## 1967-1968 Academic Calendar

### Summer Sessions, 1967
- **June 12-23**: Intercession (2 weeks).
- **June 26-**
- **August 4**: Term I summer session (6 weeks).
- **August 7-25**: Term II summer session (3 weeks).

### Fall Semester, 1967
- **July 15**: Last day to file application for admission or readmission to the college for the fall semester.
- **July 15 or August 19**: Admissions tests for fall semester for transfer students: College aptitude test; and writing competency test for students transferring with 60 units or more. Reservation for tests made at time of application for admission to the college.
- **September 5**: 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 9**: Fundamentals test for transfer students entering elementary or kindergarten- primary education 8:30 a.m.-11:00 a.m.
- **September 11**: Opening date of the academic year.
- **September 11-15**: Testing, advising, residency clearance, and registration week.
- **September 12**: 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 13-15**: Registration, payment of fees, advising, and enrollment in classes.
- **September 18**: First day of classes.
- **September 19**: File applications for admission to teacher education. Assembly, 11 a.m.
- **September 23**: Fundamentals test, 8:30-11:00 a.m.
- **October 2**: Last day to apply for refunds.
- **October 6**: Last day to withdraw from class without penalty for unsatisfactory work.
- **October 6**: Last day to file application for the bachelor's degree for mid-year graduation.
- **November 4 and December 16**: Comprehensive College Tests, general examinations for students entering secondary education.
- **November 4**: End of seventh week of classes. Deficiency notices due.
- **November 11**: Holiday—Veterans' Day.
- **November 17**: Last day to withdraw from class or change program.
- **November 23-25**: Thanksgiving recess.
- **December 1**: Last day to file application for the bachelor's degree for June or summer graduation.
- **December 2 or January 6**: 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.
- **December 16**: Last day of classes before Christmas recess.
- **December 18-**: Christmas recess.
- **January 1**: Classes resume.
- **January 2**: Last day for a complete withdrawal from college.
- **January 3**: Last day of classes before final examinations.
- **January 13**: First day of final examinations.
- **January 26**: Last day of the fall semester.
### Academic Calendar

**SPRING SEMESTER, 1968**

- **December 15**: Last day to file application for admission or readmission to the college for the spring semester.
- **December 2 or January 6**: 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 27**: Fundamentals test for transfer students entering elementary or kindergarten-primary education, 8:30-11 a.m.
- **January 29**: Testing, advising, residency clearance, and registration week.
- **February 2**: 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 5**: First day of classes.
- **February 6**: File applications for admission to teacher education. Assembly, 11 a.m.
- **February 12**: Holiday—Lincoln's birthday.
- **February 17**: Fundamentals test, 8:30 a.m.-11:00 a.m.
- **February 19**: Last day to apply for refunds.
- **February 22**: Holiday—Washington's birthday.
- **February 23**: Last day to withdraw from class without penalty for unsatisfactory work.
- **March 9 and April 2**: Comprehensive College Tests, general examinations for students entering secondary education.
- **March 23**: End of seventh week of classes. Deficiency notices due.
- **April 5**: Last day to withdraw from classes or change program.
- **April 6**: Last day of classes before spring recess.
- **April 8-13**: Spring recess.
- **April 15**: Classes resume.
- **May 4, June 8 and 22**: Admissions tests for fall semester for transfer students: College aptitude test, and writing competency test for students transferring with 60 units or more. Reservation for tests made at time of application for admission to the college.
- **May 5**: San Diego State College Founder's Day.
- **May 15**: Last day for a complete withdrawal from college.
- **May 25**: Last day of classes before final examinations.
- **May 28**: First day of final examinations.
- **May 30**: Holiday—Memorial Day.
- **June 2**: Baccalaureate services.
- **June 7**: Commencement. Last day of the spring semester.

**SUMMER SESSIONS, 1968**

- **June 10-21**: Intersession (2 weeks).
- **June 24**: Term I summer session (6 weeks).
- **August 2**: Term II summer session (3 weeks).

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### SCHEDULE OF FEES

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

**Fees for more than six units:**
- Materials and service: $45.00
- Student activity fee: $9.50
- Student Union Fee: $7.00
- Auditors pay same fees as students carrying courses for credit.
- Total required fees: $61.50

**Fees for six units or less:**
- Materials and service: $22.50
- Student activity fee: $7.50
- Student Union Fee: $3.00
- Auditors pay same fees as students carrying courses for credit.
- Total required fees: $30.75

**Tuition for nonresident student:**
- (In addition to materials and service, activity, and student union fees)
- Nonresident student enrolled for 15 units or more: $300.00
- Nonresident student enrolled for less than 15 units, or fraction thereof: $20.00

**Tuition for viso-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: $127.50
- Foreign student enrolled for less than 15 units, or fraction thereof: $8.50

