; M.S., University of California, Los Angeles; Ph.D., University of Iowa.
- HAFFLY, MARILYN (Mrs. D. B.) (1965) Assistant Professor of Recreation  
B.A., Ohio Wesleyan University; M.A., University of North Carolina; additional graduate study, Indiana University.
- HAINES, RICHARD B. (1969) Scholarship Adviser  
B.A., California State College, Fullerton.

\* On leave, fall 1969-70.

† On leave, year 1969-70.

## Faculty

- HALE, E. ALAN (1957) Professor of Marketing  
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- HALFAKER, PHILIP (1962) Professor of Secondary Education  
B.S., M.A., Ball State Teachers College; Ed.D., Indiana University.
- HALLER, JUDITH L. (Mrs. J. L.) (1968) Activities Adviser  
B.A., University of California, Los Angeles.
- HAMBLETON, JOHN W. (1969) Assistant Professor of Economics  
B.A., Boston College; M.A., Ph.D. candidate, University of Wisconsin.
- HAMILTON, RICHARD A. (1969) Assistant Professor of Public Administration and Urban Studies  
B.S., University of Pennsylvania; M.B.A., University of Missouri; Ph.D., University of Southern California.
- HAMMER, GERALD K. (1963) Associate Professor of Industrial Arts  
B.S., M.S., Bradley University; Ed.D., University of California, Los Angeles.
- †HAMPTON, DAVID R. (1964) Associate Professor of Management  
A.B., University of Michigan; M.B.A., University of Southern California; Ph.D., Columbia University.
- HANCHETT, WILLIAM F., JR. (1956) Professor of History  
A.B., Southern Methodist University; M.A., Ph.D., University of California.
- HANSON, CHARLES L. (1966) Aztec Center Coordinator  
B.A., University of Redlands; M.B.A., University of California, Los Angeles.
- HANSON, ROBERT F. (1962) Associate Professor of Recreation  
B.A., M.A., Washington State University; Rec.D., Indiana University.
- HARARI, HERBERT (1966) Associate Professor of Psychology  
B.A., M.S., Ph.D., University of Miami.
- HARDER, DONALD F. (1960) Dean of Counseling and Testing  
B.S., M.S., Ed.D., University of Kansas.
- HARDESTY, JOHN J. (1968) Assistant Professor of Economics  
A.B., Stanford University; A.M., University of Chicago; additional graduate study, University of California, San Diego.
- HARKANYI, KATALIN (Mrs. T.) (1969) Assistant Catalog Librarian  
B.A., Wayne State University; M.L.S., Western Michigan University.
- HARMON, JAMES E. (1964) Assistant Professor of Political Science  
A.B., M.S., San Diego State College.
- HARNED, W. WALLACE (1962) Associate Professor of Accounting  
A.B., Asbury College; M.B.A., University of Kentucky; Ph.D., University of California, Los Angeles.
- HARPER, LEROY A. (1959) Professor of Health Science and Safety  
B.S., M.S., Emporia State Teachers College; Ed.D., Teachers College, Columbia University.
- HARRINGTON, AWONA W. (1949) Sciences Librarian  
A.B. and additional graduate study at San Diego State College; M.S. in L.S., University of Southern California.
- HARRINGTON, NEIL J. (1948) Professor of Chemistry  
B.S., Monmouth College; M.A., San Diego State College; Ed.D., Colorado State College of Education.
- HARRIS, EVELYN J. (Mrs.) (1968) Education and Curriculum Materials Librarian  
A.B., M.Ed., University of Arizona; M.A.L.S., University of Denver.
- HARRIS, FREDERICK J. (1968) Assistant Professor of Electrical and Electronic Engineering  
B.E.E., Polytechnic Institute of Brooklyn; M.S.E.E., San Diego State College.
- HARRIS, VINCENT C. (1950) Professor of Mathematics  
B.A., M.A., Ph.D., Northwestern University.
- HARRISON, GERALDINE M. (Mrs. R.) (1969) Assistant Catalog Librarian  
A.B., Immaculate College, Pa.; M.S.L.S., Drexel Institute of Technology.
- HARRISON, ROBERT C. (1953) Professor of Psychology  
B.S., M.S., Ph.D., University of Washington.
- HARTIGAN, SELWYN C. (1946) Business Manager  
A.B., San Diego State College.
- HARVEY, A. R. (1949) Professor of Mathematics  
B.S., Bates College; A.M., Ph.D., Harvard University.
- HARVEY, MICHAEL L. (1969) Assistant Professor of Drama  
B.S., Harvey Mudd College; M.A., University of California, Los Angeles; Ph.D., University of Minnesota.
- HASKELL, HARRIET (1940, except 1943-45) Professor of English  
A.B., Mills College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.
- HASTINGS, CORA J. (1969) Assistant Education Librarian  
B.S., Roberts Wesleyan College; M.L.S., University of Washington.
- HAWORTH, GLENN O. (1966) Associate Professor of Social Work  
A.B., San Diego State College; M.S.W., D.S.W., University of California.

† On leave, spring 1969-70.



## Faculty

- HAWLEY, PEGGY J. (Mrs. P. F.) (1968) Assistant Professor of Counselor Education  
B.A., California State College, Los Angeles; M.A., University of Redlands; Ph.D., Claremont Graduate School.
- HAXTON, JOHN D. (1969) Lecturer in Art  
B.A., University of South Florida; M.F.A., University of Michigan.
- HAZEN, WILLIAM E. (1962) Professor of Biology  
B.S., St. Lawrence University; M.S., Ph.D., University of Michigan.
- HEAD, GERALD L. (1964) Associate Professor of Spanish and Portuguese  
B.A., Ph.D., University of California, Los Angeles.
- HEG, E. BIDDLE (1969) Financial Aids Counselor  
B.A., Swarthmore College; graduate study, University of Pennsylvania.
- HEIGES, HARVEY E. (1968) Assistant Professor of Geography  
B.A., Principia College; M.S., Pennsylvania State University; Ph.D., University of Washington.
- HELLBERG, LARS H. (1956) Professor of Chemistry  
B.S., Northwestern University; Ph.D., University of California, Los Angeles.
- HENDRICKSON, RICHARD H. (1963) Assistant Professor of English  
B.A., University of California, Santa Barbara; M.S., University of Wisconsin; Ph.D., University of Connecticut.
- HENIG, SUZANNE (1968) Assistant Professor of English  
B.A., M.A., Ph.D., New York University.
- HERMAN, ELSIE (Mrs. E.) (1969) Assistant Professor of Social Work  
A.B., M.A., University of Chicago.
- HERRMANN, H. HORST (1967) Assistant Professor of German  
A.B., M.A., San Diego State College; Ph.D. candidate, Stanford University.
- HEUSSER, H. EARL, JR. (1968) Assistant Professor of Secondary Education  
B.S., University of Utah; M.A., San Jose State College; Ed.D., University of Oregon.
- HEYMAN, NEIL M. (1969) Assistant Professor of History  
B.A., Yale University; M.A., Ph.D. candidate, Stanford University.
- HIGGINS, WINIFRED H. (Mrs. J.) (1964) Associate Professor of Art  
B.S., Massachusetts College of Art; M.A. (History), Boston College Graduate School; M.A., (Art History), Boston University; Ph.D., University of California, Los Angeles.
- HILL, HOWARD (1967) Assistant Professor of Music  
B.A., University of Washington; graduate study, Juilliard School of Music; M.A., Teachers College, Columbia University.
- HILL, PATRICIA J. (Mrs. J.) (1964) Assistant Professor of Elementary Education  
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- HILL, RICHARD B., JR. (1969) Assistant Professor of Sociology  
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- HILLIX, WILLIAM A. (1963, except 1967-69) Professor of Psychology  
B.A., M.A., Ph.D., University of Missouri, Columbia.
- HIMES, JOAN K. (1967) Assistant Professor of Nursing  
B.S., University of California, San Francisco; M.N., University of Washington.
- HIMES, RONALD S. (1969) Assistant Professor of Anthropology  
B.S., Georgetown University; M.A., Ateneo de Manila University, Philippines; Ph.D. candidate, University of Hawaii.
- HINKLE, JAMES C. (1961) Assistant Professor of English  
B.A., Denison University; M.A., doctoral candidate, Harvard University.
- HINTZMAN, WILLIAM R. (1969) Assistant Professor of Mathematics  
B.A., University of Wisconsin, Milwaukee; M.A., University of Michigan; Ph.D., University of Wisconsin.
- HIPPAKA, WILLIAM H. (1957) Professor of Business Law and Real Estate  
B.S.C., Jur.D., State University of Iowa.
- HIRD, ROBERT C., II (1967) Assistant Professor of Real Estate  
B.A., Pomona College; M.B.A., Stanford University; D.B.A. candidate, Arizona State University.
- HO, HUNG-TA (1966) Associate Professor of Mathematics  
B.Sc., Ordnance Engineering College, China; Sc.M., Virginia Polytechnic Institute; Ph.D., Brown University.
- HOBBS, JOHN A. (1964) Associate Professor of Political Science  
A.B., M.A., University of Illinois; Ph.D., Princeton University.
- HODGE, STANLEY B. (1968) Lecturer in Art  
B.A., M.A., University of California, Los Angeles.
- HOFFMAN, RICHARD A. (1967) Assistant Professor of Art  
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## Faculty

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- HOIDAL, ODDVAR K. (1967) Assistant Professor of History  
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- HOLLYFIELD, CYNTHIA A. (1968) Assistant Professor of Physical Education  
B.S., Southwest Texas State College; M.A., Ball State University.
- HOLMAN, DOROTHY J. (Mrs.) (1966) Assistant Professor of Secondary Education  
B.S., M.S., North Texas State University; Ed.D., University of Kansas.
- HOLMES, CALVIN V. (1956) Professor of Mathematics  
B.A., M.A., University of Mississippi; M.S., University of Illinois; Ph.D., University of Kansas.
- HOLOWACH, FRANK S. (1960) Associate Professor of Journalism  
B.S., Edinboro State Teachers College, Pennsylvania; M.A., State University of Iowa.
- HOLT, HOWARD B. (1961) Professor of Educational Administration  
B.S., Ed.M., Oregon State College; D.Ed., University of Oregon.
- HOOVER, GRACE V. (1956) Assistant Sciences Librarian  
A.B., University of Nebraska; B.S. in L.S., University of Denver.
- HOPKINS, JACK R. (1961) Associate Professor of Art  
B.A., California College of Arts and Crafts; M.F.A., Claremont Graduate School.
- HORNBECK, FREDERICK W. (1968) Assistant Professor of Psychology  
B.A., M.S., Yale University; Ph.D., University of California, Los Angeles.
- HOROWITZ, GIDEON (1968) Associate Professor of Social Work  
A.B., M.A., New York University; M.S.W., Ph.D., University of Chicago.
- HOSTETLER, DAVID K. (1966) Counselor  
B.S., University of Tampa; M.Ed., Ed.D., University of Virginia.
- HOWARD, EDGAR J. (1966) Associate Professor of Mathematics  
B.S., M.S., San Diego State College; Ph.D., New Mexico State University.
- HOWARD, GORDON S. (1968) Assistant Professor of Drama  
B.S., M.S., University of Oregon; Ph.D., University of Minnesota.
- HOWARD, ROY J. (1963) Professor of Philosophy  
B.A., Lic. Phil., Woodstock College, Maryland; Ph.D., Louvain University, Belgium.
- HUFFMAN, EDWARD W. (1955) Professor of Zoology  
B.S., M.S., University of Illinois; Ph.D., Ohio State University.
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- HULS, HARRY E. (1961) Professor of Elementary Education  
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- HUNSAKER, DON, II (1960) Professor of Zoology  
B.A., M.S., Texas Technological College; Ph.D., University of Texas.
- HUNTER, JAMES J., JR. (1946) Professor of Secondary Education  
A.B., Cornell University; M.S., Ph.D., Syracuse University.
- HUNTER, LAWRENCE B. (1963) Assistant Professor of Art  
A.B., San Diego State College; M.A., University of California, Los Angeles.
- HURD, LYMAN C., III (1958) Associate Professor of Music  
A.B., M.M., Syracuse University.
- HUSSAIN, NIHAD A. L. (1969) Assistant Professor of Mechanical Engineering  
B.Sc.M.E., Baghdad University, Iraq; M.Sc.M.E., Purdue University; Ph.D., University of Notre Dame.
- HUTCHINS, ROBERT C. (1968) Assistant Professor of Finance  
B.S., M.S., M.Ed., Florida State University; M.B.A., doctoral candidate, University of Southern California.
- HUKEDA, HITOSHI (1960) Professor of Education  
B.A., University of Hawaii; M.A., Iowa State Teachers College; Ed.D., University of New Mexico.
- INGHAM, MURIEL B. (1967) Assistant Professor of English  
B.A., Willamette University; M.A., Ph.D., University of California, Riverside.
- INGMANSON, DALE E. (1968) Assistant Professor of Physical Science  
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† On leave, spring 1969-70.  
§ Assigned duty in Brazil, fall 1969-70.



## Faculty

- INSKEEP, JAMES E., JR. (1960) Professor of Elementary Education  
B.S., U.S. Naval Academy; M.A., San Diego State College; Ph.D., University of Minnesota.
- IRGANG, FRANK J. (1956) Professor of Industrial Arts  
B.S., Central Michigan College; M.A., Ph.D., University of Michigan.
- ISENSE, ROBERT W. (1948) Professor of Chemistry  
A.B., Reed College; M.A., Ph.D., Oregon State College.
- ISHIKAWA, WESLEY H. (1969) Associate Professor of Social Work  
B.S., Willamette University; M.S.W., University of Denver; D.S.W., University of Southern California.
- JACKSON, ELIZABETH R. (Mrs. G.) (1969) Assistant Professor of French  
B.A., Reed College; M.A., Wellesley College; doctorat d'Université, Université de Paris.
- JACOBSON, EDWARD A. (1968) Assistant Professor of Psychology  
B.S., Brooklyn College; Ph.D., Indiana University.
- JAMESON, K. CHARLES (1965) Assistant Professor of Telecommunications and Film  
B.A., M.A., University of Michigan.
- JANSSEN, HENRY L. (1953) Professor of Political Science  
B.A., M.A., University of Oklahoma; Ph.D., University of California.
- JENCKS, CLINTON E. (1964) Associate Professor of Economics  
B.A., University of Colorado; M.A., Ph.D., University of California.
- JENSSEN, REILLY C. (1958) Professor of Chemistry  
B.S., M.S., University of Nevada; Ph.D., University of Washington.
- JOHNS, DAVID H. (1965) Associate Professor of Political Science  
A.B., Dartmouth College; M.A., Ph.D., University of Chicago.
- JOHNS, GERALD E. (1967) Assistant Catalog Librarian  
B.A., University of California, Santa Barbara; M.S.L.S., University of California, Los Angeles.
- JOHNSON, ALBERT W. (1964) Dean, College of Sciences; Professor of Biology  
B.S., Colorado Agricultural and Mechanical College; M.S., Ph.D., University of Colorado.
- JOHNSON, BEVERLY M. (Mrs. A. W.) (1964) Serials Librarian  
B.A., University of Alaska; M.A.L.S., University of California, Los Angeles.
- JOHNSON, C. DALE (1963) Professor of Sociology  
B.A., M.A., Ph.D., University of Minnesota.
- JOHNSON, ELIZABETH B. (1966) Assistant Professor of Telecommunications and Film  
B.A., University of Washington; M.S., Syracuse University.
- JOHNSON, EULALIA G. (1962) Associate Professor of Nursing  
B.S., Mount St. Mary's College; M.S., University of Colorado.
- JOHNSON, JOSEPH S. (1967) Assistant Professor of Telecommunications and Film  
B.A., University of Utah; graduate study, Michigan State University.
- JOHNSON, PHILIP E. (1958) Professor of Civil Engineering  
B.S.C.E., University of Idaho; M.S.C.E., University of California. Registered Civil Engineer.
- JOHNSON, WARREN A. (1969) Assistant Professor of Geography  
B.S., University of California; M.S., Ph.D., University of Michigan.
- JOHNSON, WAYMAN H. L. (1969) Director, Educational Opportunities Program  
A.B., San Diego State College.
- JOHNSTON, SAUNDRA (Mrs. D. C.) (1969) Assistant Professor of Social Work  
B.A., M.S.W., University of California.
- JOKELA, ALICE C. (Mrs. A. W.) (1969) Assistant Professor of Microbiology  
B.S., National Taiwan University, Taiwan; M.S., Massachusetts Institute of Technology; Ph.D., University of California, San Diego.
- JONASSON, J. FRANKLIN (1968) Financial Aids Counselor  
B.S., Ed.M., Oregon State University.
- JONES, KENNETH K., JR. (1948) Professor of Telecommunications and Film  
B.S., Northwestern University; M.A., Stanford University.
- JONES, LORRAINE R. (Mrs.) (1966) Assistant Catalog Librarian  
B.A., New York University; M.S.L.S., University of Southern California.
- JONES, RICHARD D. (1968) Assistant Professor of Anthropology  
B.S., Northern Illinois State University; M.Ed., M.A., Ph.D., University of Arizona.
- JONES, WALTER D. (1962) Professor of Chemistry  
B.S., University of Washington; Ph.D., Oregon State College.
- JORDAN, G. RAY, JR. (1966) Associate Professor of Religious Studies  
A.B., Duke University; M.A., Ph.D., University of Southern California.
- JOSEPH, LIONEL (1947) Professor of Chemistry  
B.S., St. Louis University; M.S., Ph.D., Washington University.
- JOY, NED V. (1953) Dean of Undergraduate Studies; Professor of Political Science  
A.B., Ph.D., University of California.
- JULIAN, JAMES L. (1951) Professor of Journalism  
B.S., B.A., University of Houston; M.A., University of Texas; Ph.D., State University of Iowa.

\* On leave, fall 1969-70.

† On leave, year 1969-70.