**Parking fees:**
- Students carrying more than six units: $13.00
- Students carrying six units or less: $6.00

**MISCELLANEOUS FEES**
- Application for admission or readmission: $5.00
- Late registration: $5.00
- Change of program: $2.00
- 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: $6.00
- Current fee per semester (15 40-minute lessons): $75.00
- Organ practice: $10.00
- Loss or damage of equipment and library books: $1.00

*Nonresident tuition fee subject to increase by an amount not yet determined, effective July 1, 1967.*
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 $2 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 therefore is received by the Business Office within the following time limits:

<table>
<thead>
<tr>
<th>Time limit</th>
<th>Amount of refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Before or during the first week of the semester</td>
<td>100 percent of fee</td>
</tr>
<tr>
<td>(2) During the second week of the semester</td>
<td>90 percent of fee</td>
</tr>
<tr>
<td>(3) During the third week of the semester</td>
<td>70 percent of fee</td>
</tr>
<tr>
<td>(4) During the fourth week of the semester</td>
<td>50 percent of fee</td>
</tr>
<tr>
<td>(5) During the fifth week of the semester</td>
<td>30 percent of fee</td>
</tr>
<tr>
<td>(6) During the sixth week of the semester</td>
<td>20 percent of fee</td>
</tr>
</tbody>
</table>

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

Nonreserved space per semester:

<table>
<thead>
<tr>
<th>Period</th>
<th>Amount of refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-30 days</td>
<td>75 percent of fee</td>
</tr>
<tr>
<td>31-60 days</td>
<td>50 percent of fee</td>
</tr>
<tr>
<td>61-90 days</td>
<td>25 percent of fee</td>
</tr>
<tr>
<td>91-end of term</td>
<td>None</td>
</tr>
</tbody>
</table>

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) $19.75
Activity fee each session (Fee for Term II will be waived if student paid the fee in Term I of the same summer.) 1.00
Student union fee (required), Term I 3.50

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) 15.00
Activity course (per unit) 19.00
Science laboratory course (per unit) 30.00

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.
TRUSTEES
OF THE CALIFORNIA STATE COLLEGES

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President of the Trustees

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Lieutenant Governor of California

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Speaker of the Assembly

Max Rafferty, A.B., M.A., Ed.D.
State Superintendent of Public Instruction

Glenn S. Dumke, A.B., M.A., Ph.D., LL.D., L.H.D.
Chancellor of the California State Colleges

State Capitol
Sacramento 95814

California State Capitol
Sacramento 95814

State Capitol
Sacramento 95814

5670 Wilshire Blvd.
Los Angeles 90036

Appointed Trustees

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

44 Montgomery St., San Francisco 94104

Donald M. Hart, B.A. (1968)
P.O. Box 3156, Bakersfield 93302

9220 Sunset Blvd., Los Angeles 90069

Paul Spencer, B.A. (1969)
1321 La Terraza Dr., San Dimas 91773

Theodore Meriam, A.B. (1971)
P.O. Box 370, Chico 95927

600 Bank of America Bldg., San Jose 95113

Mrs. Philip Conley, B.A. (1972)
3729 Huntington Blvd., Fresno 93702

E. Guy Warren, B.A. (1972)
P.O. Box 39, Hayward 94541

Daniel H. Ridder, B.A. (1967)
604 Pine St., Long Beach 90801

George D. Hart, A.B. (1967)
111 Sutter St., San Francisco 94104

Gregson E. Bautzer, B.A., LL.B. (1968)
190 N. Canon Dr., Beverly Hills 90210

310 Sansome St., San Francisco 94104

10889 Wilshire Blvd., Suite 1500, Los Angeles 90024

Alec L. Cory, B.A., LL.B. (1973)
530 B. St., Suite 1900, San Diego 92101

Chester R. Bartalini (1974)
995 Market St., Room 810, San Francisco 94102

William A. Norris, A.B., LL.B. (1972)
609 So. Grand, Los Angeles 90017

OFFICE OF THE CHANCELLOR
OF THE CALIFORNIA STATE COLLEGES

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

Glenn S. Dumke
Chancellor

Raymond A. Rydell
Executive Vice Chancellor

Harry E. Brakebill
Vice Chancellor,
Academic Affairs

C. Mansel Keene
Vice Chancellor,
Business Affairs

Assistant Chancellor,
Faculty and Staff Affairs

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President

Donald M. Hart
Vice Chairman

Albert J. Ruffo
Chairman
Chancellor Glenn S. Dumke
Secretary-Treasurer
## THE CALIFORNIA STATE COLLEGES

### THE CAMPUS

<table>
<thead>
<tr>
<th>College Name</th>
<th>Address</th>
<th>City, State</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chico State College</td>
<td>809 East Victoria Street, Chico, California 95926</td>
<td>Chico, California 95926</td>
<td>916-343-4411</td>
</tr>
<tr>
<td>Fresno State College</td>
<td>Shaw and Cedar Avenues, Fresno, California 93726</td>
<td>Fresno, California 93726</td>
<td>559-222-5161</td>
</tr>
<tr>
<td>Humboldt State College</td>
<td>Arcata, California 95521</td>
<td>Arcata, California 95521</td>
<td>707-822-1771</td>
</tr>
<tr>
<td>Sacramento State College</td>
<td>6000 Jay Street, Sacramento, California 95819</td>
<td>Sacramento, California 95819</td>
<td>916-454-6011</td>
</tr>
<tr>
<td>San Diego State College</td>
<td>5402 College Avenue, San Diego, California 92115</td>
<td>San Diego, California 92115</td>
<td>619-285-5000</td>
</tr>
<tr>
<td>San Fernando Valley State College</td>
<td>8111 Nordhoff Street, Northridge, California 91324</td>
<td>Northridge, California 91324</td>
<td>818-349-1200</td>
</tr>
<tr>
<td>San Francisco State College</td>
<td>600 Holloway Avenue, San Francisco, California 94132</td>
<td>San Francisco, California 94132</td>
<td>415-469-1233</td>
</tr>
<tr>
<td>San Jose State College</td>
<td>75 South Seventh Street, San Jose, California 95114</td>
<td>San Jose, California 95114</td>
<td>408-294-6414</td>
</tr>
<tr>
<td>Sonoma State College</td>
<td>Rohnert Park, California 94928</td>
<td>Rohnert Park, California 94928</td>
<td>707-795-2011</td>
</tr>
<tr>
<td>Tanislaus State College</td>
<td>30 Monte Vista Avenue, Turlock, California 95380</td>
<td>Turlock, California 95380</td>
<td>209-634-9101</td>
</tr>
<tr>
<td>California State Polytechnic College, Kellogg-Voorhis</td>
<td>Pomona, California 91766</td>
<td>Pomona, California 91766</td>
<td>909-866-6424</td>
</tr>
<tr>
<td>California State Polytechnic College, San Luis Obispo</td>
<td>San Luis Obispo, California 93401</td>
<td>San Luis Obispo, California 93401</td>
<td>805-546-0111</td>
</tr>
</tbody>
</table>
THE CALIFORNIA STATE COLLEGES

The California State Colleges are a unique development of the democratic concept of tax-supported public higher education for all qualified students.

Spanning the state from Humboldt County in the north to San Diego in the south, the 18 campuses of the California State Colleges (with another campus soon to be constructed) represent the largest system of public higher education in the Western Hemisphere and one of the largest in the world. Current enrollment exceeds 170,000 full and part-time students. The faculty and administrative staff numbers approximately 9,000.

The individual colleges, each with a geographic, curricular and academic character of its own, offer a solid basic program in the liberal arts. Beyond this, each college is noted for its individuality in academic emphasis which makes for a diversified system. Course offerings leading to the bachelor's and master's degrees are designed to satisfy existing student interests and to serve the technical and professional manpower requirements of the state.

The California State Colleges are dedicated to rigorous academic standards, constant striving for academic excellence is at the heart of the system. The primary responsibility of each faculty within the system is the instructional process on the teacher-student level, with appropriate recognition of the necessary and constructive role of research in any institution of higher education.

Responsibility for the California State Colleges is vested in the Board of Trustees, which is appointed by the Governor, and the Board's administrative arm, the Chancellor. The Trustees and the Chancellor set broad policy for the colleges while delegating considerable independent responsibility for implementation at the college level. A statewide Academic Senate, made up of representatives elected by the faculty at each college, acts as a consultative body to the Chancellor in the area of academic affairs.

Although the oldest of the colleges, San Jose State College, dates back a century, the California State College system under an independent Board of Trustees was created by the Donahoe Act of 1960. Formerly, the colleges were under the jurisdiction of the State Board of Education.

Today, the California State Colleges are in a particularly dynamic period of their development. Prior to World War II, there were seven State Colleges with a peak total enrollment of some 13,000. Since 1947, eleven new colleges have been established and a site has been selected for a new college in Kern County. Enrollment in the system is expected to reach 225,000 by 1970.
**Research Bureaus**

**SCHOOLS, DIVISIONS AND DEPARTMENTS (CONTINUED)**

**DIVISION OF THE HUMANITIES**
- Assistant to the Chairman: John R. Adams
- English Department: William A. Perkins, Claude F. Shouse
- French-Italian Department: Leonard N. Messier, Richard H. Lawson
- German-Russian Department: Daniel L. Rader
- History Department: William S. Snyder, Thomas E. Case
- Philosophy Department
- Spanish-Portuguese Department

**DIVISION OF THE LIFE SCIENCES**
- Assistant to the Chairman: James E. Crouch
- Biology Department: Francis P. Leukel, Charles L. Brandt
- Botany Department: Avery H. Gallup
- Microbiology Department: Harold B. Moore, Neva E. Nye
- Zoology Department: Walter R. Stevens, Edward W. Huffman