## Faculty

- JUTKOWITZ, JOEL M. (1967) Assistant Professor of Political Science  
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- KAATZ, JAMES M. (1967) Assistant Professor of Elementary Education  
B.A., Andrews University; M.A., California State College, Long Beach; Ed.D. candidate, University of Southern California.
- KAHN, MARION J. (Mrs.) (1967) Assistant Professor of Social Work  
B.A., Queens College; M.S., University of Wisconsin.
- KAHN, TAE JIN (1962) Associate Professor of Political Science  
B.A., Kent State University; M.A., Ph.D., Columbia University.
- KAPCSOS, STEVE (1969) Assistant Professor of Elementary Education  
B.A., M.Ed., Ed.D. candidate, University of Montana.
- KAPLAN, OSCAR J. (1946) Professor of Psychology  
B.A., M.A., University of California, Los Angeles; Ph.D., University of California.
- KAREN, ROBERT L. (1964) Associate Professor of Psychology  
B.A., M.A., University of California, Los Angeles; Ph.D., Arizona State University.
- KARNATH, DAVID L. (1968) Assistant Professor of English  
B.A., Notre Dame University; M.A., Stanford University; Ph.D. candidate, University of Minnesota.
- KARTMAN, ARTHUR E. (1968) Assistant Professor of Economics  
A.B., MacMurray College; M.A., Ph.D., University of Washington.
- KASCH, FREDERICK W. (1948) Professor of Physical Education  
B.S., M.S., University of Illinois; Ed.D., New York University.
- KARR, O. KENNETH, JR. (1969) Director of Athletics; Professor of Physical Education  
B.S., Illinois State University; M.S., Ph.D., University of Illinois.
- KASS, NORMAN (1961) Professor of Psychology  
B.A., M.A., Ph.D., Western Reserve University.
- KASTON, BENJAMIN J. (1964) Visiting Lecturer in Zoology  
B.S., North Carolina State College; Ph.D., Yale University.
- KEEN, ELMER A. (1967) Assistant Professor of Geography  
B.A., M.A., Peabody College; Ph.D., University of Washington.
- KEHLER, HAROLD F. (1968) Assistant Professor of English  
B.S., Albright College; M.A., Ph.D., Ohio University.
- KEISER, KENNETH R. (1968) Assistant Professor of Political Science  
A.B., Brown University; doctoral candidate, University of North Carolina.
- KELLER, KARL (1966) Associate Professor of English  
B.A., M.A., University of Utah; Ph.D., University of Minnesota.
- KELLY, BEATRICE L. (1967) Associate Professor of Microbiology  
A.B., University of California; M.A., University of California, Los Angeles; Ph.D., University of Southern California.
- KEMP, MAUDE VON P. (1964) Associate Professor of Social Work  
A.B., Wittenberg College, Ohio; M.A., Johns Hopkins University.
- SKENDALL, W. LLOYD (1961) Professor of Elementary Education  
B.S., Wayne State University; M.A., Miami University, Ohio; Ed.D., University of Maryland.
- KENNEDY, WILL C. (1967) Assistant Professor of Sociology  
B.A., M.A., Ph.D. candidate, University of California, Los Angeles.
- KENNEY, LOUIS A. (1961) Director of Libraries  
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) Assistant Professor of Geology  
A.B., Ph.D., University of California, Los Angeles.
- KESSEL, ROBERT W. (1969) Associate Professor of Social Work  
A.B., Boston University; M.S.W., University of Michigan; D.S.W. candidate, University of Southern California.
- KESSLER, LOIS P. (Mrs. A.) (1969) Assistant Professor of Health Science and Safety  
R.N., The Hospital of the Good Samaritan, Los Angeles; B.S., University of Rochester; M.A., San Diego State College.
- KHALIL, ISSA J. (1969) Assistant Professor of Religious Studies  
B.A., Eastern Mennonite College; M.A., Ph.D. candidate, University of Chicago.
- KHAZANIE, RAMAKANT G. (1969) Assistant Professor of Mathematics  
B.Sc., Bombay University, India; Ph.D., Purdue University.
- KIDWELL, WILLIAM M. (1949) Director of Placement and Financial Aids; Professor of Psychology  
B.A., M.S., University of Oregon; Ed.D., Stanford University.
- KIEWIET DE JONGE, ENGBERT J. C. (1963) Associate Professor of Geography  
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† On leave, spring 1969-70.

‡ On leave, year 1969-70.

§ Assigned duty in Brazil, 1969-70.



## Faculty

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- KINSEY, MARGARET E. (Mrs. F. E.) (1961) Circulation Librarian  
A.B., Florida State University; A.B. in L.S., University of North Carolina; M.A., Northwestern University.
- †KIRBY, BERNARD C. (1954) Professor of Sociology  
A.B., Denison University; M.A., Ph.D., University of Washington.
- KITCHEN, JAMES D. (1957) Professor of Public Administration and Urban Studies  
B.A., M.A., Ph.D., University of California, Los Angeles.
- KLANN, CORINNE F. (1962) Assistant Professor of Elementary Education  
B.A., Western Washington College; M.A., Teachers College, Columbia University.
- †KLAPP, ORRIN E. (1948) Professor of Sociology  
M.A., Ph.D., University of Chicago.
- KLEMER, ELIZABETH J. (1953) Associate Professor of Elementary Education  
B.E., National College of Education; M.A., George Peabody College; graduate study at Teachers College, Columbia University and Stanford University.
- KLEINBERG, SKAIDRITE (Mrs. V. F.) (1969) Assistant Professor of Biology  
B.S., Eastern Michigan University; M.S., Ph.D., University of Michigan.
- KLINCK, THOMAS C. (1969) Assistant Professor of Management  
B.S., M.B.A., Ph.D., University of California, Los Angeles.
- KNUDSEN, RICHARD I. (1967) Foreign Student Adviser  
B.S., University of Minnesota; B.Th., Augsburg Seminary; M.A., University of Minnesota; S.T.D., Lutheran School of Theology, Chicago.
- KOCHANSKI, ADRIAN J. (1969) Executive Assistant, Vice President, Academic Affairs  
A.B., M.A. (Classics), M.A. (Theology), St. Louis University; Ph.D., University of Chicago.
- KOESTER, GEORGE A. (1950) Executive Dean; Professor of Education  
B.S., Midland College; M.A., University of Colorado; Ph.D., University of Minnesota.
- KOHLER, RICHARD C. (1969) Assistant Professor of English  
B.A., Colorado State University; M.A., Ph.D., University of California, Los Angeles.
- KOPP, ROBERT P. (1966) Assistant Professor of Mathematics  
B.S., University of Chicago; M.S., University of Illinois; Ph.D., University of Michigan.
- KOPPELMAN, WALTER H. (1968) Assistant Professor of Philosophy  
B.S., City College of New York; J.D., New York University; Ph.D., Columbia University.
- KOPPMAN, JERRY W. (1963) Associate Professor of Psychology  
B.S., University of Kentucky; A.M., Ph.D., University of Illinois.
- KOZLIK, LUDEK A. (1965) Associate Professor of Russian  
B.A., M.A., Ph.D., University of Texas.
- KURTZ, DONALD V. (1967) Assistant Professor of Anthropology  
B.A., M.A., University of California; Ph.D. candidate, University of California, Davis.
- KRISHNAMOORTHY, GOVINDARAJALU (1968) Assistant Professor of Civil Engineering  
B.E., College of Engineering, India; M.S.C.E., Ph.D., Illinois Institute of Technology.
- KRUMMENACHER, DANIEL (1968) Associate Professor of Geology  
M.S. (Chemistry), M.S. (Geology), Ph.D., University of Geneva.
- KWALLEK, NANCY B. (Mrs. V. F.) (1969) Lecturer in Home Economics  
B.S., Kent State University; M.S., Oregon State University.
- LAHEY, FRANK J. (1968) Assistant Professor of Mechanical Engineering  
B.S.M.E., Marquette University; M.S.M.E., Ph.D., University of Connecticut.
- LAIHO, ETHEL E. (1964) Assistant Professor of Nursing  
Diploma, Mount Zion Hospital School of Nursing, San Francisco; A.B., San Francisco State College; M.S., University of Oregon.
- LAKIN, BILL (1969) Registrar  
A.B., M.S. candidate, San Diego State College.
- LALLY, HARVEY J. (1970) Assistant Professor of Sociology  
B.A., University of Queensland, Australia; M.A., Ph.D., University of Minnesota.
- LAMB, ALMA S. (Mrs. G. F.) (1962) Assistant Education Librarian  
B.S., University of Alabama.
- LAMBERT, ARTHUR A. (1960) Professor of Music  
B.S., M.A., M.F.A., Ph.D., State University of Iowa.
- LA MONICA, GRACE (Mrs. J.) (1966) Assistant Professor of Nursing  
R.N., St. Francis School of Nursing; B.S., University of Connecticut; B.S., University of California; M.S. (Public Health Nursing) University of California, Los Angeles.
- LANDIS, JEAN (Mrs.) (1969) Lecturer in Physical Education  
A.B., San Diego State College; M.S., Wellesley College; additional graduate study, University of Delaware.
- LANDIS, VINCENT J. (1954) Professor of Chemistry  
B.S., Washington State College; Ph.D., University of Minnesota.
- † On leave, spring 1969-70.

## Faculty

- LANGENBACH, ROBERT G. (1959) Professor of Information Systems  
B.A., M.A., Montana State University; Ed.D., University of California, Los Angeles.
- LA PRAY MARGARET H. (1959) Professor of Elementary Education  
B.S., M.A., University of Minnesota; Ph.D., Cornell University.
- LARRABEE, JOHN A. (1966) Physician and Surgeon  
A.B., University of Nebraska; M.D., University of Chicago.
- LASOR, ELIZABETH A. (1968) Assistant Professor of Nursing  
R.N., Pasadena City College; B.S., Los Angeles State College; M.N., University of California, Los Angeles.
- LAUER, ROSEMARY Z. (1969) Assistant Professor of Philosophy  
B.A., University of Dayton; M.A., Ph.D., St. Louis University.
- LAWSON, RICHARD H. (1957) Professor of German  
B.A., M.A., University of Oregon; Ph.D., University of California, Los Angeles.
- LEACH, LARRY L. (1968) Assistant Professor of Anthropology  
B.A., M.A., doctoral candidate, University of Colorado.
- LEARNED, VINCENT R. (1968) Professor of Electrical and Electronic Engineering  
B.S., University of California; Ph.D., Stanford University.
- LEASURE, J. WILLIAM (1962) Professor of Economics  
B.A., University of New Mexico; M.A., Ph.D., Princeton University.
- LEBARRON, EVANGELINE O. (Mrs. H. E.) (1946, except 1948-49) Professor of Information Systems  
B.A., B.S., University of Iowa; B.A., Sioux Falls College; additional graduate study at Claremont Colleges, Universities of Southern California, Minnesota and Hawaii.
- LECKART, BRUCE T. (1968) Associate Professor of Psychology  
B.A., M.A., Ph.D., Michigan State University.
- LEE, GORDON F. (1958) Publications and Public Relations Officer  
A.B., Drew University; M.S., Columbia University.
- LEE, PHOEBE J. (1960) Professor of Nursing  
Diploma, B.S., Stanford University School of Nursing; M.S., University of California, Los Angeles.
- LEE, ROBERT E. (1956) Professor of Telecommunications and Film  
B.A., M.A., University of Nebraska.
- LEE, WILLIAM F. (1965) Professor of Social Work  
B.A., San Francisco State College; M.S.W., D.S.W., University of California.
- LEERHOFF, RUTH E. (1964) Serials Librarian  
B.A., Iowa State Teachers College; M.A., University of Denver.
- †LEIFFER, DONALD B. (1948) Professor of Political Science  
A.B., University of California, Los Angeles; M.A., Ph.D., Harvard University.
- LEMME, MAURICE M. (1948) Dean of the Graduate Division; Professor of Mathematics  
A.B., Oakland College; M.A., Indiana University; Ph.D., Purdue University.
- LEMUS, GEORGE (1960) Professor of Spanish  
Study at the Universidad Nacional Autónoma de México; B.A., M.A., Ph.D., University of Texas.
- LEOBOLDT, HELEN E. (Mrs. C. C.) (1968) Assistant Catalog Librarian  
B.S., La Cross State College; B.L.S., University of Wisconsin.
- †LEONARD, LINDA S. (Mrs. E.) (1967) Assistant Professor of Philosophy  
B.S., Temple University; M.A., University of Colorado; Ph.D., Duquesne University.
- LESLIE, NORMAN C. (1969) Assistant Professor of Nursing  
R.N., Rockland State Hospital; B.S., California State College, Long Beach; M.N., University of California, Los Angeles.
- LEUKEL, FRANCIS P. (1956) Professor of Psychology  
B.S., University of Florida; M.S., Northwestern University; Ph.D., University of Washington.
- LEVENSON, STANLEY (1967) Assistant Professor of Elementary Education  
B.S., Oswego State Teachers College; M.A., University of California, Los Angeles; Ph.D. candidate, Stanford University.
- LEVINE, JOSEPH R. (1965) Associate Professor of Psychology  
B.A., Brooklyn College; M.A., Ph.D., Michigan State University.
- LEWIN, HARLAN J. (1967) Assistant Professor of Political Science  
A.B., Harvard College; M.A., Ph.D., University of California.
- LIBBY, WILLARD G. (1969) Assistant Professor of Geology  
B.S., Oregon State College; M.S., Northwestern University; Ph.D., University of Washington.
- LIENERT, CHARLES (1954) Professor of Educational Administration  
B.E., Southern Illinois University; M.S., University of Illinois; Ed.D., Colorado State College of Education.

† On leave, year 1969-70.



## Faculty

- LIGHTNER, KEVIN M. (1968) Assistant Professor of Accounting  
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- LILLEGRAVEN, JASON A. (1969) Assistant Professor of Zoology  
B.A., California State College, Long Beach; M.S., South Dakota School of Mines and Technology; Ph.D., University of Kansas.
- LILLY, ROGER A. (1968) Assistant Professor of Physics  
B.S., M.A., University of Southern California; Ph.D., University of Hawaii.
- LIN, MAO-SHIU (1966) Associate Professor of Electrical and Electronic Engineering  
B.S.E., National Taiwan University, Taiwan; M.S.E., Ph.D., University of Michigan.
- LINDGREN, DONALD A. (1965) Associate Professor of Marketing  
B.B.A., M.B.A., Ph.D., University of Wisconsin.
- LINGREN, PAUL A. (1957) Professor of Art  
B.A., University of California, Santa Barbara College; M.A., University of California, Los Angeles.
- LINLEY, JAMES M. (1945) Professor of Secondary Education  
Ph.B., University of Chicago; M.S., Ph.D., University of Southern California.
- LINTON, MARIGOLD L. (Mrs.) (1964) Associate Professor of Psychology  
B.A., University of California, Riverside; M.A., State University of Iowa; Ph.D., University of California, Los Angeles.
- LIPPOLD, LOIS K. (1968) Assistant Professor of Anthropology  
B.S., M.S., Ph.D. candidate, University of Wisconsin.
- 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 and Electronic Engineering  
B.S.E.E., M.S., Ph.D., State University of Iowa.
- LOGAN, JACKIE D. (1969) Lecturer in 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) Assistant 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.
- LUDWIG, HERBERT R. (1969) Assistant Professor of Information Systems  
B.A., M.B.A., University of California, Los Angeles; Ph.D., Northwestern University.
- LuPONE, ORLANDO J. (1964) Associate Professor of Elementary Education  
B.S., New York University; M.S., Teachers College, Columbia University; Ph.D., St. John's University, New York.
- LYNN, ELIZABETH (1963) Associate Professor of Psychology  
B.A., Linfield College, Oregon; M.S., Ph.D., University of Oregon.
- MACKY, DAVID W. (1969) Assistant Professor of Mathematics  
B.Sc., Allegheny College; M.Sc., Ph.D., Michigan State University.
- MADHAVAN, MURUGAPPA C. (1968) Assistant Professor of Economics  
B.A., M.A., Annamalai University, India; M.Sc., Ph.D., University of Wisconsin.
- MADSEN, ROY P. (1966) Associate Professor of Telecommunications and Film  
B.F.A., University of Illinois; M.A., Ph.D., University of Southern California.
- MAHONEY, LEO J., JR. (1969) Ombudsman  
A.B., M.S.W., San Diego State College.
- MAIRE, JUDITH A. (1967) Assistant Professor of Nursing  
B.S.N., Seattle University; M.N., University of Washington.
- 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.
- MANIS, FRANCIS A. (1968) Associate Professor of Social Work  
B.S., University of California; B.A., University of California, Santa Barbara; M.S., Columbia University.
- MANJOS, THELMA D. (Mrs. P.) (1969) Assistant Professor of Counselor Education  
B.A., University of California, Los Angeles; M.A., San Francisco State College; Ph.D., New York University.
- MANN, RICHARD L. (1968) Associate Professor of Electrical and Electronic Engineering  
B.S.E.E., Ohio University; M.S.E.E., University of New Mexico. Registered Professional Electrical Engineer.
- MANSFIELD, GEORGE A., JR. (1968) Assistant Professor of Mechanical Engineering  
B.M.E., University of Detroit; M.S.M.E., San Diego State College.

## Faculty

- MARCUS, BERNARD (1966) Assistant Professor of Mathematics  
B.S., M.S., Ph.D., University of Arizona.
- MAROSZ, WANDA A. (Mrs. H.) (1967) Lecturer in Mathematics  
B.S., University of Chicago; M.A., University of Southern California.
- MARRIOTT, LOIS I. (Mrs. F. D.) (1966) Lower Division Librarian  
B.A., State University of Iowa; M.A.L.S., University of Wisconsin.
- MARSTERS, HAROLD L. (1962) Assistant Professor of Industrial Arts  
B.A., M.A., Chico State College.
- MARTIN, DONALD R. (1969) Assistant Professor of Telecommunications and Film  
B.A., Otterbein College; M.S., Syracuse University; Ph.D., Ohio State University.
- MARTIN, MARILYN A. (Mrs.) (1968) Assistant Circulation Librarian  
A.B., San Diego State College; M.A.L.S., University of Denver.
- MARTIN, MARY F. (1958) Assistant Professor of Home Economics  
B.S., University of Idaho; M.S., Oregon State College.
- †MATHEWSON, JAMES H. (1964) Associate Professor of Chemistry  
A.B., Harvard College; M.A., Ph.D., Johns Hopkins University.
- MAX, STEFAN L. (1964) Associate 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.
- MAYBERRY, ELIZABETH A. (Mrs. M. W.) (1969) Instructor in Nursing  
B.S.N., University of Bridgeport; M.S.N., Yale University.
- McADAMS, HENRY E. (1966) Counselor  
A.B., Occidental College; A.M., Ph.D., University of Southern California.
- McALLISTER, T. WAYNE (1966) Assistant Professor of Library Science  
B.A., Arizona State University; M.A., University of Denver.
- McAMIS, LESSLEY J. (Mrs.) (1963) Documents Librarian  
B.A., University of Southern California.
- McBLAIR, WILLIAM (1948) Professor of Biology  
A.B., San Diego State College; Ph.D., University of California, Los Angeles.
- McCABE, ROBERT E. (1968) Assistant Professor of Secondary Education  
B.A., Michigan State University; A.M., Ph.D. candidate, University of Michigan.
- McCLARD, Q. DONAVON (1966) Associate Professor of Special Education  
A.B., M.A., San Diego State College; Ph.D., University of Minnesota.
- McCLINTIC, JOSEPH O. (1946) Professor of Economics  
A.B., Central College; A.M., University of Missouri; Ph.D., University of Wisconsin.
- McCLURG, JACK (1962) Associate Professor of Philosophy  
M.D., State University of Iowa; M.A., Ph.D., University of Chicago.
- McCOLLOM, IVAN N. (1946) Professor of Psychology  
A.B., Central Washington College of Education; B.S., M.S., University of Oregon; Ed.D., Colorado State College of Education.
- McCORDICK, SHARON M. (1969) Assistant Professor of Psychology  
B.A., M.A., Ph.D., University of Colorado.
- McCORNACK, ROBERT L. (1968) Director of Institutional Studies  
B.A., University of Iowa; M.A., Ph.D., University of Minnesota.
- McCOSH, R. BRUCE (1969) Visiting Professor of Accounting  
B.S., Kansas State Teachers College; M.S.C., University of Denver; D.B.A., Indiana University.
- McCOY, C. ROBERT (1960) Assistant Professor of English  
B.A., M.A., Drake University.
- McCOY, LEONE D. (Mrs. W.) (1967) Assistant Professor of Secondary Education  
B.A., M.A., Ph.D., University of California.
- McDONALD, JOHN A. (1968) Assistant Professor of History  
B.A., M.A., University of San Francisco; Ph.D. candidate, University of California, Los Angeles.
- McDONALD, ROY D. (1963) Associate Professor of Psychology  
B.A., Ph.D., University of Texas.
- McEOWEN, ROBERT H. (1967) Assistant Professor of Industrial Arts  
B.S., M.S., Abilene Christian College; Ph.D., East Texas State University.
- McEUEN, ROBERT B. (1969) Assistant Professor of Geology  
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- McFALL, JOHN (1966) Assistant Professor of Marketing  
M.A., Glasgow University, Scotland; Ph.D., University of California, Los Angeles.
- McGHIE, ROBERT D. (1967) Assistant Professor of Aerospace Engineering  
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† On leave, spring 1969-70.