**DIVISION OF THE PHYSICAL SCIENCES**
- Dudley H. Robinson
- Chemistry Department: Paul E. Stewart, Clifford E. Smith
- Geology Department: Charles J. Stewart, Blakemore E. Thomas
- Industrial Arts Department: W. Carlisle Anderson
- Mathematics Department: LeRoy J. Warren
- Physical Science Department: Claude F. Merzbacher
- Physics Department: John D. Garrison

**DIVISION OF THE SOCIAL SCIENCES**
- David S. Milne
- Assistant to the Chairman: Spencer L. Rogers
- Anthropology Department: Spencer L. Rogers
- Economics Department: Marjorie S. Turner
- Geography Department: Charles C. Yahr
- Journalism Department: James L. Julian
- Political Science Department: Ned V. Joy
- Sociology Department: Jack R. Delora
- Director of Public Administration: Robert F. Wilcox

**DIVISION, IMPERIAL VALLEY CAMPUS**
- Joseph A. Rodig

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**THE COLLEGE**

**THE COLLEGE SPECIAL PROGRAMS AND SERVICES STUDENT SERVICES STUDENT ACTIVITIES AND HOUSING LOANS AND SCHOLARSHIPS**
THE COLLEGE

PURPOSES OF THE COLLEGE

The primary purpose of San Diego State College 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 College 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 baccalaureate degree and 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 THE COLLEGE

San Diego State College 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 eighteen 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.

LOCATION AND BUILDINGS

The campus is situated 12 miles from beach resorts and within a short drive of mountain and desert recreational sites. It lies one mile north of the city's principal east-west thoroughfare, El Cajon Boulevard, and just south of Highway 80, on College Avenue.

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 18,000, 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, Business Administration and Mathematics, Chemistry-Geology, Campus Laboratory School, Education, Engineering, Fine Arts, Home Economics, Home Management Residences, Humanities-Social Sciences, Industrial Arts, Library, Life Sciences, Little Theatre, Music, Peterson Gymnasium (men), Physics-Astronomy, Physical Education, Physical Sciences, Speech Arts, Speech Drama, Women's Physical Education, Residence Commons, Commons East, and the West Commons (cafeterias), Aztec 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.

San Diego provides the cultural opportunities usually found in cities of over 600,000. Many of these are to be found in Balboa Park, a heritage of the 1915-1916 and 1933-1934 expositions. Housed here are the Fine Arts Gallery, the Museum of Man with its exhibits in anthropology, natural history and American archaeology, and the Old Globe Theatre, renowned not only for its architectural likeness of the Shakespearean counterpart, but also for the excellence of its productions in contemporary drama and the annual Summer Shakespearean Festival. Noteworthy are the Outdoor Organ, horticultural gardens, and Balboa Bowl, locale for the Starlight Opera and Summer Symphony. Also in Balboa Park and unsurpassed in its natural setting is the world-famous San Diego Zoo with its latest and most delightful feature, the Children's Zoo.

The University of California at San Diego offers opportunity for cooperative study in the biological sciences and provides facilities in the physical sciences to complement those already existing locally in the Naval Electronics Laboratory and the great aeronautical and missile industries. Other institutions located in this area include the San Diego Junior Colleges, Grossmont College, and Southwest College; California Western University at Point Loma, with a liberal arts program and a School of Law; and the University of San Diego at Alcala Park, with its College for Men, College for Women, and School of Law.

FACULTY

The college faculty numbers over 1000 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, with past and recent contributions to publications and research are extensive and impressive. For listings and further details see the Faculty Directory.

LIBRARY

The library resources and services of the college for study and research are noteworthy. The book collection contains over 375,000 volumes. More than $800 periodicals and other serial publications are received currently exclusive of government documents. The library is a depository for United States and California government publications and it has extensive holdings of the publications of the United Nations, Organization of American States, Council of Europe, other international bodies, and of municipal governments. It holds over 280,000 microform publications and has an outstanding curriculum materials collection of 41,000 items.
The College

Expert 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. Facilities for 2,200 readers are provided in the central library. Typing rooms, group study rooms, microform reading rooms, listening facilities, exhibit areas, and individual study carrels are provided. Inexpensive copying machines are available.

ACCREDITATION
San Diego State College is a member of the following educational associations: Western College Association, American Association of Colleges for Teacher Education, American Association of Collegiate Schools of Business, National Association of Schools of Music, National League for Nursing, Western Association of Graduate Schools, Council of Graduate Schools in the United States, Engineers' Council for Professional Development.

Through membership in these associations, San Diego State College 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 College offers the following degrees and certificates:
- Bachelor of Arts
- Bachelor of Science
- Bachelor of Education (or Vocational Education)
- Master of Arts
- Master of Science
- Master of Business Administration
- Master of Social Work

A nondegree program leading to the Certificate in Public Administration is offered by the Political Science Department.

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 Science or Bachelor of Arts degree in liberal arts and sciences.

2. Applied arts and sciences: Curricula in major fields leading to the Bachelor of Science degree in business administration with majors in nine 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.

3. Professional curricula: The School of Business Administration offers the Bachelor of Science degree in business administration with majors in nine 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 premedical, prelaw, 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 Social Work, and a joint-doctoral program in chemistry.

ACADEMIC YEAR
San Diego State operates on the semester plan. The academic year, which consists of two semesters of 16 weeks each, begins in September and ends in June. The academic year is defined in the State Administrative Code, Chapter 5, Section 47901(j). 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.

PUBLICATIONS
The General Catalog, which is published annually in April, may be obtained free of charge by writing to the Registrar. 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, 730 Heber Avenue, Calexico, California. 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 $5, 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 Studente, 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 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.
SPECIAL PROGRAMS AND SERVICES

SPECIAL PROGRAMS

In addition to the undergraduate and graduate programs available on the campus during the regular sessions, the following special programs, designed to meet the needs of special groups of students, are also offered: The Imperial Valley Campus Extension Courses Program, Teacher Education, and Veterans' Education.

IMPERIAL VALLEY CAMPUS

LOCATION AND FUNCTIONS

The Imperial Valley Campus of San Diego State was established in September, 1959 as one of several off-campus centers authorized for the state colleges of California. It is located at the intersection of Seventh Street and Heber Avenue in Calexico, California, adjacent to Rockwood Plaza, a park located near the center of the city. Adjacent to Rockwood Plaza on the opposite side are the Calexico Public Library and the City Hall, which are the same early Spanish style architecture. The program at this campus is an integral part and division of San Diego State College and is under the general jurisdiction of the Vice-President for Academic Affairs. The campus includes the full recommended program of courses leading to a bachelor's degree in elementary and secondary education. Counseling, testing, and special education are also available at the campus. 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 of Fall and Spring Semesters, with summer sessions conducted in fully refrigerated air-conditioned buildings.

PROGRAM

The program at the Imperial Valley Campus is designed to serve the needs of the following: (1) junior college graduates, (2) transfer students who have completed two or more years of college work, (3) persons now teaching, but who would like to complete requirements for a bachelor's degree and/or a teaching credential, (4) postgraduate students holding provisional credentials who desire to become fully credentialed, and (5) college graduates who wish to complete the requirements for a regular teaching credential.

Available in the area to students are the Imperial Valley College, San Diego State College, and Arizona Western College. These are public junior colleges offering the first two years of college work. The regulations of San Diego State College governing admissions, course work, and requirements, as listed in this catalog, are applicable to students attending the Imperial Valley Campus.

INFORMATION

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

PHYSICAL FACILITIES: OFFICES, CLASSROOMS, STUDENT UNION, BOOKSTORE

The Imperial Valley Campus is comprised of a cluster of three large buildings set in a landscaped area. The buildings are of early traditional Spanish architecture, with thick plastered walls and red tiled roofs. The administrative offices are all located in the central building. Classrooms are found in each of the buildings on the campus. All are large, comfortable, and equipped with refrigerated air-conditioning. All resident faculty members maintain offices on campus.

Excellent facilities have been 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 complete with television, sofas, lounge chairs, small tables, and easily movable chairs can be used for conferences, meetings, etc. Snack facilities are available to students in the late afternoon and evening classes.

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

A large auditorium is available for student and community cultural affairs.

FACULTY

The full-time faculty and many of the part-time faculty are regular members of the San Diego State instructional staff. There are full-time resident faculty members in the areas of English, geography, history, mathematics, political science, psychology, sociocultural anthropology, speech arts, elementary education, and special education. More than seventy-five per cent of the full-time faculty possess the doctoral degree. Part-time faculty, selected from outstanding educators in the Imperial Valley, augment the instructional programs of the Imperial Valley Campus.

LIBRARY

The Imperial Valley Campus library is housed in the south wing of the three building complex. It contains over 17,000 books, 2,000 pamphlets, and 200 periodicals. Additional loan privileges are available to students and faculty through the State College library in San Diego, the Imperial Valley public libraries, the Calexico City Library, school libraries, and the Imperial Valley Schools Curriculum Library. Books and reference materials are also available from the Imperial Valley College library.

AUDIO-VISUAL EQUIPMENT

A basic collection of audio-visual equipment is available for classroom use. Films and other instructional materials are available to the staff and students through the Audio-Visual Department of the Imperial Valley Education Center. Additional materials and films are also obtained from the San Diego State College Audio-Visual Services. Films may also be 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 the usual various veterans benefits.