## Faculty

- McJUNKINS, THOMAS O. (1959) Assistant Professor of Sociology  
B.S., Arkansas Baptist College; A.B., Morehouse College; M.A., Atlanta University; additional graduate study, Indiana University.
- McLEAN, NORMAN, JR. (1965) Associate Professor of Zoology  
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- McLEOD, DAN D. (1964) Assistant Professor of English  
B.A., Pomona College; M.A., San Diego State College; Ph.D., Claremont Graduate School.
- McLONEY, WIRT L. (1949) Professor of Industrial Arts  
A.B., Western State College; M.A., Colorado State College of Education; Ed.D., University of California, Los Angeles.
- McMULLEN, JAMES D. (1958) Associate Professor of Industrial Arts  
B.S., M.S., Oregon State College; Ed.D., University of Southern California.
- †McTAGGART, AUBREY C. (1962) Professor of Health Science and Safety  
B.P.E., University of British Columbia; M.S., Ph.D., University of Illinois.
- MEADOR, THOMAS C. (1966) Assistant Professor of Telecommunications and Film  
B.A., M.A., Michigan State University.
- MEEK, DORIS A. (Mrs. J. R.) (1968) Assistant Professor of Secondary Education  
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- MELCHIOR, HERBERT R. (1967) Assistant Professor of Biology  
A.B., Middlebury College; M.S., University of New Hampshire; Ph.D. candidate, University of Wisconsin.
- MELTON, JOSEPH (1967) Assistant Professor of Elementary Education  
B.A., M.Ed., Ed.D., Wayne State University.
- MERRILL, JOHN E. (1946) Professor of History  
A.B., Stanford University; A.M., Harvard University; Ph.D., Stanford University.
- MERVES, ESTER (1969) Assistant Humanities Librarian  
B.A., University of Connecticut; M.L.S., State University of New York at Albany.
- †MERZBACHER, CLAUDE FELL (1947) Professor of Physical Science  
B.S., University of Pennsylvania; M.A., Claremont Graduate School; Ed.D., University of California, Los Angeles. Certificat d'Etudes Francaises. Licensed Professional Chemical Engineer.
- MESSIER, LEONARD N. (1946) Professor of French  
A.B., San Diego State College; M.A., Ph.D., University of California. Officer dans l'Ordre des Palmes Academiques.
- METZGER, ROBERT P. (1968) Assistant Professor of Physical Science  
B.S., University of California, Los Angeles; M.S., San Diego State College; Ph.D., San Diego State College and University of California, San Diego.
- MILES, ELIJAH W. (1966) Associate Professor of Political Science  
A.B., Prairie View Agricultural and Mechanical College, Texas; A.M., Ph.D., Indiana University.
- †MILLER, ALLAN W. (1963) Assistant Professor of Art  
B.A., M.A. and additional graduate study, University of California, Los Angeles.
- MILLER, F. EVAN (1969) Library Systems Analyst  
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- MILLER, PHILIP C. (1965) Associate Professor of Biology  
B.A., Oberlin College; M.S., Iowa State University; Ph.D., University of Colorado.
- MILLER, RALPH L. (1963) Associate Professor of Counselor Education  
B.A., Houghton College, New York; B.D., Th.M., Princeton Theological Seminary; Ph.D., Michigan State University.
- MILLHIZER, WILLIAM C. (1967) Assistant Professor of English  
B.A., M.Litt., University of Pittsburgh.
- MILLS, JACK (1957) Professor of Speech Communication  
A.B., M.A., University of Florida; Ph.D., University of Illinois.
- MILNE, DAVID S. (1946) Professor of Sociology  
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- MILNE, THAIR S. (Mrs. D. S.) (1968) Assistant Professor of Home Economics  
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- MITCHELL, ARTHUR J. (1963) Associate Professor of Special Education  
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- MITCHELL, DANLEE G. (1964) Assistant Professor of Music  
B.S., M.S., University of Illinois.
- MITTON, DARYL G. (1966) Associate 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, CHESNEY R. (1931) Professor of Physics  
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† On leave, spring 1969-70.

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- MOE, RONALD C. (1967) Assistant Professor of Political Science  
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R.N., Los Angeles County General Hospital; B.S., M.S., University of California, Los Angeles.
- MONTEVERDE, JOHN P. (1954) Professor of English  
B.A., M.A., Ph.D., University of California, Los Angeles.
- MOOERS, JACK D. (1968) Assistant Professor of Elementary Education  
A.B., San Jose State College; M.A., San Diego State College; Ed.D., University of California, Los Angeles.
- MOON, CHARLES R. (1962) Physician and Surgeon  
B.S., M.D., University of Arkansas.
- MOORE, DANA C. (1966) Lecturer in Elementary Education  
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- MOORE, HAROLD B. (1960) Professor of Microbiology  
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- MOORE, PATRICIA J. (1964) Assistant Documents Librarian  
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- MOORE, ROBERT J., JR. (1968) Assistant Professor of Physical Education  
B.S., M.S., and additional graduate study, University of Illinois.
- MORAMARCO, FRED S. (1969) Assistant Professor of English  
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- MORENO, STEVE G. (1969) Assistant Professor of Elementary Education  
B.A., M.A., Ed.D., Colorado State College.
- MOREZ, NICHOLAS S. (1967) Assistant Professor of Mathematics  
B.S., California Institute of Technology; M.A., Ph.D., University of Colorado.
- MORGAN, CHARLES (1949) Professor of Mechanical Engineering  
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- MORGAN, RUTH H. (1968) Professor of Social Work  
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- MORRIS, JOYCE (Mrs.) (1969) Assistant Professor of Elementary Education  
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- MORRIS, RICHARD H. (1957) Professor of Physics  
A.B., Ph.D., University of California.
- †MOSER, JOSEPH M. (1959) Professor of Mathematics  
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- 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  
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- MOYE, KENNETH G. (1965) Lecturer in Engineering  
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- MRACEK, JAROSLAV J. S. (1965) Associate Professor of Music  
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- MUNTER, ROBERT L. (1964) Associate Professor of History  
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- MURDOCK, DORIS G. (Mrs. G.) (1960) Catalog Librarian  
A.B., University of Redlands; B.S. in L.S., University of Illinois.
- MURPHY, MARGARET L. (Mrs. S. U.) (1955) Professor of Physical Education  
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- MURPHY, MONICA A. (1969) Assistant Professor of Elementary Education  
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- MURPHY, ROBERT J. (1964) Associate Professor of Mechanical Engineering  
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- NAGEL, THOMAS S. (1969) Assistant Professor of Elementary Education  
B.S., University of Idaho; Ph.D., Michigan State University.
- NAM, WOO HYUN (1968) Assistant Professor of Economics  
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- NARANG, BALBIR S. (1968) Assistant Professor of Aerospace Engineering  
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† On leave, spring 1969-70.



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- 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) \_\_\_\_\_ Assistant 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) \_\_\_\_\_ Assistant 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) \_\_\_\_\_ Assistant Professor of Political Science  
A.B., M.A., San Diego State College; Ph.D., University of Minnesota.
- NEUBERGER, BRIAN M. (1969) \_\_\_\_\_ Assistant Professor of Finance  
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- NEUMAN, DONALD R. (1967) \_\_\_\_\_ Counselor  
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- NEUNER, EDWARD J., JR. (1957) \_\_\_\_\_ Professor of Economics  
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- NEYNDORFF, HANS (1962) \_\_\_\_\_ Assistant Social Sciences Librarian  
B.S., LL.B., University of Indonesia; Doctorandus, University of Leiden; Library Diploma, Netherlands Institute for Documentation and Research.
- NICHOLS, ALAN C. (1964) \_\_\_\_\_ Associate Professor of Speech Pathology and Audiology  
B.S., Bowling Green State University; M.A., Ph.D., Ohio State University.
- NICHOLS, PAUL F. (1965) \_\_\_\_\_ Associate Professor of Physics  
B.S., College of William and Mary; Ph.D., Duke University.
- NICHOLS, PRESCOTT S. (1966) \_\_\_\_\_ Assistant Professor of English  
A.B., M.A., Stanford University; Ph.D., University of Redlands.
- NOORANY, IRAJ (1963) \_\_\_\_\_ Professor of Civil Engineering  
B.S.C.E., University of Tehran; M.S.C.E., Ph.D., University of California.
- NORDQUIST, BARBARA K. (Mrs. M. H.) (1963) \_\_\_\_\_ Assistant Professor of Home Economics  
B.S., Oregon State University; M.S., Cornell University; Ph.D., United States International University.
- NORLAND, CALVERT E. (1947) \_\_\_\_\_ Associate 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., Fresno State College; Ph.D., University of Illinois.
- NOTO, JAMES V. (1969) \_\_\_\_\_ Assistant Professor of Health Science and Safety  
B.S., Slippery Rock State College; M.S., doctoral candidate, Indiana University.
- NOWER, LEON (1963) \_\_\_\_\_ Associate Professor of Mathematics  
B.S., City College of New York; M.S., Ph.D., Stanford University.
- NUNEZ, RENE (1969) \_\_\_\_\_ Director of Centro de Estudios Chicanos  
B.A., University of California, Los Angeles.
- NYE, NEVA E. (1953) \_\_\_\_\_ Professor of Nursing  
B.A., University of Michigan; M.Litt., University of Pittsburgh.
- 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. candidate, University of Hawaii.
- O'BRIEN, ALBERT C. (1965) \_\_\_\_\_ Assistant Professor of History  
A.B., Providence College; A.M.T., Harvard University; Ph.D., University of Notre Dame.
- O'BRIEN, BOB R. (1966) \_\_\_\_\_ Associate 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. and additional graduate study, University of Colorado.
- O'BYRNE, ERNEST B. (1954) \_\_\_\_\_ Vice President for Administration  
A.B., A.M., Colorado State College of Education; Ph.D., Stanford University.
- O'DAY, EDWARD F., JR. (1957) \_\_\_\_\_ Professor of Psychology  
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† On leave, spring 1969-70.  
‡ On leave, year 1969-70.

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- ODENDAHL, ERIC M. (1964) \_\_\_\_\_ Associate Professor of Journalism  
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- ODMARK, VERN E. (1952) \_\_\_\_\_ Professor of Accounting  
B.S., St. Cloud State Teachers College; M.A., University of Minnesota; Ph.D., University of Missouri; Public Accountant.
- OHNESORGE, JAMES P. (1969) \_\_\_\_\_ Assistant Professor of Psychology  
A.B., Indiana University; Ph.D. candidate, University of Minnesota.
- OHNYSTY, BASIL (1967) \_\_\_\_\_ Assistant Professor of Mechanical Engineering  
B.S., M.S., University of Illinois. Registered Professional Metallurgical Engineer.
- OLSEN, ALBERT W. (1957) \_\_\_\_\_ Professor of Physical Education  
A.B., M.A., San Diego State College; Ed.D., University of Oregon.
- OLSEN, LYLE I. (1961) \_\_\_\_\_ Associate Professor of Physical Education  
A.B., M.A., Chico State College; Ed.D., Teachers College, Columbia University.
- OLSON, ANDREW C., JR. (1946) \_\_\_\_\_ Professor of Zoology  
A.B., San Diego State College; M.S., University of Idaho; Ph.D., Oregon State College.
- OLSON, JON R. (1969) \_\_\_\_\_ Lecturer in Physical Science  
A.B., M.A., San Diego State College.
- OLSSON, NANCY J. (1969) \_\_\_\_\_ Placement Interviewer  
B.A., University of San Francisco.
- O'NEAL, H. EDWARD (1961) \_\_\_\_\_ Professor of Chemistry  
B.A., Harvard College; Ph.D., University of Washington.
- ONSTAD, GWEN (Mrs.) (1966) \_\_\_\_\_ Counselor  
B.S., University of Miami; M.A., Ed. D., Colorado State College.
- ONTELL, ROBERT (1965) \_\_\_\_\_ Professor of Social Work  
A.B., M.S.W., University of California; D.S.W., Columbia University.
- O'REILLY, PETER (1968) \_\_\_\_\_ Professor of Philosophy  
B.A., M.A., S.T.B., S.T.L., St. Mary of the Lake Seminary; Ph.D., University of Toronto.
- ORTH, FREDRICK J. (1965) \_\_\_\_\_ Assistant Professor of Art  
B.A., M.F.A., University of Washington.
- OVERTON, FRIEND R. (1969) \_\_\_\_\_ Lecturer in Music  
B.S., A.M., University of Missouri, Columbia.
- OWEN, MACK (1969) \_\_\_\_\_ Assistant Professor of Drama  
B.A., Mercer University; M.A., San Francisco State College; Ph.D., University of Michigan.
- PADGETT, L. VINCENT (1956) \_\_\_\_\_ Professor of Political Science  
B.S., Ph.D., Northwestern University.
- PAGE, EVELYN D. (Mrs. J. L.) (1968) \_\_\_\_\_ Assistant Professor of Elementary Education  
B.A., Hardin-Simmons University; graduate study, San Diego State College.
- PALMER, DENNIS (1965) \_\_\_\_\_ Assistant Professor of French  
A.B., Southern Methodist University; graduate study, Yale University and University of California.
- PALMIOTTO, CAROL E. (Mrs. A. J.) (1969) \_\_\_\_\_ Assistant Professor of Physical Education  
B.S., New York University; M.A., University of Illinois.
- PANOS, NICHOLAS (1968) \_\_\_\_\_ Assistant Professor of Electrical and Electronic Engineering  
B.S.E.E., Columbia University; M.S.E.E., San Diego State College. Registered Professional Electrical Engineer.
- PAPPAS, MARGARET M. (Mrs. W.) (1968) \_\_\_\_\_ Assistant Professor of Social Work  
A.B., University of California, Los Angeles; M.S.W., University of Southern California.
- PAPWORTH, FRANK R. (1967) \_\_\_\_\_ Assistant Professor of Art  
A.B., San Diego State College; M.A., University of California, Los Angeles.
- PARKER, CHRISTOPHER E. (1966) \_\_\_\_\_ Associate Professor of Psychology  
A.B., M.A., San Diego State College; Ph.D., University of California, Los Angeles.
- PARSONS, JOHN A. (1965) \_\_\_\_\_ Associate Professor of Biology  
A.B., Washington and Jefferson College; M.S., Pennsylvania State University; Ph.D., Florida State University.
- PATTERSON, EMILY H. (Mrs.) (1967) \_\_\_\_\_ Assistant Professor of English  
B.S., Bowling Green State University; M.A., Ph.D., University of Utah.
- PAULIN, HARRY W. (1962) \_\_\_\_\_ Associate Professor of German  
B.A., North Central College, Illinois; A.M., Ph.D., University of Illinois.
- PEARSON, THOMAS R. (1968) \_\_\_\_\_ Coordinator of Financial Aids  
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- PEDERSEN, KENNETH S. (1968) \_\_\_\_\_ Assistant Professor of Political Science  
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- PEHRSON, ROBERT B. (1969) \_\_\_\_\_ Assistant Professor of Secondary Education  
B.A., M.A., Ph.D., University of Utah.
- PEIFFER, HERBERT C., JR. (1937) \_\_\_\_\_ Dean of Students; Professor of Psychology  
A.B., University of California, Los Angeles; M.A., Ph.D., Stanford University.
- PEISNER, EARL F. (1961) \_\_\_\_\_ Coordinator of Counseling  
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## Faculty

- PEMBERTON, LEROY A. (1955) Professor of Information Systems  
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- PENDLETON, WADE C. (1969) Assistant Professor of Anthropology  
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- PENN, ROBERT (1960) Professor of Psychology  
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- PERKINS, WILLIAM A. (1955) Professor of English  
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- PERRY, WILHELMINA (Mrs. T.) (1968) Assistant Professor of Social Work  
B.A., Brooklyn College; M.S.W., University of Pennsylvania.
- 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  
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- PETERSON, TENOLD A. (1966) Assistant Professor of Art  
B.A., M.A., California State College, Long Beach.
- PETTEYS, MANVILLE R. (1957) Coordinator of Extended Services;  
Professor of Education  
B.A., Willamette University; M.A., Ed.D., Stanford University.
- PFIAFF, PAUL LEWIS (1931) Professor of Speech Pathology and Audiology  
A.B., Stanford University; M.A., Ph.D., University of Southern California.
- PHELPS, LEROY N. (1966) Associate Professor of Microbiology  
B.Sc., Ohio State University; Ph.D., University of Southern California.
- PHILLIPS, GEORGE L. (1947) Professor of English  
A.B., Dartmouth College; M.A., Harvard University; Ph.D., Boston University.
- PHILLIPS, JOHNNIE L. (1965) Assistant Education Librarian  
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- PHILLIPS, WILLIAM H. (1963) Professor of Physical Education  
A.B., M.A., Ed.D., University of California.
- 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 HARPER (Mrs. D. M.) (1965) Associate Professor of Social Work  
B.A., M.A., University of Wisconsin; M.S.W., Smith College.
- PILCHER, DONALD M. (1966) Associate Professor of Social Work  
B.S., Kansas State University; M.S.W., University of Kansas.
- PINCETL, STANLEY J., JR. (1955) Professor of History  
B.A., M.A., Ph.D., University of California; Doctor of University, University of Paris (Sor-  
bonne), France.
- PISERCHIO, ROBERT J. (1966) Associate Professor of Physics  
B.S., M.S., Ph.D., University of Arizona.
- PLATZ, MARVIN H. (1955) Coordinator of Summer Sessions; Professor of Education  
B.S., Northeast Missouri State Teachers College; M.Ed., Ed.D., University of Missouri.
- PLYMALE, HARRY H. (1962) Associate Professor of Zoology  
B.S., D.V.M., Michigan State University.
- POLICH, JOHN L. (1969) Assistant Professor of History  
B.S., Loyola University; M.S., M.A., University of Southern California; Ph.D., University of  
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- POLLACK, DONALD (1968) Assistant Professor of Psychology  
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- POPP, DEAN O. (1969) Assistant Professor of Economics  
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- POROY, IBRAHIM I. (1967) Associate Professor of Economics  
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- POSNER, WALTER H. (1962) Assistant Catalog Librarian  
B.S., Utah State Agricultural College; M.A., Western State College, Colorado; M.A. in L.S.,  
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- POVENMIRE, E. KINGSLEY (1946) Professor of Drama  
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- POWELL, DON W. (1953) Professor of Drama  
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B.S., University of Puget Sound; B.S., Pennsylvania State University.
- PRAETORIUS, H. MICHAEL (1967) Assistant Professor of Philosophy  
A.B., Stanford University; Ph.D., Claremont Graduate School.
- PRESTON, DUDLEY A. (1948) Associate Professor of Botany  
B.S., Washington State College; M.S., Ph.D., University of Minnesota.
- PRICE, JOHN A. (1967) Assistant Professor of Anthropology  
B.A., M.A., University of Utah; Ph.D., University of Michigan.
- PRICE, QUENTON L. E. (1966) Assistant Professor of Home Economics  
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national University.
- PROUTY, HELEN L. (1950) Professor of Secondary Education  
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- PRYDE, PHILIP R. (1969) Assistant Professor of Geography  
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- †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.
- PURCELL, HAROLD I. (1966) Assistant Professor of Accounting  
B.S., University of Arizona; M.S., San Diego State College. Certified Public Accountant.
- PUZO, WILLIAM D. (1969) Lecturer in Geography  
B.S., Monmouth College; M.S., Florida State University; Ph.D. candidate, University of Cali-  
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- QUASTLER, IMRE E. (1967) Assistant Professor of Geography  
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- QUIETT, FREDRICK T. (1957) Professor of Civil Engineering  
Geol.E., M.S., Colorado School of Mines. Registered Professional Engineer (Mining).
- 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 College of New York; M.S., Ph.D., Pennsylvania State University.
- RAGEN, KATHERINE M. (1947) Professor of History  
A.B., William Penn College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.
- RAIDT, DONALD J. (1968) Assistant Professor of Biology  
B.A., Ph.D., University of Kansas.
- 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.
- RATTY, FRANK J. (1954) Professor of Biology  
A.B., San Diego State College; M.S., Ph.D., University of Utah.
- RAUBER, DONALD F. (1967) Assistant Professor of English  
B.A., St. Mary's College, Calif.; M.A., Ph.D., University of Oregon.
- RAY, EUGENE (1969) Assistant Professor of Art  
M.F.A., Tulane University.
- RAY, ROBERT C. (1961) Physician and Surgeon  
B.S. (Medical), University of North Dakota; M.D., Northwestern University.
- 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) Assistant Professor of English  
A.B., Los Angeles State College; M.A., University of California; Ph.D., University of New  
Mexico.
- REED, THELMA R. (Mrs. D.) (1966) Associate Professor of Home Economics  
B.S., M.A., George Peabody College; Ph.D., Texas Woman's University.
- REEL, JANE E. (1958) Assistant Professor of Elementary Education  
A.B., M.A., San Diego State College.
- REHFUSS, DONALD E. (1962) Associate Professor of Physics  
B.A., Reed College; M.A., Ph.D., University of Oregon.
- REID, FRANCES (1969) Lecturer in Health Science and Safety  
B.S., M.S., University of Oregon.
- REID, JASPER B., JR. (1965) Assistant Professor of History  
A.B., M.B.A., M.A., Ph.D., University of Michigan.
- REID, THELMA E. (1968) Assistant Professor of Library Science  
A.B., M.A., University of California.
- REINTS, WILLIAM W. (1966) Associate Professor of Finance  
B.S., M.B.A., Oklahoma State University; D.B.A., University of Washington.
- RETSON, JAMES N. (1968) Assistant Professor of Elementary Education  
B.S., Lawrence College; M.A., University of Chicago; Ed.D., Arizona State University.

† On leave, spring 1969-70.



## Faculty

- \*REZNIKOFF, SIMON (1956) Professor of Business Law  
B.A., University of Missouri; J.D., Columbia University.
- RICE, ERIC D. (1969) Assistant Professor of Education  
B.S., St. Mary's College; M.A., San Diego State College; Ed.D. candidate, University of California, Los Angeles.
- RICHARD, JOAN M. (Mrs. K. L.) (1969) Lecturer in Drama  
A.B., graduate study, San Diego State College.
- RICHARDS, STEVEN A. (1969) Assistant Professor of Psychology  
B.A., Brooklyn College; Ph.D., University of Tennessee.
- RICHARDSON, ROBERT W. (1939, except 1946-48) Professor of Geography  
A.B., Ph.D., University of California.
- \*RICHARDSON, WILLIAM H. (1963) Associate Professor of Chemistry  
B.S., University of California, Los Angeles; Ph.D., University of Illinois.
- RICHMAN, PAUL T. (1969) Assistant 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 College; M.A., University of California; Ph.D., University of Southern California.
- RIEDMAN, RICHARD M. (1962) Associate 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.
- RIKKERS, RICHARD A. (1968) Assistant Professor of Social Work  
A.B., San Diego State College; M.S.W., University of California, Los Angeles.
- RINEHART, ROBERT R. (1964) Associate Professor of Biology  
A.B., San Diego State College; Ph.D., University of Texas.
- RING, MOREY A. (1962) Professor of Chemistry  
B.S., University of California, Los Angeles; Ph.D., University of Washington.
- †RINGBAKK, KJELL A. (1968) Assistant Professor of Marketing  
B.B.A., M.B.A., Ph.D., University of Wisconsin.
- RIVAS, VICENTE H. (1968) Director, Educational Opportunities Program  
A.B., M.S.W., San Diego State College.
- RIVERA, DOROTHY M. (1967) Assistant Professor of Mathematics  
B.A., Mount St. Mary's College; M.S., University of Notre Dame; Ph.D. candidate, Wayne State University.
- RIXMAN, EUNICE E. (1960) Assistant 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.
- ROBERTSON, FRANK O. (1953) Director of Health Services  
B.S., M.S., B.S. (Medicine), University of North Dakota; M.D., University of Oregon Medical School.
- \*ROBINSON, DUDLEY HUGH (1928) Professor of Chemistry  
B.S., Louisiana State University; M.S., State University of Iowa; Ph.D., University of Southern California. Registered Chemical Engineer.
- ROBINSON, LAURIE R. (Mrs.) (1960) Acquisition Librarian  
B.A., Texas Western College; M.A., University of Denver.
- RODIN, MIRIAM J. (Mrs. B.) (1966) Assistant Professor of Psychology  
B.A., M.A., Ph.D., University of California, Los Angeles.
- RODNEY, JOSEPH A. (1957) Director, Imperial Valley Campus; Professor of Education  
A.B., M.A., San Diego State College; Ed.D., University of Southern California.
- ROEDER, STEPHEN B. W. (1968) Assistant Professor of Physics  
B.A., Dartmouth College; Ph.D., University of Wisconsin.
- ROEMMICH, HERMAN (1958) Test Officer  
B.A., Jamestown College; M.A., University of Colorado; M.A., Teachers College, Columbia University; Ph.D., University of Washington.
- ROGERS, JOHN J. (1963) Associate Professor of Art  
B.S., M.S., University of Wisconsin.
- ROGERS, SPENCER LEE (1930) Professor of Anthropology  
A.B., San Diego State College; M.A., Claremont College; Ph.D., University of Southern California.
- ROGERS, WILLIAM N., II (1968) Assistant Professor of English  
B.A., Stanford University; M.A., Ph.D. candidate, University of California.
- ROHFLEISCH, KRAMER J. (1947) Professor of History  
A.B., M.A., Ph.D., University of California.

\* On leave, fall 1969-70.  
† On leave, year 1969-70.

## Faculty

- ROHFLEISCH, MARJORIE C. (Mrs. K.) (1966) Assistant Professor of Music  
B.A., Pomona College; M.A., San Diego State College.
- ROHRL, VIVIAN J. (Mrs. H.) (1965) Assistant Professor of Anthropology  
B.A., M.A., University of Chicago; Ph.D., University of Minnesota.
- ROMANO, ALBERT (1963) Associate Professor of Mathematics  
B.A., Brooklyn College; M.A., Washington University; Ph.D., Virginia Polytechnic Institute.
- ROSEN, SYDNEY H. (1968) Assistant Professor of History  
Ph.B., M.A., Ph.D. candidate, University of Chicago.
- ROSENSTEIN, LEON (1969) Lecturer in Philosophy  
A.B., Ph.D. candidate, Columbia University.
- ROSS, JAMES E. (1969) Assistant Professor of Mathematics  
B.M., Ph.D., University of Minnesota.
- \*ROSS, RAMON R. (1961) Professor of Elementary Education  
B.A., Central Washington College; M.Ed., University of Idaho; Ed.D., University of Oregon.
- ROST, NORMAN (1951) Professor of Music  
B.M., M.M., University of Michigan.
- ROTHER, JAMES (1969) Assistant Professor of English  
B.A., M.A., McGill University; Ph.D. candidate, University of California, Santa Barbara.
- ROUNTREE, JUDITH N. (Mrs. N. T.) (1969) Assistant Professor of Physical Education  
B.S., Auburn University; M.S., West Virginia University.
- ROWE, ROBERT D. (1946) Professor of Chemistry  
A.B., Engineer in Engineering Chemistry, Ph.D., Stanford University.
- ROWLAND, MONROE K. (1960) Associate Professor of Elementary Education  
B.S., M.A., Ph.D., University of Michigan.
- ROY, ELSIE L. (Mrs. O. A.) (1959) Assistant Catalog Librarian  
A.B., San Diego State College.
- RUETTEN, RICHARD T. (1960) Professor of History  
B.A., Colorado State College; M.A., Ph.D., University of Oregon.
- \*RUJA, HARRY (1947) Professor of Philosophy  
A.B., University of California at Los Angeles; M.A., University of Chicago; M.A., San Diego State College; Ph.D., Princeton University.
- †RUMBAUGH, DUANE M. (1954) Professor of Psychology  
A.B., University of Dubuque; M.A., Kent State University; Ph.D., University of Colorado.
- SALERNO, M. CONSTANCE (Mrs. V.) (1964) Associate Professor of Nursing  
B.S., M.S., University of San Diego, College for Women; M.S., University of California, Los Angeles.
- SALTZ, DANIEL (1959) Professor of Mathematics  
B.A., B.S., University of Chicago; M.S., Ph.D., Northwestern University.
- SAMOVAR, LARRY A. (1963) Associate Professor of Speech Communication  
B.A., Los Angeles State College; M.S., Ph.D., Purdue University.
- SAMPLES, HOWELL GORDON, JR. (1950) Humanities Librarian  
A.B., University of Georgia; B.S. in L.S., George Peabody College for Teachers.
- †SAND, MARGARET C. (Mrs. C. A.) (1964) Associate Professor of Psychology  
A.B., University of Colorado; M.A., Ph.D., Columbia University.
- SANDELIN, M. LEE (Mrs. G.) (1968) Gifts and Exchange Librarian  
B.A., San Francisco State College; M.L.S., University of California.
- SANDERLIN, GEORGE W. (1955) Professor of English  
B.A., American University; Ph.D., Johns Hopkins University.
- †SANDERS, FREDERICK C. (1967) Assistant Professor of Speech Communication  
A.B., M.A., San Diego State College.
- SANDERS, GERALD P. (1968) Lecturer in Biology  
A.B., San Diego State College; M.S. candidate, University of Pennsylvania.
- \*SANDSTROM, GLENN A. (1956) Professor of English  
B.A., M.A., Washington State College; Ph.D., University of Illinois.
- SANNER, RICHARD L. (1965) Assistant Director of Audio-Visual Services  
B.S., Iowa State University; M.A., University of Iowa; doctoral candidate, Arizona State University.
- SANTALO, JOAQUIN (1968) Assistant Professor of Spanish  
A.B., San Diego State College; M.A., Ph.D., University of Arizona.
- SANTANGELO, GENARO A. (1967) Associate Professor of English  
B.S., Fordham College; M.A., Ph.D., University of North Carolina.
- SARDINAS, MARIA A. (1968) Assistant Professor of Social Work  
A.B., B.A., Colegio Nuestra Señora De Lourdes, Cuba; M.T., Barnes Hospital School of Medical Technologists; M.S.W., New York University.

\* On leave, fall 1969-70.  
† On leave, spring 1969-70.  
‡ On leave, year 1969-70.



## Faculty

- SARFATT, JACK (1968) Assistant Professor of Physics  
B.A., Cornell University; M.S., University of California, San Diego; Ph.D., University of California, Riverside.
- SARFATT, ROBERTA F. (Mrs. J.) (1969) Assistant Professor of English  
B.A., Cornell University; Ph.D., University of California, San Diego.
- †SATTTLER, JEROME M. (1965) Associate Professor of Psychology  
A.B., City College of New York; M.A., Ph.D., University of Kansas.
- SAVAGE, EDITH J. (Mrs. P.) (1960) Professor of Music  
B.S., University of Missouri; M.S., Texas College of Arts and Industries; Ed.D., University of Colorado.
- SAVVAS, MINAS (1968) Assistant Professor of English  
B.A., M.A., University of Illinois; Ph.D. candidate, University of California, Santa Barbara.
- SAVIN, BARRY R. (1969) Lecturer in Mathematics  
A.B., University of California, Riverside; M.A., University of California, San Diego.
- SCHABER, STEVEN C. (1967) Assistant Professor of German  
A.B., San Diego State College; M.A., Ph.D., Princeton University.
- SCHAPIRO, HARRIETTE C. (1966) Associate Professor of Biology  
B.S., University of Miami; M.A., Brandeis University; Ph.D., University of Miami.
- SCHATZ, ARTHUR W. (1963) Associate Professor of History  
B.A., St. Mary's College, California; M.A., Ph.D., University of Oregon.
- SCHECK, DENNIS C. (1968) Assistant Professor of Sociology  
B.A., MacMurray College; M.S., Ph.D., Purdue University.
- SCHIEPPMANN, DORTHY L. (Mrs. L. E.) (1969) Placement Interviewer  
A.B., San Diego State College.
- SCHIFF, MAURICE (1969) Lecturer in Speech Pathology and Audiology  
M.D., Boston University; M.Sc., University of Pennsylvania.
- SCHMIDT, JOHN L. (1957) Professor of Counselor Education  
B.S., Lawrence College; M.S., Ph.D., University of Wisconsin.
- SCHMIDT, PATRICIA V. (Mrs. D.) (1966) Assistant Professor of Nursing  
B.S., College of St. Teresa, Minnesota; M.S., Marquette University.
- SCHMIER, WALTER D. (1967) Assistant Professor of Business Law  
A.B., J.D., Wayne State University.
- SCHOPP, JOHN D. (1962) Professor of Astronomy  
B.S., Northwestern University; Ph.D., Princeton University.
- SCHRUPP, MANFRED H. (1948) Dean, School of Education; Professor of Education  
B.S., M.Ed., Ph.D., University of Minnesota.
- SCHULMAN, CAROL A. (Mrs. H. L.) (1970) Assistant Professor of Psychology  
B.A., M.Sc., Ph.D., Rutgers University.
- SCHULTE, RICHARD H. (1965) Associate Professor of Psychology  
A.B., Michigan State University; M.A., Ph.D., University of Illinois.
- SCHULTZE, WILLIAM A. (1968) Assistant Professor of Political Science  
B.A., Nebraska Wesleyan University; M.A., Ph.D., Rutgers University.
- SCHULZE, ROLF H. K. (1969) Assistant Professor of Sociology  
B.A., University of North Dakota; M.A., Ph.D., Michigan State University.
- SCHUNERT, JIM R. (1948) Professor of Secondary Education  
B.S., M.A., Ph.D., University of Minnesota.
- SCHUPP, CHERIE E. (Mrs. W.) (1965) Assistant Professor of Home Economics  
B.S., Texas College of Arts and Industries; M.Ed., Southwest Texas State College.
- SCHUTTE, WILLIAM H. (1947) Associate Professor of Physical Education  
B.S., University of Idaho; M.S., University of Southern California.
- SCHWAB, FREDERICK E., Lt. Col., USAF (1969) Professor of Aerospace Studies  
B.S., University of Omaha.
- SCOTT, FRANK L. (1947) Professor of Physical Education  
A.B., Grinnell College; M.A., Ph.D., University of Michigan.
- SEARGEANT, SALLIE (1968) Lecturer in Social Work  
B.A., University of Arizona; M.S.W., Washington University.
- SEBOLD, FREDERICK D. (1969) Assistant Professor of Economics  
B.A., Saint Vincent College; M.A., Ph.D. candidate, Boston College.
- SEGADE, GUSTAV V. (1967) Assistant Professor of Spanish  
B.A., M.A., Ph.D. candidate, University of Arizona.
- SELDER, DENNIS J. (1968) Assistant Professor of Physical Education  
B.P.E., M.P.E., University of British Columbia; Ph.D., Ohio State University.
- SELLMAN, HUNTON D. (1946) Professor of Drama  
B.S., Purdue University; M.S., University of Arizona; additional graduate study, Yale University.

† On leave, year 1969-70.

## Faculty

- SENDER, FLORENCE H. (Mrs.) (1964) Associate Professor of Spanish  
B.A., Franklin College, Indiana; M.A. and additional graduate study, Northwestern University.
- SERIGHT, ORIN D. (1967) Associate Professor of English  
B.A., University of Colorado; M.A., University of Arkansas; Ph.D., Indiana University.
- SERVEY, RICHARD E. (1961) Professor of Elementary Education  
A.B., A.M., University of California, Los Angeles; Ph.D., University of Southern California.
- SHARKEY, GERALD K. (1956) Professor of Marketing  
A.B., St. John's University; M.S., Georgetown University; Ph.D., University of Southern California.
- SHARPE, BRYAN P. (1968) Assistant Professor of Anthropology  
B.A., M.A., Ph.D. candidate, University of California.
- †SHARTS, CLAY M. (1962) Professor of Chemistry  
B.S., University of California; Ph.D., California Institute of Technology.
- SHAW, LARRY J. (1968) Assistant Professor of Secondary Education  
B.A., Sioux Falls College; M.Ed., Ed.D., University of Nebraska.
- SHAW, PETER W. (1955) Professor of Mathematics  
B.A., M.A., University of Toronto; Ph.D., Stanford University.
- SHELDON, JOHN M. (1962) Associate Professor of Music  
B.Sc., University of North Dakota; M.A., Arizona State University; Ed.D., University of Southern California.
- SHEPARD, DAVID C. (1956) Professor of Biology  
A.B., Ph.D., Stanford University.
- SHEPOSH, JOHN P. (1968) Assistant Professor of Psychology  
A.B., M.A., Ph.D., Wayne State University.
- SHERR, STEVEN D. (1969) Counselor  
B.A., City College of New York; M.A., Temple University; Ph.D., University of Missouri.
- SHERRARD, WILLIAM R. (1968) Assistant Professor of Management  
B.A., M.B.A., D.B.A., University of Washington.
- SHIDELER, JAMES H., JR. (1966) Lecturer in Physical Science  
B.S., Oregon State College; M.S., University of Washington.
- SHIRA, DONALD W., JR. (1958) Assistant Social Sciences Librarian  
B.A., University of Redlands; M.A.L.S., George Peabody College.
- SHORT, DONALD R., JR. (1969) Assistant Professor of Mathematics  
B.A., University of California, Los Angeles; Ph.D., Oregon State University.
- SHOUSE, CLAUDE F. (1946) Professor of English  
A.B., Georgetown College; M.A., University of Kentucky; Ph.D., University of Southern California.
- SHULL, CHARLES M., JR. (1969) Associate Professor of Physical Science  
B.Chem., University of Tulsa; M.A., Ph.D., University of Utah.
- SHUTLER, MARY E. (Mrs. R.) (1967) Assistant Professor of Anthropology  
B.A., University of California; M.A., Ph.D., University of Arizona.
- \*SHUTTS, WILLIAM H. (1958) Professor of Aerospace Engineering  
B.S.M.E., M.S.A.E., University of Colorado; Ph.D., University of Texas.
- SIMONS, JEROLD J. (1967) Assistant Professor of Industrial Arts  
B.A., San Jose State College; M.A., California State College at Long Beach; Ph.D., Texas A & M University.
- SINGER, ARTHUR, JR. (1959) Professor of Special Education  
B.S., Milwaukee State Teachers College; M.S., Ph.D., University of Wisconsin.
- SIWUNDHLA, HULME T. (1969) Lecturer in History  
A.B., Oakwood College; M.A., Tennessee State University; M.A., University of California, Santa Barbara; additional graduate study, University of California, San Diego.
- SKAAR, DONALD L. (1960) Associate Professor of Electrical and Electronic Engineering  
B.E.E., University of Minnesota; M.S., Oregon State University. Registered Professional Engineer.
- SKOLIL, LESTER L. (1951) Professor of Physics  
A.B., Doane College; M.A., University of Nebraska; Ph.D., University of California; D.Sc., Doane College, Nebraska.
- SLADKY, DAVID R. (1968) Activities Adviser  
B.A., Wittenberg University.
- SLAUGHTER, I. BERNICE (Mrs. J.) (1967) Assistant Professor of Elementary Education  
B.S., Kansas State College; M.A., California Western University.
- SLOAN, WILLIAM C. (1961) Associate Professor of Biology  
B.S., M.S., Ph.D., University of Florida.
- SMITH, ALAN C. (1963) Associate Professor of Education  
B.A., Colorado State College; Ed.D., University of Oregon.
- SMITH, BEVERLY A. (1968) Assistant Professor of Physical Education  
B.S., West Virginia Wesleyan College; M.S., Ohio University.