PLACEMENT AND EMPLOYMENT

The college provides a centralized placement service in cooperation with the Division of Education. Students are aided in locating part-time and full-time positions and in obtaining information concerning occupational trends. Staff members maintain contact with schools for teacher placement.
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 intersession and two summer sessions which offer credit applicable to graduation and residence requirements. During the intersession of one or two weeks, 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. 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, the college cooperates with off-campus organizations and groups in arranging extension classes in response to expressed needs when the enrollment is sufficiently large to warrant 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 18 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. 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 Economics 1A-1B; Mathematics 50, 51, 52; Physics 4A-4B-4C; Political Science 1, 2; and Psychology 1, 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.

INTERNATIONAL PROGRAMS

The California State Colleges offer academic year programs of study at a number of distinguished universities abroad. For 1966-67 the cooperating universities were: University of Aix-Marseille, France; Free University of Berlin and University of Heidelberg, Germany; 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. Academic work successfully completed at the cooperating universities abroad may be applied toward the degree requirements of the College in accordance with college regulations.

A selection among applicants from all California State Colleges is made on the basis of scholastic 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.

Cost to the student includes round trip transportation from San Francisco to the host university, room and board for the academic year, and medical insurance. In 1966-67 the cost is:
- France, Germany, Spain, $1,970;
- Italy, Japan, $2,070;
- Sweden $2,270; Taiwan, $1,770. Payments may be scheduled throughout the year. Programs in 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.

Application for the 1966-67 academic year should be made early in the fall semester, 1967. Detailed information may be obtained at the office of the Dean of Liberal Arts and Sciences, San Diego State College, or by writing to the Office of International Programs, 1600 Holloway Avenue, San Francisco, California 94132.

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 workshops, 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.
Special Programs and Services

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.

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 College Foundation. The bureau has the objective of the bureau to conduct research in the areas of economics and business, with special reference to local and regional problems.

The principal activities of the bureau are to (1) conduct research in the areas of economics and business. (2) facilitate research in these areas by the faculty and students, (3) seek cooperation from outside individuals and organizations for conducting specific research projects, (4) compile local and regional data, and (5) publish the results of the bureau's research activities and aid the faculty in the preparation of their research proposals.

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

BUREAU OF EDUCATIONAL 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. The bureau is in the process of developing research activities of individual faculty members who wish to conduct research in their areas of specialization.

The bureau is an interdisciplinary service that also coordinates the Graduate Center for Educational Services. The bureau is designed to provide services to the faculty members of the college in research design and statistical techniques, and in the dissemination of educational research information.

CENTER FOR THE STUDY OF COUNSELOR EDUCATION

The Center for the Study of Counselor Education is an interdisciplinary service that provides program evaluation, psychological services, and research support for the counseling program. The center is designed to provide services to the counseling program in research design and statistical techniques, and in the dissemination of educational research information.

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.

COMPUTER CENTER

The College Computer Center is an adjunct to the instructional programs of the college, similar to the Library. Its primary function is to serve the students and faculty of the college. The center is located in the Library on the second floor. The computer is a Model 1620 Computer with the necessary peripheral equipment to permit operation of the computer in the fields of data processing and scientific computation. A general elementary programming course is offered by the Department of Mathematics, and courses relating to the specialized application of digital computers are offered in mathematics, business administration, and engineering.

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 the American Economic Association, 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 the administration under a director. The Institute, located with the Economics Research Center in SS-340, provides materials and direction for research in labor problems, collective bargaining, labor legislation, and social security.

PUBLIC AFFAIRS RESEARCH INSTITUTE

The Public Affairs Research Institute is an agency of San Diego State College. It is to conduct research on a nonprofit basis into community and governmental problems of a public and/or administrative nature. The institute is staffed by members of the faculty of San Diego State College and operates under the advisory supervision of a board appointed by the president of the college. 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. Administration of the institute is under a director.

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 as urban growth and development, demographic factors, and social surveys. Current plans include expansion of the center to include laboratories for experimental studies of social organization. The center is administered by a director, whose duties include consultation assistance in the design and execution of studies and in the preparation of proposals to funding agencies.

SAN DIEGO STATE COLLEGE PRESS

The San Diego State College Press publishes important faculty-sponsored research reports, community studies, documents, and literary articles.
Special Programs and Services

SPEECH AND HEARING CLINIC

A speech and hearing clinic in which college students are trained in the application of speech correction techniques, audiology, and language development for the hard of hearing and deaf, is held throughout the school year and in Summer Session. 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. Fees are charged to outpatients (other than college students) for diagnosis and therapy. Parents who enroll a child in the clinic may enroll in the extension course, Speech Arts X-175, The Role of Parents in Problems of Speech Correction (2 units).