\* On leave, fall 1969-70.

† On leave, spring 1969-70.



## Faculty

- SMITH, CHARLES D., JR. (1967) Assistant Professor of History  
A.B., Williams College; M.A., Harvard University; Ph.D., University of Michigan.
- SMITH, CHARLES R. (1969) Assistant Professor of Insurance  
B.S., M.S., Kansas State University; doctoral candidate, Pennsylvania State University.
- SMITH, CRAIG R. (1969) Assistant Professor of Speech Communication  
B.A., University of California, Santa Barbara; M.A., City University of New York, Queens College; Ph.D., Pennsylvania State University.
- SMITH, DEANE FRANKLIN (1939) Associate Professor of Music  
B.M., M.M., Northwestern University.
- SMITH, DOUGLAS M. (1968) Assistant Professor of Social Work  
B.A., Whittier College; B.D., Princeton Seminary; M.S.W., University of Southern California.
- SMITH, HAYDEN R. (1957) Professor of Secondary Education  
B.A., Albion College; M.A., Ph.D., University of Michigan.
- SMITH, J. DAYTON (1955) Professor of Music  
A.B., B.M., St. Olaf College; M.M., University of Nebraska; additional graduate study at Florida State University.
- SMITH, JANE K. (Mrs. R. D.) (1968) Assistant to Vice President for Academic Affairs  
B.S., West Virginia University; M.A., Northwestern University.
- SMITH, JIMMIE B. (1968) Assistant Professor of Mathematics  
B.A., B.S., Rice University; M.A. Ph.D., University of Arizona.
- SMITH, JOHN R. (1957) Associate Professor of Psychology  
B.A., Occidental College; M.A., Ph.D., University of California, Los Angeles.
- SMITH, LARRY E. (1969) Lecturer in Art  
A.B., University of Chattanooga; M.A.A., Montana State University.
- SMITH, LOUIS E., JR. (1946) Professor of Physics  
A.B., San Diego State College; Ph.D., University of Washington.
- SMITH, MARGOT N. (Mrs. G. S.) (1964) Activities Adviser  
A.B., M.A. candidate, San Diego State College.
- SMITH, NEWTON B. (1954) Professor of Mathematics  
B.A., Reed College; M.A., Oregon State College; Ph.D., Iowa State College.
- †SMITH, RAY T., JR. (1964) Associate Professor of History  
B.A., Southern Methodist University; M.A., Ph.D., University of California.
- SMITH, ROBERT D., JR. (1963) Professor of Secondary Education  
B.A., M.A., Arizona State University; Ph.D., Northwestern University.
- †SNIDER, MERVIN S. (1953) Professor of Music  
B.A., Pomona College; M.A., Eastman School of Music; additional graduate study at Northwestern University and Claremont Graduate School.
- SNODGRASS, HERSCHEL R. (1967) Professor of Physics  
B.A., M.A., University of New Mexico; Ph.D., University of California.
- †SNUDDEN, LESLIE W. (1959) Professor of Accounting  
B.S., Northwestern University; M.B.A., D.B.A., University of Southern California. Certified Public Accountant.
- SNYDER, WILLIAM S. (1960) Professor of Philosophy  
B.A., Temple University; Ph.D., Princeton University.
- SOLBUE, GARY A. (1964) Activities Adviser  
A.B., San Diego State College.
- SOLDNER, HELMUT K. (1969) Assistant Professor of Marketing  
B.S., Martin-Beahm-Oberrealschule, Nuremberg; M.B.A., D.B.A., University of Erlangen, Nuremberg.
- SOMERVILLE, ROSE M. (Mrs. J.) (1967) Assistant Professor of Home Economics  
B.A., Barnard College, Columbia University; M.A., Columbia University; Ed.D., Teachers College, Columbia University.
- SONEK, ALEXANDER, JR. (1968) Assistant Professor of Anthropology  
B.A., City College of New York; M.A., Ph.D. candidate, University of Oregon.
- SOPER, JOANN P. (Mrs. M. E.) (1968) Assistant Social Sciences Librarian  
B.A., Earlham College; M.L.S., University of Rhode Island.
- SORENSEN, GEORGE W. (1967) Assistant Professor of Journalism  
A.B., Antioch College, Ohio; M.S., Boston University; Ph.D., University of Iowa.
- SORENSEN, GEORGE N. (1946) Professor of Art  
A.B., San Diego State College; M.A., University of Southern California; additional graduate study at the Universities of California and Minnesota.
- SOROCHAN, WALTER D. (1969) Assistant Professor of Health Science and Safety  
B.P.E., University of British Columbia; M.Sc., University of Oregon; H.S.D., Indiana University.
- \*SPANGLER, JOHN A. (1946) Professor of Chemistry  
A.B., Ph.D., West Virginia University.

- \* On leave, fall 1969-70.  
† On leave, year 1969-70.  
‡ On leave, spring 1969-70.

## Faculty

- †SPEAR, PAUL S. (1968) Assistant Professor of Psychology  
A.B., Taylor University; M.A., University of Wyoming; Ph.D., University of Denver.
- SPENCER, MARJORIE J. (Mrs. T.) (1969) Assistant Professor of Art  
B.S., Texas Woman's University; M.A., George Peabody College for Teachers.
- SPEVAK, JOSEPH E. (1969) Assistant Professor of Journalism  
B.S., Kent State University; M.S., Boston University; Ph.D. candidate, University of Iowa.
- SPONSELLER, DORIS M. (1965) Assistant Professor of Information Systems  
B.S., Ohio University; M.A., New York University.
- SPRINGER, ARTHUR (1968) Assistant Professor of Physical Science  
B.S., Illinois Institute of Technology; Ph.D., University of California.
- SPRUNT, JEAN (1963) Assistant Professor of Physical Education  
B.S., University of Utah; M.S., Washington State University.
- †SRBICH, ALEXANDER L. (1959) Professor of Management  
B.S., Officers Technical College, Yugoslavia; M.A., University of Cologne, Germany; B.S.E., M.B.A., University of Michigan; Ph.D., University of Minnesota. Registered Professional Industrial Engineer.
- STANFORD, PHILIP S. (1967) Assistant Professor of Anthropology  
B.A., University of California, Santa Barbara; M.A., University of Hawaii; Ph.D., London School of Economics and Political Science.
- STARR, RAYMOND G. (1964) Associate Professor of History  
B.A., Ph.D., University of Texas.
- STAUTLAND, SIGURD (1966) Associate Professor of Secondary Education  
B.Fag., University of Oslo, Norway; M.A., College of the Pacific; Ph.D., Stanford University.
- §STECKBAUER, MARK J. (1967) Assistant Professor of Secondary Education  
A.B., Catholic University of America; M.A., San Diego State College; Ed.D., University of California, Los Angeles.
- STEELE, RICHARD W. (1967) Assistant Professor of History  
B.A., Queens College; M.A., University of Wisconsin; M.A., Ph.D., Johns Hopkins University.
- STEVENS, WALTER R. (1956) Professor of Psychology  
A.B., Park College; M.A., Ph.D., Michigan State University.
- STEPHENSON, CLARENCE E. (1963) Associate Professor of Drama  
B.A., M.A., Ph.D., University of Michigan.
- STEPHENSON, JOHN S., III (1969) Assistant Professor of Sociology  
B.A., Boston University; M.A., University of Denver; Ph.D. candidate, Ohio State University.
- STEWART, CHARLES J. (1955) Professor of Chemistry  
A.B., San Diego State College; M.S., Ph.D., Oregon State College.
- †STEWART, PAUL E. (1953) Professor of Physical Science  
A.B., College of Wooster; Ph.D., Stanford University.
- STIEHL, HARRY C. (1969) Assistant Professor of English  
B.A., University of Texas; M.A., University of California; Ph.D., University of Texas.
- STITES, FRANCIS N. (1968) Assistant Professor of History  
B.A., Marian College; M.A., Ph.D., Indiana University.
- STODDART, JESSIE L. (1966) Assistant Professor of History  
B.A., Carroll College, Wisconsin; M.A., University of Nebraska; Ph.D., University of California.
- STONE, HAMILTON L. (1947) Associate Professor of Mechanical Engineering  
B.S., U.S. Naval Academy; graduate study at U.S. Naval Postgraduate School. Registered Mechanical Engineer.
- STONE, SANFORD H. (1956) Professor of Civil Engineering  
B.S.E., M.S.E., University of Michigan; M.S., University of Illinois. Registered Professional Civil Engineer.
- STORY, WILLIAM E. (1968) Assistant Professor of Education  
A.B., Sacramento State College; M.A., University of Nevada; Ph.D., University of Arizona.
- STRAND, MARGUERITE R. (Mrs. R. L.) (1955) Counselor; Professor of Secondary Education  
A.B., M.A., Florida State University; Ph.D., University of Washington.
- STRATTON, DAVID R. (1967) Assistant Professor of Marketing  
B.S., M.B.A., University of Colorado; Ph.D. candidate, University of Texas.
- STRATTON, FRANK E. (1966) Associate Professor of Civil Engineering  
B.S., San Diego State College; M.S., Ph.D., Stanford University.
- STRAUB, LURA LYNN (1948) Professor of Information Systems  
A.B., Jamestown College; M.C.S., Indiana University; additional graduate study, Universities of Wyoming, Denver and Colorado.
- STROM, DAVID W. (1968) Assistant Professor of Elementary Education  
B.A., M.A., Ed.D., Wayne State University.

- † On leave, spring 1969-70.  
‡ On leave, year 1969-70.  
§ Assigned duty in Brazil, Spring 1969-70.



## Faculty

- †STROM, LEONARD E. (1959) Professor of Counselor Education  
A.B., San Jose State College; M.S., University of Southern California; Ed.D., Teachers College, Columbia University.
- STRONG, DOUGLAS H. (1964) Associate Professor of History  
B.A., M.A., University of California; D.S.S., Syracuse University.
- STUART, ROBERT J. (1969) Assistant Professor of Electrical and Electronic Engineering  
B.S., Massachusetts Institute of Technology; M.S., Ph.D., University of California, Los Angeles.
- STUMPF, JACK E. A. (1965) Professor of Social Work  
B.S., George Williams College, Chicago; M.S.W., University of Southern California; Ph.D. candidate, Brandeis University.
- SUCEC, ANTHONY A. (1967) Assistant Professor of Physical Education  
A.B., M.A., San Diego State College; Ed.D., University of California.
- SULLIVAN, EDWARD D. S. (1967) Assistant Professor of English  
B.A., University of Santa Clara; M.A., Ph.D., University of California, Santa Barbara.
- SUTHERLAND, JON N. (1967) Assistant Professor of History  
A.B., San Diego State College; Ph.D., University of California, Los Angeles.
- SWANSON, ROBERT W. (1968) Manager, ADP Services  
B.S., Columbia University.
- SWIFT, C. SHUFORD (1968) Activities Adviser  
B.S.E.E., U. S. Naval Academy; M.S.E.E., U. S. Naval Postgraduate School; additional graduate study, San Diego State College.
- †SWIGGETT, JEAN D. (1946) Professor of Art  
A.B., San Diego State College; M.F.A., University of Southern California; additional graduate study at Claremont College.
- SZABO, ANDREW (1955) Collection Development Librarian  
M.S. in L.S., Drexel Institute of Technology; Ph.D., University of Pecs, Hungary.
- TAFT, SHIRLEY O. (Mrs.) (1969) Assistant Professor of English  
B.A., University of London; M.A., Ph.D. candidate, State University of New York at Binghamton.
- TALBERT, FREDDIE D. (1968) Assistant Professor of Astronomy  
B.A., Ph.D., University of Texas.
- TANAKA, YOSHIO (1965) Associate Professor of German  
LL.B., Tokyo University; B.A., M.A., Ph.D., University of California, Los Angeles.
- TAMBELLINI, DOLORES C. (1969) Assistant Lower Division Librarian  
B.A., M.A.L.S., Indiana University.
- TANZER, JOANN L. (Mrs. J. L.) (1956) Professor of Art  
B.A., M.A., Michigan State University.
- TAYLOR, HAWLEY C., JR. (1964) Assistant Professor of English  
A.B., Reed College, Oregon; Ph.D., University of Washington.
- †TAYLOR, JAMES W. (1950) Professor of Geography  
A.B., Northwestern State College; M.A., Ph.D., Louisiana State University.
- TAYLOR, KENNETH M. (1949) Professor of Biology  
A.B., M.A., Ph.D., University of California, Los Angeles.
- TEASDALE, JOHN G. (1956) Professor of Physics  
A.B., Ph.D., University of California, Los Angeles.
- TEBOR, IRVING B. (1957) Professor of Social Work  
B.S., Northern Illinois State Teachers College; M.A., University of Chicago; Ph.D., Oregon State College.
- TEMPLIN, JACQUES D. (1962) Professor of Physics  
A.B., University of California; M.A., Ph.D., University of California, Los Angeles.
- TERRELL, LOUIS M. (1969) Assistant Professor of Political Science  
B.A., Williams College; M.A., Ph.D., Stanford University.
- \*TERRY, WILLIAM L. (1946) Professor of Physical Education  
A.B., Western Kentucky Teachers College; M.S., Indiana University; Ed.D., Columbia University.
- THIEL, DONALD W. (1957) Professor of Industrial Arts  
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  
A.B., San Diego State College; M.A., Ph.D., University of Southern California.
- THOMAS, ALICE E. (Mrs. H.) (1955) Professor of Home Economics  
B.S., Bethany College, Kansas; M.A., Columbia University; additional graduate study at Universities of California and Washington.
- \*THOMAS, BLAKEMORE E. (1956) Professor of Geology  
A.B., University of California; M.S., Ph.D., California Institute of Technology.
- THOMPSON, GORDON M. (1969) Assistant Professor of Counselor Education  
B.A., Muskingum College; B.D., Pittsburgh Theological Seminary; M.A., San Diego State College; Ph.D. candidate, Arizona State University.

\* On leave, fall 1969-70.  
† On leave, year 1969-70.

## Faculty

- THOMPSON, WILLIS H., JR. (1967) Assistant Professor of Physical Science  
B.S., B.A., Stanford University; M.A., San Jose State College.
- THRANE, JAMES R. (1966) Assistant 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) Assistant Professor of Biology  
B.S., University of Wisconsin; M.S., Ph.D., University of Michigan.
- TIDWELL, JAMES N. (1947) Professor of English  
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 College.
- TIMIN, MITCHELL E. (1969) Assistant Professor of Biology  
B.S., Carnegie Institute of Technology; M.S., San Diego State College; Ph.D. candidate, University of California, San Diego.
- TODD, JOHN H. (1968) Assistant Professor of Zoology  
B.S., M.S., McGill University; Ph.D., University of Michigan.
- TOLLEFSEN, DOROTHY J. (1946) Professor of Physical Education  
A.B., M.A., University of California.
- TOYOSHIMA, NOREEN R. (Mrs. J.) (1968) Assistant Professor of Art  
B.F.A., University of Utah; M.F.A., Cranbrook Academy of Art; Ph.D., University of California, Los Angeles.
- 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.
- TRIMMER, RUSSELL L. (1955) Professor of Secondary Education  
A.B., Stanford University; M.A., Ph.D., Claremont Graduate School.
- TROXELL, EUGENE A. (1966) Assistant Professor of Philosophy  
A.B., Gonzaga University; M.A., Ph.D., University of Chicago.
- TUNBERG, JACQUELINE D. (Mrs. W. A.) (1966) Assistant 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.
- TURNER, MERLE B. (1950) Professor of Psychology  
A.B., Willamette University; M.A., Stanford University; Ph.D., University of Colorado.
- TURNER, NORMAN C. (1964) Associate Professor of French  
B.A., M.A., Brigham Young University; Ph.D., Syracuse University.
- VANDENBERG, PIETER A. (1969) Assistant Professor of Finance  
B.S., California State Polytechnic College, Kellogg-Voorhies; M.B.A., D.B.A., candidate, University of Southern California.
- †VANDERBILT, KERMIT (1962) Professor of English  
B.A., Luther College, Iowa; M.A., Ph.D., University of Minnesota.
- VAN DER VOORT, RICHARD L. (1969) Assistant Professor of English  
B.A., Michigan State University; M.A., Ph.D. candidate, University of New Mexico.
- VANDERWOOD, PAUL J. (1969) Assistant 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) Assistant Professor of Marketing  
B.Com., Sydenham College of Commerce & Economics, Bombay; M.B.A., M.A., doctoral candidate, University of California.
- VARTANIAN, PERSHING (1968) Assistant Professor of History  
B.S., Wayne State University; M.A., Columbia University; Ph.D. candidate, University of Michigan.
- VASQUEZ, LIBRADO E. (1969) Assistant Professor of Secondary Education  
B.A., Pan American College; M.A., New Mexico Highlands University; Ph.D., University of Oregon.
- VELEZ, CARLOS G. (1969) Assistant Professor of Chicano Studies  
B.A., M.A., University of Arizona.
- VELLEKOOP, CORNELIA (1969) Assistant Professor of Sociology  
B.A. (Social Sciences), B.A. (History), M.A., University of Leiden, Holland; Ph.D., University of Canterbury, New Zealand.
- VENIERIS, JOHN P. (1967) Assistant Professor of Economics  
B.A., Graduate School of Economics and Business Administration, Athens, Greece; Ph.D., University of Oregon.

† On leave, spring 1969-70.



## Faculty

- VERGANI, GIANANGELO (1963) Associate Professor of Italian  
Dottorato in Lettere, University of Pavia, Italy; additional graduate study, University of California.
- VERGANI, LUISA (Mrs. G.) (1969) Lecturer in Italian  
Dottorato in Lettere, University of Milan.
- VIETTI, ROBERT C. (1969) Lecturer in Information Systems  
A.B., M.S., Chico State College; Ph.D. candidate, United States International University.
- VILLARINO, JOE R. (1969) Assistant Professor of Chicano Studies  
B.S., M.A., Northern Arizona University.
- VILLONE, ARNOLD L. (1968) Assistant Professor of Mathematics  
B.S.E.E., University of Buffalo; M.A., Ph.D., University of California, Los Angeles.
- \*VOEKS, VIRGINA W. (1949) Professor of Psychology  
B.S., M.S., University of Washington; Ph.D., Yale University.
- VOORHIES, BARBARA (1969) Assistant Professor of Anthropology  
B.S., Tufts University; Ph.D., Yale University.
- WADE, KENNETH S. (1964) Associate Professor of Accounting  
B.S., United States Military Academy; M.S., San Diego State College; Ph.D., University of California, Los Angeles.
- WADSWORTH, EARL P., JR. (1956) Professor of Chemistry  
B.S., M.S., University of New Hampshire; Ph.D., Iowa State College.
- WAGNER, RICHARD V. (1969) Assistant Professor of Anthropology  
B.A., M.A., Ph.D., University of California.
- WALBA, HAROLD (1949) Professor of Chemistry  
B.S., Massachusetts State College; Ph.D., University of California.
- WALCH, HENRY A., JR. (1955) Professor of Microbiology  
B.A., Ph.D., University of California, Los Angeles.
- WALKER, DONALD E. (1968) Vice President for Academic Affairs;  
Professor of Sociology and Public Administration  
A.B., M.Th., University of Southern California; Ph.D., Stanford University.
- WALKER, LLOYD A. (1965) Assistant to the President  
B.Ed., University of California, Los Angeles; graduate study, New York University and San Diego State College.
- WALLACE, ROBERT D. (1957) Professor of Art  
B.A., M.A., Stanford University; D.Litt., University of Geneva.
- WALLACE, WILLIAM J., JR. (1969) Assistant Professor of Physical Science  
B.A., St. Michael's College, Vermont; M.S., Tuskegee Institute; M.S., Ph.D. candidate, Oregon State University.
- WALSH, JAMES L. (1962) Associate Professor of Spanish  
B.A., University of Nevada; M.A., Mexico City College; Ph.D., University of Illinois.
- †WALSH, M. AGNES (Mrs. W. E.) (1955) Associate Professor of Elementary Education  
B.S., Northwestern University; M.A., Teachers College, Columbia University.
- WALSHOK, MARCO G. (1969) Assistant Professor of Public Administration and  
Urban Studies  
B.A., University of Southern California; doctoral candidate, Indiana University.
- WANLASS, DOROTHY C. (1955) Professor of English  
B.S., Utah State University; M.A., Ph.D., Columbia University.
- WARBURTON, JOHN T. (1968) Associate Professor of Educational Administration  
B.A., University of California; M.A., San Diego State College; Ed.D., University of California, Los Angeles.
- WARD, JEFFREY K. (1968) Assistant Professor of Geography  
B.A., University of Kansas; Ph.D. candidate, University of Iowa.
- †WARD-STEINMAN, DAVID (1961) Professor of Music  
B.M., Florida State University; M.M., D.M.A., University of Illinois.
- WARMER, MARGERY ANN (Mrs. J. C.) (1956) Dean of Activities  
A.B., M.S., and additional graduate study at the University of Southern California.
- WARNER, BRADFORD B. (1967) Educational Television Station Program Director  
B.S., Kent State University.
- WARREN, EDWARD W. (1963) Professor of Philosophy  
B.A., Stanford University; Ph.D., Johns Hopkins University.
- WARREN, E. JUNE (Mrs.) (1957) Dean of Admissions and Records  
B.S., Northern State Teachers College, South Dakota; M.A., San Diego State College; doctoral candidate, University of California, Los Angeles.
- WARREN, LEROY J. (1955) Professor of Mathematics  
B.A., College of Idaho; M.A., Ph.D., University of Oregon.
- WATSON, ELIZABETH V. (1968) Assistant Professor of Social Work  
B.A., Scripps College; M.S., University of Southern California.
- WATSON, LAWRENCE C. (1967) Assistant Professor of Anthropology  
B.A., University of California, Los Angeles; M.A., University of Southern California; Ph.D., University of California, Los Angeles.

\* On leave, fall 1969-70.  
† On leave, spring 1969-70.

## Faculty

- WEBB, C. R., JR. (1949, except 1964-66) Professor of History  
A.B., M.A., University of California; M.A., Ph.D., Harvard University.
- WEBB, EDWARD M., JR. (1964) Assistant to the Dean of Students  
A.B., M.S., San Diego State College; additional graduate study, United States International University.
- †WEBER, DAVID J. (1967) Assistant Professor of History  
B.S., State University of New York, College at Fredonia; M.A., Ph.D., University of New Mexico.
- WEDBERG, HALE L. (1959) Professor of Botany  
B.A., Los Angeles State College; Ph.D., University of California, Los Angeles.
- WEETER, RAYMOND D. (1966) Assistant Professor of Spanish  
B.A., University of Utah; M.A., Universidad Nacional de Mexico; Ph.D., University of California.
- WEINBERGER, PAUL E. (1968) Professor of Social Work  
B.A., San Francisco State College; M.S.W., University of California; D.S.W., University of Southern California.
- †WEISSMAN, STANLEY N. (1962) Associate Professor of Philosophy  
A.B., Brooklyn College; Ph.D., Columbia University.
- WELLS, RICHARD W. (1961) Associate Professor of Physical Education  
A.B., Occidental College; M.A., San Diego State College.
- WELSH, KAREN L. (1969) Assistant Humanities Librarian  
B.A., University of Saskatchewan; M.L.S., Louisiana State University.
- WENDLING, AUBREY (1954) Professor of Sociology  
A.B., San Francisco State College; M.A., Ph.D., University of Washington.
- WERNER, JOAN T. (Mrs. R.) (1965) Assistant Professor of Sociology  
B.S., State College, Pennsylvania; M.Ed., Pennsylvania State University; D.S.S., Syracuse University.
- †WESTERVELT, WILLIAM O. (1964) Associate Professor of German  
B.A., Colgate University; M.S., Elmira College; M.A., Ph.D., University of Southern California.
- †WETHERILL, WILLIAM H. (1957) Professor of Elementary Education  
B.Ed., University of Toledo; M.A., Stanford University; Ph.D., University of Michigan.
- WHEELER, JAMES L. (1968) Assistant Professor of English  
A.B., M.A., Ph.D. candidate, University of California, Los Angeles.
- WHITBY, JOAN A. (1968) Assistant Professor of Physical Education  
B.S., Carthage College; M.S., Arizona State University.
- WHITMAN, DAVID G. (1969) Assistant Professor of Mathematics  
B.A., M.S., Emory University; Ph.D., University of California, Riverside.
- WHITNEY, DANIEL D. (1966) Associate Professor of Anthropology  
B.A., M.A., Ph.D., Michigan State University.
- WICK, ARNE N. (1958) Professor of Chemistry  
B.S., M.S., Ph.D., University of Minnesota.
- WIDMER, KINGSLEY (1956) Professor of English  
B.A., M.A., University of Minnesota; Ph.D., University of Washington.
- WIJNHOLDS, HEIKO W. J. (1967) Associate Professor of Finance  
LL.B., University of Potchefstroom, South Africa; Jur. D. (Econ.), University of Utrecht.
- WILCOX, ROBERT F. (1950) Professor of Public Administration and Urban Studies  
A.B., M.A., Stanford University; M.A., Columbia University; Ph.D., Stanford University.
- WILDING, JOHN H. (1960) Professor of Elementary Education  
B.Arch., Catholic University of America; M.A., Teachers College, Columbia University; Ed.D., University of Southern California.
- WILHELM, BETTY J. (1961) Assistant Professor of Physical Education  
B.S., University of Wisconsin; M.A., University of Michigan.
- WILLERDING, MARGARET F. (1956) Professor of Mathematics  
A.B., Harris Teachers College; M.A., Ph.D., St. Louis University.
- WILLIAMS, FLORENCE I. (1962) Associate Professor of Spanish  
B.A., Mount Union College, Ohio; M.A., Ph.D., University of Cincinnati.
- WILLIAMSON, GLORIA R. (Mrs. C.) (1961) Assistant Professor of Physical Education  
A.B., M.A., Los Angeles State College.
- WILLIAMSON, JAMES E. (1968) Assistant Professor of Accounting  
B.A., Northland College; M.S., Ph.D., University of Minnesota.
- WILLIAMSON, NANCEE B. (1969) Financial Aids Counselor  
B.S., West Virginia University; M.A., Ohio State University.
- WILLIS, GEORGE C. (1967) Assistant Professor of Physical Education  
B.A., M.A., California State College, Los Angeles.
- WILSON, GALEN (1969) Assistant Professor of Music  
B.A., M.A., University of California, Los Angeles; D.M.A. candidate, University of Southern California.

† On leave, spring 1969-70.  
† On leave, year 1969-70.



## Faculty

- †WILSON, WILFRED J. (1963) Associate Professor of Zoology  
A.B., Sacramento State College; M.A., Ph.D., University of California, Davis.
- WIMER, ARTHUR C. (1950) Professor of Journalism  
B.Litt., Columbia University; M.A., State University of Iowa.
- WINDSOR, HENRY H., III (1968) Assistant Professor of Spanish  
B.A., M.A., Arizona State University; Ph.D. candidate, University of Arizona.
- WINSLOW, ROBERT W. (1965) Associate Professor of Sociology  
B.A., California State College, Long Beach; M.A., Ph.D., University of California, Los Angeles.
- WITHERSPOON, JOHN P. (1967) Educational Television Station Manager  
B.A., University of the Pacific; M.A. and additional graduate study, Stanford University.
- WOLF, CHRISTA M. (1969) Assistant Professor of German  
B.A., M.A., additional graduate study, University of California, Los Angeles.
- 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) Associate Professor of Physics  
B.S., University of Illinois; M.S., Ph.D., University of California, Los Angeles.
- WOLTER, GERHARD H. (1957) Professor of Physics  
B.S., M.S. equivalent, University of Berlin.
- WOODLE, GARY L. (1966) Assistant Professor of French  
B.A., M.A., University of South Dakota; additional graduate study, University of Colorado.
- WOODSON, JOHN H. (1961) Associate 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, RICHARD D. (1964) Associate Professor of Geography  
A.B., A.M., Indiana University; Ph.D., University of Kansas.
- WULBERN, JULIAN H. (1966) Assistant Professor of German  
A.B., University of California; M.A., University of Colorado; Ph.D. Northwestern University.
- WYLIE, DONALD G. (1966) Associate Professor of Telecommunications and Film  
B.A., University of Michigan; M.A., Ph.D., Michigan State University.
- YAH, 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 Relations.
- YANKEY, DAVID B. (1969) Assistant Professor of Finance  
B.A., M.B.A., Ph.D., University of Southern California.
- YARBOROUGH, JOHN M. (1959) Director of Housing  
B.S., Texas Agricultural and Mechanical College; M.A., Ed.D., Stanford University.
- YAREMKO, ROBERT M. (1969) Assistant Professor of Psychology  
B.A., University of Florida; M.A., Ph.D., Ohio University.
- YESSELMAN, CHARLOTTE B. (Mrs. M.) (1967) Assistant Professor of Special Education  
B.A., Hunter College; M.S., New York University; Ph.D., University of New Mexico.
- \*YOUNG, ARTHUR (1967) Assistant Professor of Astronomy  
B.S., Allegheny College; M.A., Ph.D., Indiana University.
- YOUNT, JANICE M. (Mrs. R. V.) (1969) Assistant Professor of Home Economics  
A.B., M.A. candidate, San Diego State College.
- ZAK, R. BETTY (1969) Physician and Surgeon  
B.A., Immaculate Heart College; M.D., Woman's Medical College of Pennsylvania.
- ZAMPESE, ERNEST E. (1967) Assistant Professor of Physical Education  
B.S., M.A., California State Polytechnic College, San Luis Obispo.
- ZEDLER, PAUL H. (1969) Assistant 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.

### APPOINTMENTS UNDER GRANTS FROM OUTSIDE FUNDS

- AIKENS, INEZ M. (Mrs.) (1967) Lecturer in Social Work  
A.B., University of California; A.M., University of Chicago.
- ANDERSON, ERNEST F. (1969) Lecturer in Social Work  
B.A., California State College, Los Angeles; M.S.W., San Diego State College.
- BREWER, JACK L. (1967) Lecturer in Social Work  
A.B., M.S.W., San Diego State College.

\* On leave, fall 1969-70.

† On leave, spring 1969-70.

## Faculty

- CLARY, VIRGINIA L. (1967) Lecturer in Social Work  
B.A., Municipal University of Omaha; M.S.W., University of Chicago.
- COHEN, LESTER M. (1969) Lecturer in Social Work  
B.S., University of Wisconsin; M.S.W., University of Pennsylvania.
- HALL, BEVERLY J. (Mrs. M.) (1967) Lecturer in Social Work  
B.A., University of the Pacific; M.A., University of California, Los Angeles.
- KELLEY, JOSEPH B. (1968) Lecturer in Social Work  
B.S., Lehigh University; M.S.W., Catholic University of America; D.S.W., Columbia University.
- KUKKONEN, RUTH M. (1966) Lecturer in Social Work  
B.A., Wayne State University; M.S.W., University of Michigan.
- PEER, ROBERT W. (1967) Lecturer in Social Work  
A.B., San Diego State College; M.S.W., University of California, Los Angeles.
- RAYMER, PAUL H. (1969) Lecturer in Social Work  
A.B., M.S.W., doctoral candidate, University of California.
- SCHRIFFRIN, MARK (1967) Lecturer in Social Work  
B.S., New York University; M.S.W., University of California, Los Angeles.
- SCHLATTER, MARTA (Mrs. E.) (1966) Assistant Professor of Social Work  
B.A., University of California; M.S.S., Smith College, Mass.
- SHENKO, BARBARA E. (Mrs.) (1966) Lecturer in Social Work  
B.A., University of Chicago; M.S.S., Smith College, Mass.
- TRESKE, PAUL S. (1969) Lecturer in Social Work  
B.A., M.S.W., University of Connecticut.
- WEISSMAN, L. ANDREW (1969) Lecturer in Social Work  
A.B., Antioch College; M.A., University of Chicago.

### LECTURERS

- ABRAMS, ALVIN J. (1969) Lecturer in Psychology  
Ph.D., Claremont Graduate School. Instructor—Southwestern.
- AIKEN, EDWIN G. (1967) Lecturer in Psychology  
Ph.D., University of Illinois. Training Research Laboratory.
- ALLEN, JAMES W. (1969) Lecturer in Business Education  
A.B., San Diego State College. Instructor—Grossmont.
- ANDERSON, DONALD E. (1969) Lecturer in Information Systems  
M.A., University of North Dakota. Business and U.S.A.F.
- ANDERSON, GAYLE F. (1969) Lecturer in Accounting  
J.D., University of San Diego. Partner in Law.
- ANDERSON, GEORGE K. (1969) Lecturer in Elementary Education  
M.A., Claremont Colleges. Teacher, San Diego Schools.
- ANDERSON, JOAN B. (1969) Lecturer in Economics  
M.A., Stanford University. Teaching Assistant—University of California.
- ANDERSON, RUTH A. (1969) Lecturer in English  
M.A., San Diego State College. Instructor—Grossmont.
- ANDREWS, JULIA G. (Mrs. F. S.) (1947) Associate Professor Emeritus of Art  
M.A., Columbia University.
- ANDRIOLA, JOSEPH (1969) Lecturer in Home Economics  
Ph.D., University of Minnesota. University of Arizona.
- ANTHONY, HARRY A. (1969) Lecturer in Public Administration  
Ph.D., Columbia University.
- ARROYO, ARMANDO I. (1967) Lecturer in Social Work  
M.S.W., Our Lady of Lake College, Texas. San Diego Parole Office.
- ASBURY, PAUL F. (1969) Lecturer in Center for Economic Education  
M.A., Western Michigan University. Teacher S.D. Schools.
- ASHWORTH, PHILIP B. (1963) Lecturer in Education  
M.Sc., University of Southern California. San Diego City Schools.
- ATWATER, JOAN M. (1969) Lecturer in English  
M.A., San Francisco State. San Diego State College Faculty.
- BALDWIN, BREWSTER (1969) Lecturer in Geology  
Ph.D., Columbia University. Middlebury College.
- BALL, HARRIETTE A. (1968) Lecturer in Music  
B.A., University of Nebraska. Beth Miller Studio.
- BARNIER, BARBARA E. (1969) Lecturer in Elementary Education  
A.B., San Diego State College. John Marvin Elem. School.
- BARNWELL, JOHN E. (1966) Lecturer in Home Economics  
M.A., University of Chicago.
- BARRONS, JOHN C. (1967) Lecturer in Business Education  
Ed.D., University of California, Los Angeles. Grossmont Union High School.



## Faculty

BARTLETT, GRANT R. (1969)	Lecturer in Chemistry
Ph.D., University of Chicago. Former Faculty San Diego State.	
BEEKLEY, H. DEL (1967)	Lecturer in Men's Physical Education
Prudential Insurance Company of America.	
BEETS, MARY M. (1968)	Lecturer in Education
Ph.D., United States International University.	
BERGER, WOLFGANG H. (1968)	Lecturer in Physical Science
Ph.D., University of California, San Diego. University of Colorado.	
BERRY, SYLVIA (Mrs. S.) (1967)	Lecturer in Education
M.A., New York University.	
BIANCHINI, VICTOR E. (1969)	Counselor in Personnel Services
J.D., University of San Diego. U.S. Commissioner.	
BLACKMON, JOAB L. JR. (1968)	Lecturer in Physical Education
Ph.D., University of Washington. University of Richmond.	
BLAKE, RAYMOND J. (1968)	Lecturer in Secondary Education
M.A., San Diego State College.	
BLEDSON, MARTHA T. (1969)	Lecturer in Special Education
A.B., San Diego State College. Teacher, Grossmont Dist.	
BOGGS, WILMA T. (1965)	Lecturer in Home Economics
B.S., Kansas State University.	
BOWEN, MARIA (1969)	Lecturer in Counselor Education
Ph.D., University of California, Berkeley. Clinical Psychologist.	
BOYER, JOHN L. (1964)	Lecturer in Men's Physical Education
M.D., Western Reserve University. Alvarado Medical Center.	
BRATTON, OTIS L. (1968)	Lecturer in Management
B.B.A., Southern Methodist University. Personnel Analyst.	
BRAUER, NORMA M. (1969)	Lecturer in Elementary Education
M.A., San Diego State College. S.D. County School Teacher.	
BRENNAN, CECILIA E. (1968)	Lecturer in Social Work
M.S.W., University of Southern California. Visiting Teacher.	
BRITTON, JOHN R. (1969)	Lecturer in Journalism
B.A., San Diego State College. KOGO T.V., writer, photographer.	
BROWN, CURTIS M. (1969)	Lecturer in Civil Engineering
B.S., University of California. Former Lecturer, San Diego State.	
BROWN, EDGAR N. (1965)	Lecturer in Social Work
M.A., Ohio State University. Community Welfare Council.	
BROWN, RUTH M. (1966)	Lecturer in English
M.A., Texas Western College.	
BRUSH, GRACE M. (1969)	Lecturer in Social Work
M.S.W., University of Wisconsin. Door of Hope, San Diego.	
BRYSON, JEFF. (1969)	Lecturer in Psychology
M.S., Purdue University. Research Assistant, Univ. of Georgia.	
BURKHARDT, VIOLET (1969)	Counselor in Personnel Services
B.S., San Diego State College.	
BURNS, ROBERT R. (1969)	Lecturer in Health Education
M.A., San Diego State College. Instructor, Southwestern College.	
CAMERON, ELMER C. (1969)	Lecturer in Special Education
M.A., University of Redlands. San Francisco State.	
CAMPBELL, GRAHAM F. JR. (1968)	Lecturer in Aerospace Engineering
M.S., University of Buffalo. General Dynamics/Convair.	
CAREY, HOWARD H. (1969)	Lecturer in Social Work
M.S.W., Atlanta University. San Diego Neighborhood House.	
CARLSON, JOHN (1968)	Lecturer in Mathematics
M.A., University of California, Los Angeles. Teaching Assistant.	
CARNEGIE, JANE H. (Mrs.) (1966)	Lecturer in Social Work
M.S.W., University of Southern California.	
CARRIER, MARJORIE R. (1969)	Lecturer in Elementary Education
A.B., Boston University. Child care Director, Rutgers.	
CARTER, GRETCHEN G. (1968)	Lecturer in Nursing
M.S., University of California, Los Angeles. San Diego State College.	
CERVANTES, FRANK D. (1969)	Lecturer in Chicano Studies
Work Study, San Diego State College.	
CLARK, KENNETH A. (1969)	Lecturer in Political Science
M.A., San Diego State College. Training Security Officer, U.S.A.F.	
COLEY, GERALDINE M. (1969)	Lecturer in Elementary Education
M.A., California Western University. San Diego City Schools.	
COOPER, VERNON JR. (1969)	Lecturer in Management
B.A., San Diego State College. Lecturer, San Diego State.	