CLINICAL TRAINING CENTER

The Clinical Training Center prepares college students to identify and diagnose children's and adults' physiological and psychological difficulties, to reach and give remediation, and to test and counsel. Students from the departments of Education, Psychology and Speech Arts receive a variety of carefully planned experiences, including an opportunity to work with children and youth under supervision on a one to one or in very small groups. In addition, they take part in frequent staff meetings which utilize the interdisciplinary approach toward the solution of children's problems. Meetings with parents of the children with whom they work are 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 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 is made up of the Student Counseling Office, Test Office, and Foreign Student 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, academic, or occupational nature.

The program of student advising is coordinated through the Center. Students wishing to set up special majors do so in the Counseling Office. Official change of major forms are available at the Registrar's 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 health services are administered under the direction of a physician who is assisted by several part-time physician specialists and a full-time staff, and are available to the students when school is in regular session for consultation, treatment of minor physical difficulties, emergencies, and counsel as to appropriate procedures. Full-time nurses 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 part of the regular admission procedure, a health statement is required of each student. A form is furnished prior to registration for the purpose of recording the results of a physical examination done by the student's private physician. The physical examination is important as it serves as an aid in compiling a complete health record. Careful attention is given to students undergoing private remedial treatment and those for whom a modification of study load or limited participation in physical activities seems advisable. A follow-up procedure is in effect for the student who has been urged to consult his family physician for correction of defects discovered during the examination.

Physical examinations are also required before students are authorized to participate in the organized programs of intramural or intercollegiate athletics. A student health insurance program, sponsored by the Associated Students, available to those who carry seven or more units, is currently in effect. This insurance, which gives coverage for hospitalization and specified medical services for a six-month period, may be purchased at the time of registration. The Insurance policy for the second six-month period covers the summer months for those students who continue in the succeeding fall program. Refunds on a prorated basis may be made to those students who are graduating seniors, or to those individuals who drop out of school during the period covered by the insurance policy.

PLACEMENT CENTER

The college provides a centralized placement service in cooperation with the various departments of the college. 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.
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 organizations, the Alumni Association participates in Homecoming and Founder's Week events. The official publications are the monthly Alumni News and the biannual El Campanetano magazine which have as their purpose the promotion of unity among the alumni of the College. The Alumni Association is open to former students of the College to present members of the faculty.

RESIDENCE HALLS

Five brick, fireproof, three-story residence halls are available to single men and women. These buildings are constructed of heavy masonry, inner walls, solid doors, and windows. All rooms are equipped with individual thermostats in each room and a small desk. The buildings are air-conditioned.

All hall rooms are equipped with a service charge of $6. Phone and Health Service charges are included in the total. The additional $20 security deposit is refundable at the close of the school year.

To secure information concerning your reservation for the Residence Hall, write to the Office of the Director of Housing, San Diego State College, Residence Hall, and/or make an appointment to visit the Residence Hall. As previously stated, there are many more rooms available than the number of available rooms. Requests for rooms should be made at least one week in advance. Placement in a residence hall is subject to the availability of space.

A waiting list is maintained for students who are not accepted. Students on the waiting list are placed in a residence hall for the first day of class and a new reply card is sent to the student. If you have been notified by the Office of Admissions of your acceptance to the College, you should contact that office to be sure that you will be accepted in college. Those students who have not been accepted by September 1 (or February 1—Spring enrollment) and have not received a letter of acceptance from the Alumni Association, are not members of the Alumni Association.

The Alumni Association reserves the right to require unmarried men and women students to reside in residence halls as long as space is available. Each unmarried student is required to fill out a form for a letter of approval from the Director of Housing.

If you have been notified by the Dean of Admissions by August 15th, you may apply for a residence hall. Those students who have not been accepted by September 1 (or February 1—Spring enrollment) and have not received a letter of acceptance from the Alumni Association, are not members of the Alumni Association.

A waiting list is maintained for students who are not accepted. Students on the waiting list are placed in a residence hall for the first day of class and a new reply card is sent to the student. If you have been notified by the Office of Admissions of your acceptance to the College, you should contact that office to be sure that you will be accepted in college. Those students who have not been accepted by September 1 (or February 1—Spring enrollment) and have not received a letter of acceptance from the Alumni Association, are not members of the Alumni Association.

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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, 5305 Montezuma Road, San Diego, California, 92115.

EATING FACILITIES
During the time college is in session, two modern cafeterias are operated on the campus, serving breakfast, lunch, and dinner at modest cost per meal. Restaurant facilities off-campus are not generally available in the immediate vicinity of the campus, with a few exceptions, but many such places 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. Visitor information booths are located at the entrance to the campus on College Avenue and 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.

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 18,000 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.

FINANCIAL AID
San Diego State College makes every effort to see that students who wish to attend are not prevented from doing so because of inadequate financial resources. To this end, financial aid in the form of loans, grants, and opportunity for 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 following: grant, part-time employment, loan. The programs explained below are administered by the Financial Aid Office, Administration Building, Room 222.