## Faculty

CRAFTS, GRETCHEN (Mrs. R. H.) (1966)	Lecturer in English
M.A., University of California, Riverside.	
CRARY, DOLLY M. (1969)	Lecturer in Health Education
B.S., University of Oregon, San Diego City Schools, Substitute.	
CRIPPENS, DAVID L. (1968)	Lecturer in Political Science
B.A., Antioch College. M.S.W., San Diego State College.	
CUMMINGS, WILFORD A. JR. (1968)	Lecturer in Economics
M.A., University of Southern California. Grossmont College.	
CURRY, JUDITH A. (1969)	Lecturer in Elementary Education
M.A., Cal State, Los Angeles. Teacher, Chula Vista, California.	
DAVENPORT, CHARLES N. (1969)	Lecturer in Accounting
M.S., San Diego State College. Teaching Assistant.	
DAVIES, MARY I. (Mrs.) (1963)	Lecturer in Education
M.S., Northern Illinois University.	
DAWSON, (Mrs. Lyle E.) (1969)	Lecturer in Management
B.A., San Diego State College. Former Lecturer, San Diego State.	
DELUCIA, PAUL V. (1966)	Lecturer in Industrial Arts
A.B., San Diego State College. O'Farrell Junior High School.	
DEMBOWSKI, PATTY JO (Mrs.) (1968)	Lecturer in Speech Arts
M.A., San Diego State College.	
DENMAN, MARY E. (Mrs.) (1968)	Lecturer in English
A.B., M.A., San Diego State College. University of Southern California and University of California, San Diego; Graduate Study.	
DE PEW, LEONARD W. (1965)	Lecturer in Social Work
M.S.W., University of Washington. Episcopal Community Service.	
DETRICH, HOMER E. (1968)	Lecturer in Social Work
M.S.W., University of Southern California. S.D. County Dept. of Public Welfare.	
DICKEY, DONALD H. (1966)	Lecturer in English
J.D., John Marshall Law School.	
DILL, ROBERT F. (1968)	Lecturer in Geology
Ph.D., Scripps Institute of Oceanography, U.C.S.D. Navy Electronics Lab.	
DIRKS, DONALD D. (1968)	Lecturer in Speech Arts
Ph.D., Northwestern University. University of California, Los Angeles.	
DIXON, HAROLD C. (1967)	Lecturer in Social Work
M.S.W., University of Washington. Veterans Administration.	
DORSEY, ARTHUR M. (1967)	Lecturer in Social Work
M.S.W., University of California, Berkeley.	
DU BOIS, CARL E. (1969)	Lecturer in Electrical Engineering
M.S., San Diego State College. Design Specialist.	
DU VIGNEAUD, JACQUELINE (1968)	Lecturer in Chemistry
M.A., San Diego State College.	
ELLSWORTH, PAUL T. (1969)	Lecturer in Economics
Ph.D., Harvard University.	
EMERY, STELLA C. (1969)	Lecturer in English
M.A., San Diego State College.	
ENDERUD, WILBER D. (1968)	Lecturer in Business Education
M.A., Colorado State. Instructor, Southwestern College.	
ESCAMILLA, AUGUSTINE (1960)	Lecturer in Health Education
M.A., San Diego State College. San Diego City Schools.	
EVANS, A. JEAN (Mrs. R. W.) (1967)	Lecturer in Education
M.A., Stanford University. Helix High School.	
EVANSON, JANET M. (1969)	Lecturer in Biology
M.A., San Diego State College.	
FARMER, GREENE (1969)	Lecturer in Secondary Education
Ph.D., U.S. International University. Sonoma State College.	
FAWCETT, LA MAR A. (1966)	Lecturer in Education
A.B., San Diego State College. Salvation Army Rehabilitation Center.	
FEHER, ELSA (1969)	Lecturer in Physical Science
Ph.D., Columbia University. University of California.	
FELDMAN, ARTHUR (1968)	Lecturer in Imperial Valley Campus
M.A., Harvard University. Department of State.	
FELDMAN, DAVID (1968)	Lecturer in Sociology
Ph.D., Stanford University. University of California.	
FENWICK, JERRY J. (1969)	Lecturer in Music
A.B., San Diego State College. Professional Musician.	
FINKLE, MARITA T. (1969)	Lecturer in Health Education
B.S., San Diego State College. Health Ed. Workshop.	
FLAGG, VIRGINIA G. (Mrs. D. A.) (1967)	Lecturer in Economics
Ph.D., University of California, Berkeley.	



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- FLEMING, ROBERT A. (1969) Lecturer in Psychology  
Ph.D., University of Wisconsin. Naval Electronics Lab.
- FOGEL, LAWRENCE J. (1966) Lecturer in Sociology  
Ph.D., University of California, Los Angeles. Decision Science, Inc.
- FOSTER, DOUGLAS R. (1969) Lecturer in Industrial Arts  
A.B., San Diego State College. Teacher, Hughes High School.
- GALLO, JOHN M. (1966) Lecturer in Management  
B.S., San Diego State College. San Diego County.
- GELFAND, CAROL E. (Mrs.) (1967) Lecturer in Social Work  
M.A., Southern Methodist University. Research Consultant.
- GERARD, MARY (1963) Lecturer in Music  
A.B., San Diego State College.
- GERSTEIN, MARTIN (1969) Lecturer in Counselor Education  
Ed.D., University of Southern California. Visiting Lecturer.
- GOTKOWITZ, HELEN (Mrs. J.) (1966) Lecturer in Social Work  
M.S.W., University of Pennsylvania.
- GRANT, HAROLD B. (1965) Lecturer in Education  
M.A., Claremont Colleges.
- GRAY, GEORGE E. (1969) Lecturer in Civil Engineering  
B.S., Stanford University. California Division of Highways.
- GRIFFIN, ELIZABETH (1969) Lecturer in Physical Education  
M.S., Indiana University.
- GUIDRY, ROSALIND (1969) Lecturer in Social Work  
Ph.D., U.S. International University. Cal Western University.
- GUIGUET, JEAN M. (1969) Lecturer in English  
Doctorat d'Etat, Sorbonne University.
- HABICHT, GAIL S. (1968) Lecturer in Biology  
Ph.D., Stanford University. University of San Diego.
- HAHN, DOROTHY E. (Mrs.) (1968) Lecturer in Social Work  
M.S.W., San Diego State College. Dept. of Public Welfare.
- HALLAHAN, MARGARET E. (Mrs. M.) (1966) Lecturer in English  
A.B., San Diego State College.
- HAMMONS, MIRIAM B. (Mrs. L. S.) (1961) Lecturer in Education  
M.A., Texas College of Arts and Industries.
- HARRINGTON, DON L. (1968) Lecturer in Business Law and Finance  
J.D., Loyola University, Los Angeles. Attorney.
- HARRIS, JOANNE (Mrs. S. L.) (1967) Lecturer in Education  
A.B., San Diego State College.
- HARRISON, A. POWELL (1968) Lecturer in Health Education  
A.B., Washington College.
- HARTMAN, PAUL W. (1969) Lecturer in Speech Pathology  
M.A., Los Angeles State College. Audiology Dept. Supervisor.
- HAWORTH, JOANNE (Mrs. G. O.) (1966) Lecturer in Social Work  
M.S.W., University of California, Berkeley.
- HENN, JOHN T. (1968) Lecturer in Men's Physical Education  
B.A., San Diego State College.
- HERMANSON, ALVAR B. (1967) Lecturer in Men's Physical Education  
Northlatin College, Stockholm.
- HILL, DENNIS P. (1966) Lecturer in Business Law and Finance  
A.B., San Diego State College.
- HILL, GLORIA (1969) Lecturer in Music  
M.S., University of Bridgeport. San Diego Symphony.
- HINSHAW, ALVADORE J. (1965) Lecturer in Mathematics  
M.S., University of Southern California.
- HOLLEY, ANN D. (1969) Lecturer in Mathematics  
M.S., Cornell University.
- HORD, DAVID J. (1969) Lecturer in Psychology  
Ph.D., Claremont Graduate School. Pitzer College.
- HOWARD, DEANE H. (1969) Lecturer in Economic Education  
M.A., Ohio University. Teacher, Wilson Jr. High School.
- HOWARD, NORMAN M. (1968) Lecturer in Political Science  
M.A., San Diego State College.
- HOY, VALENTINE S. (1969) Lecturer in Recreation  
B.S., National YMCA Bd. of Certification. Camp Director, YMCA.
- HUBERT, RUBY L. (1969) Lecturer in Social Work  
M.S.W., University of Southern California, Los Angeles. Executive Director.
- IVERSON, LUCILLE E. (Mrs.) (1960) Lecturer in Physical Education  
Lucille Iverson Dance Studio.

## Faculty

- JANCEK, CAMILLA J. (Mrs. L.) (1961) Lecturer in English  
A.B., Hunter College, New York.
- JASINEK, WILLIAM G. (1969) Lecturer in Recreation  
B.S., University of Illinois. Director of Parks and Recreation.
- JESSOP, MARY C. (Mrs. G. C.) (1964) Lecturer in Health Education  
M.A., Stanford University.
- JOHNSON, DELBERT L. (1969) Lecturer in Electrical Engineering  
M.S.E.E., Purdue University. Fort Wayne, Indiana.
- JOHNSON, LAVERNE C. (1961) Lecturer in Psychology  
Ph.D., Stanford University. Naval Medical Neuropsychiatric Research Unit.
- JOHNSON, LAWRENCE E. (1969) Lecturer in Philosophy  
M.A., San Diego State College. Teaching Assistant, U.C.S.D.
- JOHNSTON, ELOISE R. (1969) Lecturer in Speech Pathology and Audiology  
M.A., San Diego State College. Speech Therapist.
- KALBFELL, DAVID C. (1960) Lecturer in Physics  
Ph.D., University of California, Berkeley. Kalbfell Electronix.
- KAMM, EDITH (1968) Lecturer in Electrical Engineering  
M.S.E.E., Polytechnic Institute of Brooklyn.
- KASSIN, ALAN (1969) Lecturer in Social Work  
M.S.W., New York University. Program Director.
- KEHLER, DOROTHEA F. (1969) Lecturer in English  
Ph.D., Ohio University.
- KIM, PAUL K. H. (1969) Lecturer in Social Work  
M.S.W., San Diego State College. Medical Social Worker.
- KING, BONNIE B. (Mrs. I. C.) (1964) Lecturer in English  
M.A., University of Pittsburgh.
- KLECKNER, JAMES H. (1969) Lecturer in Counselor Education  
Ed.D., Teachers College Columbia University. Cal Western University.
- KOBAYASHI, YOSHIKO (1969) Lecturer in Japanese  
M.A., Claremont Graduate School. Cornell University.
- KOOL, LOIS R. (1966) Lecturer in Social Work  
M.S.W., University of Michigan. Childrens Home Society.
- KRONEMEYER, ROBERT E. (1955) Lecturer in Accounting  
M.A., University of Chicago. Certified Public Accountant.
- LANE, BONNI R. (1969) Lecturer in Education  
M.A., Texas College of Arts. Teacher, San Diego City Schools.
- LAUZON, CHARLES T. (1968) Lecturer in Social Work  
M.S.W., San Diego State College. Department of Public Welfare.
- LEAVERTON, DAVID G. (1965) Lecturer in Business Law and Finance  
J.D., University of California, Berkeley.
- LEMBECK, MICHAEL E. (1969) Lecturer in Physical Science  
M.A., San Diego State College.
- LEWIS, JERALD P. (1969) Lecturer in Business Law and Finance  
B.A., San Diego State College. San Diego Trust & Savings Bank.
- LIMOLI, ELIZABETH N. (1967) Lecturer in Education  
M.A., San Diego State College.
- LINDER, RICHARD E. (1969) Lecturer in Computer Center  
M.S., San Diego State College. Instructor, San Diego State.
- LOCKWOOD, WALLACE V. (1956) Counselor in Personnel Services  
Ph.D., University of California, Los Angeles.
- LOGAN, GEORGE R. (1968) Lecturer in Men's Physical Education  
A.A., San Diego Junior College.
- LOGSDON, JOHN W. (1968) Lecturer in Secondary Education  
M.A., Carnegie-Mellon University. Teacher, Grossmont.
- LUCIUS, EMILY A. (Mrs. C. W.) (1964) Lecturer in Social Work  
M.S.S., Smith College. San Diego Children's Home.
- LUTZ, CARL L. (1967) Lecturer in Geography  
M.A., San Diego State College. Mesa Junior College.
- MCINTYRE, MARY J. (1969) Lecturer in Elementary Education  
A.B., San Diego State College. Principal, San Diego City Schools.
- MCLEAN, CHARLES L. (1967) Lecturer in Industrial Arts  
B.S., California State College. Pennsylvania.
- McMENAMIN, BARBARA K. (1969) Lecturer in Special Education  
M.A., San Diego State College. Teacher, St. Madeleine Pre-School.
- McNARY, NANCY W. (Mrs.) (1968) Lecturer in Education  
B.A., San Diego State College.
- MACCLELLAND, JUDITH J. (1969) Lecturer in French  
M.A.T., Harvard University.



## Faculty

MALINOVICH, MYRIAM M. (1969) Ph.D., Columbia University.	Lecturer in Philosophy
MARANTZ, CALVIN (1969) M.D., State University of New York at Buffalo. Naval Hospital.	Lecturer in Microbiology
MARION, ALAN C. (1969) M.S., San Diego State College.	Lecturer in Physical Science
MARTIN, AARON E. (1968) B.A., Goshen College, Indiana. North High School, North Dakota.	Lecturer in Astronomy
MARTIN, KATHLEEN J. (1969) M.S., Arizona State University. San Jose State College.	Lecturer in Secondary Education
MATTHEWS, ANN H. (Mrs. J. M.) (1964) M.A., San Diego State College.	Lecturer in Education
MATTHEWSON, SUE F. (Mrs. J. H.) (1965) Sc.D., Johns Hopkins School of Public Health.	Lecturer in Biology
MATULA, AUDREY L. (Mrs. A.) (1966) B.A., University of Iowa.	Lecturer in Journalism
MAXWELL, BRUCE K. (1966) A.B., San Diego State College.	Lecturer in Education
MICHAELSON, JANET A. (1968) A.B., Douglass College, New Jersey.	Lecturer in Education
MILLIGAN, ROBERT J. (1968) M.S., San Diego State College. University of Oregon.	Lecturer in Chemistry
MINNICH, MADELYN M. (1969) M.A., San Diego State College. Southwestern College.	Lecturer in Art
MOE, JEAN T. (1966) M.A., San Diego State College.	Lecturer in Music
MOREY, FRED J. (1968) A.B., University of Southern California.	Lecturer in Political Science
MORGAN, DONALD (1969) B.A., Bob Jones University.	Lecturer in Speech Arts
MORRIS, KENNETH D. (1969) Master Urban/Reg. Pl., Virginia Polytechnic Institute.	Lecturer in Public Administration
MORRIS, RUTH I. (1969) M.A., Ball State University. Purdue University.	Lecturer in Home Economics
MRACEK, VIRGINIA A. (Mrs. J. S.) (1966) M.A., Indiana University.	Lecturer in Italian
MUCHENJE, FRANK G. (1969) A.B., San Diego State College. San Diego State—Teacher.	Lecturer in Black Studies Program
MUDIE, PETA J. (1966) B.S., University of Leicester (England). San Diego Museum of Natural History.	Lecturer in Botany
NAJARIAN, MARGARET A. (1969) M.A., T. C. Columbia University. Palm Springs Schools.	Lecturer in Imperial Valley
NASMAN, DANIEL H. (1969) M.Ed., Washington State University. San Diego State.	Lecturer in Education
NEPTUNE, DAVID W. (1969) M.S., California Institute of Technology.	Counselor in Personnel Services
NICHOLS, MYRON H. (1960) Ph.D., Massachusetts Institute of Technology.	Lecturer in Physics
NICHOLS, ROBERT Q. (1969) B.S., University of California, Los Angeles. Agriculture.	Lecturer in Speech Arts
NIMS, LARRY P. (1968) Ph.D., Arizona State University.	Lecturer in Psychology
NISSLEY, MARY C. (1969) B.A., San Diego State College.	Lecturer in Art
NOWER, JOYCE (Mrs. L.) (1966) A.M.T., Radcliffe College, Massachusetts.	Lecturer in English
NYDEGGER, MILDRED F. (Mrs. L. J.) (1967) B.M., University of Wichita, Kansas.	Lecturer in Music
OAKLANDER, HAROLD (1968) M.S.W., Columbia University. Big Brothers of Or. Co.	Lecturer in Social Work
PARKINSON, GAYLORD B. (1969) M.D., Temple University Medical School.	Lecturer in Health Education
PARKINSON, ROBERT W. B.A., University of Buffalo. Sperry Rand Univac.	Lecturer in Business Education
PAYNE, JEAN M. (1966) M.A., San Diego State College.	Lecturer in English
PAYNE, WILLIAM H. (1968) M.A., New York University. Winston Salem, N.C.	Lecturer in Secondary Education

## Faculty

PENGELLEY, D. DESMOND (1969) S.M., Massachusetts Institute of Technology. Convair.	Lecturer in Engineering
PERRINE, DAVID E. (1969) B.S., San Diego State College. Electronic Tech. Institute.	Lecturer in Engineering
PETERSON, EDWARD D. (1969) M.A., Brigham Young University. Auditor.	Lecturer in Accounting
PETERSON, RAYMOND M. (1969) B.S.M.D., University of Minnesota.	Lecturer in Special Education
PHILLIPS, RICHARD P. (1967) Ph.D., University of California, San Diego. Natural History Society.	Lecturer in Geology
PHLEGER, CHARLES F. (1967) M.A., San Diego State College.	Lecturer in Physical Science
PIERSON, DR. GLEN (1968) Ed.D., University of Denver.	Lecturer in Counselor Education
POLLACK, JOSEPH (1968) M.S.W., McGill University. Social Worker.	Lecturer in Social Work
PORTER, AUTERY (1969) San Diego State College.	Lecturer in Black Studies Program
POURNELLE, GEORGE H. (1966) Ph.D., University of Florida. San Diego Zoo, Curator of Mammals.	Lecturer in Anthropology
PRENN, JAMES L. (1960) A.B., San Diego State College.	Lecturer in English
PROKOP, HARVEY L. (1968) M.A., San Diego State College. San Diego City Schools.	Lecturer in Economic Education
PUTMAN, ROBERT A. (1969) M.A., University of California, San Diego.	Lecturer in Philosophy
RAAT, JAN (1967) Ph.D., University of Maryland. General Dynamics/Convair.	Lecturer in Engineering
RAMSEY, LYLITH (1968) M.A., San Diego State College. San Diego City Schools.	Lecturer in Elementary Education
RASHID, YUSEF R. (1969) Ph.D., University of California, Berkeley. University of Calif., Extension.	Lecturer in Engineering
REDMOND, RAYMOND B. (1969) M.S., San Diego State College.	Lecturer in Microbiology
REED, NANCY JO (1969) M.A., San Diego State College.	Lecturer in Speech Arts
RENKE, DANIEL R. (1968) M.S., University of Southern California. Elementary Principal.	Lecturer in Elementary Education
REZEK, JANE C. (Mrs. C. J.) (1961) M.A., Teachers College, Columbia University.	Lecturer in Education
RICHARDSON, DENNIS C. (1969) M.S., Penn State University. General Dynamics/Convair.	Lecturer in Mathematics
RICHARDSON, RAMONA J. (1968) M.A., San Diego State College.	Lecturer in Business Education
RICKMAN, GERALDINE (1969) M.A., University of San Diego, College for Women. E.O.P., San Diego State.	Lecturer in Counselor Education
RIDELL, JANESE K. (1969) M.M., University of Nebraska. Teacher, Colorado, Nebraska.	Lecturer in Music
RIMLAND, BERNARD (1962) Ph.D., Pennsylvania State University. U.S. Navy.	Lecturer in Psychology
RINTYE, EDWARD D. (1969) M.S., San Diego State College. Grossmont College.	Lecturer in Speech Communication
RIPLEY, ROBERT (1969) M.A., San Diego State College. San Diego City College.	Lecturer in Business Education
ROACH, MARGARET A. (1968) B.S., St. Cloud State, Minnesota.	Lecturer in Education
ROBERSHAW, PHYLLIS L. (1968) B.A., Biola College. Chula Vista City Schools.	Lecturer in Education
RODETIS, GEORGE A. (1969) M.A., San Diego State College. Fine Arts Society.	Lecturer in Elementary Education
ROGERS, PHILIP W. (1967) M.Sc., Stanford University. General Dynamics/Convair.	Lecturer in Engineering
ROOD, ROBERT J. (1969) M.A., San Diego State College. Anchorage, Alaska.	Lecturer in Elementary Education
ROSENBAUM, EUGENE S. (1967) M.S.M.E., San Diego State College. General Dynamics/Convair.	Lecturer in Engineering
ROTHER, CAROLE A. (1969) A.B.D., University of California, Santa Barbara.	Lecturer in English



## Faculty

RUMPER, HERMAN E. (1969) M.A., Fordham University. University of California, San Diego.	Lecturer in Philosophy
RUOCCO, ILSE H. (1934) M.A., Columbia University.	Lecturer in Art
RUSSELL, ROBERT E. (1969) M.A., San Diego State College.	Lecturer in Sociology
SADOWSKI, DORIS C. (1963) B.A., Pomona College.	Lecturer in Physical Science
SAW, JAMES T. (1969) M.A., San Diego State College.	Lecturer in Art
SCHMOCK, JOYCE C. (Mrs. D. L.) (1961) M.A., University of California, Los Angeles.	Lecturer in Education
SCHOTT, PAMELA G. (1969) A.B., San Diego State College. Dodson Home.	Lecturer in Recreation
SCHROEDER, JANICE S. (Mrs. L. F.) (1965) M.A., Columbia University Teachers College, N.Y.	Lecturer in Education
SEVIER, WILLIAM J. (1968) B.S., San Diego State College. U.C.L.A.	Lecturer in Mechanical Engineering
SHAY, MARIA J. (1969) M.S., Southern Illinois University. Carmel, California.	Lecturer in Counselor Education
SHEASBY, REX R. (1969) M.S., San Diego State College.	Lecturer in Physical Science
SHIMMIN, IRVIN A. (1963) M.A., University of California, Los Angeles.	Lecturer in Education
SIMMONS, ROBERT E. (1969) M.S., San Diego State College.	Lecturer in Civil Engineering
SMALL, ROBERT L. (1964) M.P.A., University of Washington. San Diego County.	Lecturer in Political Science
SMITH, ELBERT B. (1965) M.S., San Diego State College. General Dynamics.	Lecturer in Business Law and Finance
SMITH, FLORENCE A. (1968) M.A., Wayne State University and San Diego State College.	Lecturer in Political Science
SMOOT, SHARENE L. (Mrs. J. C.) (1969) M.A., East Carolina University. East Carolina University.	Lecturer in Physical Education
SNELL, ROBERT S. (1969) M.S., San Diego State College.	Lecturer in Business Law
SPERRAZZO, GERALD (1969) Ph.D., University of Ottawa. Washington, D.C.	Lecturer in Psychology
SPIEGEL, ROSABELLE (1969) M.A., San Diego State College. Wright Brothers Jr. and Sr. High Schools.	Lecturer in Elementary Education
SPRAGUE, MELINDA S. (1969) M.S., Case University of Technology. Research Associate.	Lecturer in Management
STEEN, WILLIAM A. (1967) M.S.C.E., San Diego State College. San Diego County.	Lecturer in Engineering
STODDARD, MERCEDES W. (Mrs. J. E.) (1967) B.A., University of Wisconsin.	Lecturer in English
STONE, DORIS J. (Mrs.) (1968) B.M., Cincinnati Conservatory of Music.	Lecturer in Music
STUBBS, JOHN F. (1968) M.A., San Diego State College. Grossmont College.	Lecturer in Information Systems
SUTTON, LARRY D. (1969) M.A., San Diego State College. San Diego City Schools.	Lecturer in Economic Education
SWANSON, CLAYTON G. (1964) A.B., University of California, Los Angeles.	Lecturer in Political Science and Public Administration
TAYLOR, MARTIN (1968) M.S.Ed., University of Southern, California. San Diego County.	Lecturer in Education
TAYLOR, MARY M. (Mrs. H. H.) (1961) A.B., San Diego State College.	Lecturer in Education
THIESMEYER, LINCOLN R. (1968) Ph.D., Harvard University. Pulp & Paper Research Institute.	Lecturer in Geology
THOMAS, EDMUND D. (1966) M.S., San Diego State College. U.S. Navy.	Lecturer in Psychology
THOMSON, RICHARD J. (1968) M.S.W., University of California. Department of Public Welfare.	Lecturer in Social Work
THORNBURGH, MARGARET H. (1969) B.S.Ed., University of Missouri. San Diego State.	Lecturer in Speech Communication
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ULVESTAD, MARTHA L. (1967) B.S., St. Cloud State College, Minnesota.	Lecturer in Education
UNTERMAN, THEODOR H. (1968) L.L.B., Rutgers Law School. Private practice as attorney.	Lecturer in Business Law and Finance
URISTA, ALBERTO H. (1969) B.A., San Diego State College.	Lecturer in Spanish
VANIER, DINO T. (Mrs.) (1969) M.A., University of California at Berkeley.	Lecturer in Marketing
VANNET, WILLIAM M. (1969) A.B., University of California, Santa Barbara. Santee Elem. School Dist.	Lecturer in Elementary Education
VASQUEZ, MARIA E. (1969) M.S., University of Oregon.	Lecturer in Chicano Studies Program and Elementary Education
VON BERGEN, WERNER (1968) B.A., Wheaton College, Illinois.	Lecturer in Recreation
WADE, ANDREW L. (1965) M.A., University of Oregon.	Lecturer in Sociology
WARNER, MARY Y. (1969) B.A., Oberlin College. San Diego Nursery School.	Lecturer in Education and Home Economics
WATRY, PETER J., JR. (1969) M.B.A., University of Southern California. Southwestern College.	Lecturer in Economic Education
WATSON, DONALD R. (1969) E.A.D., University of Southern California.	Lecturer in Physical Science
WATSON, JACQUELINE (1969) M.A., Stanford University. San Diego State.	Lecturer in Speech Arts
WEBER, CAROL SUE (1968) M.A., University of New Mexico.	Lecturer in English
WEBSTER, JOHN C. (1968) Ph.D., State University of Iowa.	Lecturer in Speech Arts
WEBSTER, STEPHEN A. (1969) M.A., State College. San Diego City College.	Lecturer in Geography
WEISFELD, ISRAEL H. (1969) Ph.D., University of Chicago.	Lecturer in Hebrew, German, Russian
WERTZ, JACQUELINE L. (1968) M.S., Ohio University.	Lecturer in Psychology
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WILSON, HENRYETTA (1969) B.S., Kansas State College of Pittsburg.	Lecturer in Elementary Education
WILSON, PATRICIA J. (1969) B.A., University of California, Santa Barbara. Florence, California.	Lecturer in Imperial Valley Campus
WINDES, RUSSEL R. (1969) Ph.D., Northwestern University. Queens College.	Lecturer in Speech Arts
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WORCESTER, MADELEINE C. (Mrs. J. D.) M.S.S.A., Western Reserve University. Family Service Association.	Lecturer in Social Work
WORTHEN, RICHARD E. (1969) Ph.D., Baylor University. Staff Psychologist.	Lecturer in Psychology
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DAVIS, LELAND C. (1969) A.B., San Diego State College.	Assistant in Mathematics
DEBORD, LARRY W. (1969) B.S., San Diego State College.	Assistant in Biology
DECOTTIGNIES, MARY E. (1969) A.B., University of California, Los Angeles.	Assistant in French
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DEWEY, DICK (1965) B.A., University of California.	Assistant in Biology
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DIRKS, RUTH E. (1968) B.A., San Diego State College.	Assistant in English
DIXON, MARION E. (1969) B.A., University of Minnesota.	Assistant in English
DIXON, RICHARD G. (1968) B.S., San Diego State College.	Assistant in Chemistry
DOS SANTOS, MARINA I. (1969) Special, Normal de Professores No., F.	Assistant in Spanish
DRAKE, DOROTHY L. (1969) B.A., Cornell College.	Assistant in English
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DUNCHACK, JONATHAN G. (1969) A.B., San Diego State College.	Assistant in Political Science
DUNHAM, JAMES E. (1968) B.S., San Diego State College.	Assistant in Biology
DUNN, VICTOR (1968) B.S., California State College at Hayward.	Assistant in Chemistry
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EISNER, GRETA (1969) B.A., Bennington College, Vermont.	Assistant in English
ELLIOTT, JAMES (1968) B.S., San Diego State College.	Assistant in Biology
ELLIS, NANCY E. (1969) A.B., San Diego State College.	Assistant in Psychology
ELLSBERG, HELEN R. (1969) A.B., San Diego State College.	Assistant in English
EU BANKS, DANIEL J. (1969) A.S., San Diego State College.	Assistant in Industrial Arts
EVANS, MICHAEL U. (1969) B.S., San Diego State College.	Assistant in Biology
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FECHTER, ESTHER M. (Mrs.) (1968) B.S., San Diego State College.	Assistant in Zoology
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FINNECY, GARY (1968) A.B., University of California, Santa Barbara.	Assistant in Biology
FISCHER, CHRISTOPHER J. (1969) B.S., San Diego State College.	Assistant in Physics
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FITCH, KARL W. (1969) A.B., San Diego State College.	Assistant in Music
FLANIGAN, SYDNEY M. (1969) B.S., San Diego State College.	Assistant in Microbiology
FLOREN, EARL E. (1968) A.B., San Diego State College.	Assistant in Physics
FORSKY, VALENTINA (1969) A.B., San Diego State College.	Assistant in Russian
FREEL, MARY P. (1969) A.B., Cal State at Fullerton	Assistant in Speech Communication
FREEMAN, GARY M. (1968) B.S., San Diego State College.	Assistant in Biology
FREY, OLIVER L. (1969) B.S., San Diego State College.	Assistant in Engineering
FUKUNAGA, JAMES T. (1967) B.S., University of Hawaii.	Assistant in Chemistry
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GALYEAN, ROBERT F. (1968) A.B., San Diego State College.	Assistant in Chemistry
GARCIA, ANA MARIA (1969) Licenciada, Madrid University.	Assistant in Spanish
GEIGER, RODERICH (1968) A.B., San Diego State College.	Assistant in German
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GERRY, MICHAEL S. (1967) A.B., San Diego State College.	Assistant in Physical Education
GILLEN, DANIEL C. (1969) B.S., Bowling Green State University.	Assistant in Mathematics
GIDCUMB, DENNIS R. (1969) A.B., San Diego State College.	Assistant in Industrial Arts
GIRD, STEVEN R. (1969) B.S., San Diego State College.	Assistant in Chemistry
GOETZ, BARBARA B. (1969) A.B., San Diego State College.	Assistant in Sociology
GOREN, LESLIE P. (1969) A.B., University of Michigan.	Assistant in Mathematics
GRAHAM, JOHN W. (1969) B.S., San Diego State College.	Assistant in Biology
GRAY, DAVID S. (1969) B.S., San Diego State College.	Assistant in Industrial Arts
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GRUPSMITH, GERLAD (1969) B.A., University of California, Los Angeles.	Assistant in Astronomy
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HARDIMAN, RICHARD B. (1969)	Assistant in Mathematics
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HARDING, BERNARD J. (1969)	Assistant in Engineering
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WALL, KEITH S. (1969)	Assistant in English
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WARLOP, PHILLIP A. (1969)	Assistant in Chemistry
B.S., University of San Francisco.	
WARREN, CAROL A. (1968)	Assistant in Sociology
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WHIGHAM, FRANK F. JR. (1968)	Assistant in English
B.A., Occidental College.	
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A.B., San Diego State College.	
WHITTON, FRANCIS H. JR. (1969)	Assistant in Engineering
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WILLEY, JOHN R. (1968)	Assistant in Biology
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WILLIAMS, MARVIN J. (1969)	Assistant in Physical Education
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WOERNER, WILLIAM F. (1968)	Assistant in Physics
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WONG, JOHN P. (1968)	Assistant in Mathematics
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WOODSON, ROBERT J. (1967)	Assistant in Speech Arts
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WORSTELL, GLEN D. (1969)	Assistant in Engineering
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YARUSS, FRED R. (1969)	Assistant in Biology
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YOUNG, CHARLES T. (1968)	Assistant in Physics
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## EMERITUS FACULTY

WALTER R. HEPNER, Ed.D., President	1935-1952
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
GUINIVERE K. BACON, M.A., Associate Professor of Elementary Education	1928-1969



## Faculty

KENNETH E. BARNHART, Ph.D., Professor of Sociology	1939-1964
DEAN BLAKE, Lecturer in Meteorology	1924-1952
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
ROY E. CAMERON, Ph.D., Professor of Economics	1929-1963
HILDING B. CARLSON, Ph.D., Professor of Psychology	1948-1969
NORITA N. COMIN, M.A., Associate Professor of Home Economics	1949-1963
HELEN S. CLARK, B.A., Assistant Professor of Mathematics	1952-1967
KATHERINE E. CORBETT, M.A., Associate Professor of Education	1921-1956
LORENZ F. DEJULIEN, M.B.A., Lecturer in Marketing	1949-1967
FLORENCE S. DICKHAUT, M.A., Professor of English	1917-1952
ARTHUR T. EMERSON, B.S., Assistant Professor of Mathematics	1952-1964
CHARLES J. FALK, S.T.D., Professor of Secondary Education	1957-1969
WALTER B. FORD, B.E., Assistant Professor of Industrial Arts	1953-1963
LULA E. GERMANN, B.S., Supervising Librarian	1925-1956
SIDNEY L. GULICK, Ph.D., Dean of Arts and Sciences; Professor of English	1945-1969
EDITH C. HAMMACK, B.A., Associate Professor of Education	1911-1950
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
GERALDINE K. HAYNES, B.S.L.S., Supervising Librarian	1931-1961
CHARLES M. HUFFER, Ph.D., Professor of Astronomy	1961-1968
EVERETT GEE JACKSON, M.A., Professor of Art	1930-1963
FRANK L. JOHNSON, Ph.D., Professor of English	1939-1966
JOSEPH S. KEENEY, Ph.D., Professor of English	1933-1963
CHESTER B. KENNEDY, Ph.D., Professor of English	1937-1969
JAMES S. KINDER, Ph.D., Professor of Education	1953-1966
ANGELA M. KITZINGER, Ph.D., Professor of Health Education	1945-1969
LAWRENCE W. LUCE, Ed.D., Professor of Industrial Arts	1949-1969
RICHARD MADDEN, Ph.D., Professor of Education	1939-1966 (except 1961-64)
ERNEST L. MARCHAND, Ph.D., Professor of English	1946-1968
MARY MENDENHALL, Ph.D., Professor of Philosophy	1939-1963
VINNIE C. MOLITOR, A.B., Associate Professor of Geography	1914-1938
LAUREN C. POST, Ph.D., Professor of Geography	1937-1969
ILSE H. RUOCCO, M.A., Professor of Art	1934-1967
FREDERICK L. RYAN, Ph.D., Professor of Economics	1946-1965
FRANCES I. SCHALLES, A.B., Education and Curriculum Materials Librarian	1950-1968
MARION L. SCHWOB, M.S., Associate Professor of Physical Education	1934-1960
FLORENCE S. SHANNON, M.S., Associate Professor of Physical Education	1933-1963
CLIFFORD E. SMITH, Ph.D., Professor of Astronomy	1937-1969
LEILA D. SMITH, M.A., Professor of Music	1922-1948
CHARLES C. SPORTSMAN, M.S., Associate Professor of Physical Education	1947-1968
CHRISTINE SPRINGSTON, M.A., Professor of Music	1930-1966
RUTH A. TALBOY, M.A., Associate Professor of Home Economics	1947-1963
JOHN A. TERHUNE, M.S., Assistant Professor of Physics	1947-1965
JOHN R. THEOBALD, Ph.D., Professor of English	1946-1969
FRANCES B. TORBERT, M.A., Professor of Management	1937-1969
MABEL C. TRAIL, Ph.D., Professor of English	1935-1962
WOLCOTT C. TREAT, Ph.D., Professor of Psychology	1950-1966
HILDE K. WALKER, M.A., Assistant Professor of German	1931-1951
CURTIS R. WALLING, E.E., Professor of Electrical and Electronic Engineering	1931-1969
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ALFRED E. WHITE, Ed.D., Assistant to Dean of the College; Professor of Education	1946-1964

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ERNEST F. WITTE, Ph.D., Professor of Social Work	1963-1969
WILLIAM H. WRIGHT, Ph.D., Professor of Accounting	1921-1962

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RAY, ROBERT C., M.D.	Assistant Director of Health Services
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CRAWFORD, JAMES, M.D.	Physician
KILLION, JOHN J., M.D.	Physician
LARRABEE, JOHN A., M.D.	Physician
MOON, CHARLES R., M.D.	Physician
ZAK, R. BETTY, M.D.	Physician
*KEATES, ALBERT, M.D.	Physician
*PETERSON, PATRICIA, M.D.	Nurse
ANDERSON, GERTRUDE, R.N.	Nurse
BANDT, ELIZABETH J., R.N.	Nurse
BROOKS, VERA L., R.N.	Nurse
CHOHAN, BETTY J., R.N.	Nurse
ERICKSON, ETHEL, R.N.	Nurse
LE BLANC, VIRGINIA, R.N.	Nurse
LICHTENFELD, JUANITA, R.N.	Nurse
O'CARROLL, DOROTHY, R.N.	Nurse
SIMCOX, JOAN, R.N., B.S.	Nurse
THOMPSON, ARLENE, R.N.	Nurse
WOODIWISS, FRANCES E., R.N.	Nurse

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ZEHEL, ALBERT R.	Supervisor of Building Trades
CHESLEY, ROBERT L.	Chief Engineer
GOLOJUCH, FRANK J.	Supervising Custodian
HETRICK, THOMAS D., SR.	Supervising Groundsman
MCGRATH, VINCENT M.	Supervising Campus Security Officer
BRADEEN, MARVIN T.	Electrician
HILLIKER, GEORGE B.	Plumber

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