SAN DIEGO STATE COLLEGE FOUNDATION LOAN PROGRAM
Through the generosity of a number of individuals and groups, funds have been established to assist students with both emergency and deferred loans. Completion of at least one semester of full-time attendance at San Diego State is required before the student is eligible. The amount that may be borrowed, based on college-related need, may not exceed $500. Repayment is generally made during the semester, however, senior and graduate students in their last year of college may select deferred repayment plans. Most loans under this program are free of interest. Applications are available throughout the academic year.

NATIONAL DEFENSE STUDENT LOAN PROGRAM
National Defense Student Loans under the National Defense Education Act of 1958, are available to students who can meet the specific qualifications. All students, both entering and continuing, may apply for these loans. The amount that may be borrowed, based on college-related need, may not exceed $1,000 per year for an undergraduate, or $2,500 per year for a graduate student. Repayment begins nine months after the student ceases to carry at least one-half the normal full-time academic work load and ends ten years and nine months after such date. The interest rate is three percent simple interest per year. This loan program provides a borrower with a partial cancellation of ten or fifteen percent of their loan, 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.
Student Services
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NURSING STUDENT LOAN PROGRAM
San Diego State College participates in the Nursing Student Loan Program under the Nursing Training Act of 1964. All students, both entering and continuing, may apply for these loans if they plan to enroll in a full-time course leading to the Bachelor of Science degree in nursing. The amount that may be borrowed, based upon college-related need, may not exceed $1,000 per year. Repayment begins one year after the student leaves college and may extend over a ten year period. The interest rate is based upon prevailing Federal interest rate at the time the loan is made, and ranges between three per cent and five percent simple interest.

UNITED STUDENT AID FUND PROGRAM
United Student Aid Fund Loans in conjunction with the student's home town bank, are available to those students meeting specific qualifications. Students who have completed thirty credit hours or more are eligible to apply. The amount that may be borrowed, based upon college-related need, may not exceed $1,000 per year for undergraduates or $1,500 per year for graduate students. Repayment begins nine months from the time the borrower graduates and may extend between thirty-six and fifty-four months. Interest is three to six percent simple interest, beginning at the time the loan is granted. Interest rate varies depending upon adjusted income.

EDUCATIONAL OPPORTUNITY GRANT
San Diego State College has funds which provide Opportunity Grants of between $200 and $800 to students who show academic promise, are of exceptional financial need, and who are not, or who for such a grant, would not be able to pursue higher education. Opportunity Grants are available to both entering freshmen and transfer students, as well as continuing students. These grants may be renewed each year for the number of years necessary for the student to complete the normal four year undergraduate degree program.

COLLEGE WORK-STUDY PROGRAM
San Diego State College participates in the College Work-Study Program under the Economic Opportunity Act of 1964. Students may qualify for financial aid in the form of part-time employment if they meet the specific qualifications of this program. All students, entering and continuing, may be eligible to apply. Where feasible, college work-study grants are to be combined with loans, grants or other financial aid. Students may work in positions for up to fifteen hours per week during the semester and forty hours per week during vacation periods. The rate of pay for such employment is $1.40 to $2.75 per hour.

STATE GUARANTEED LOAN PROGRAM
This Federal loan is part of the Higher Education Act of 1965 and is assigned to the State Scholarship and Loan Commission for administration. These long-term low-interest loans will be made by banks and credit unions and provide deferred payment and interest until graduation or the termination of higher education. Applications are available at the Financial Aid Office, Administration Building, Room 222.

MINIMUM REQUIREMENTS FOR APPLICATIONS
San Diego State College participates in the College Scholarship Service (CSS) of the College Entrance Examination Board. As a participant, the 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 assistance. All students under twenty-five years of age, regardless of marital status, who request financial assistance in excess of $200 per year are required to submit a copy of the Parents' Confidential Statement form to CSS, designating San Diego State College as one of the recipients. Necessary forms, in addition to the financial aid application and brochure, may be secured in the Financial Aid Office.

APPLYING FOR AID
Students may request assistance for all programs explained above on financial aid forms provided by the college. All applicants twenty-five years of age or under, regardless of marital status, who apply for aid must also complete a Parents' Confidential Statement. Application forms are available between February 1 and June 1, 1967, for the 1967-68 academic year. To the extent that funds are still available, students may apply for aid from any program after August 15, 1967.

SCHOLARSHIPS

APPLICATIONS

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

Scholarships ranging from $50 to $300 are granted to outstanding students by the College Scholarship Committee. Applications for scholarships may be secured in AD-226 of the Administration Building. Applications should be filed in March for the following school year.

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 advisors and departments about scholarships in their field of study.

A scholarship brochure will be mailed if request is made to the Activities and Scholarships 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 Bissie 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 Office of the Dean of Arts and Sciences.

COLLEGE SCHOLARSHIPS COMMITTEE

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

- Alpha Epsilon-Brenda Beinser
- Alpha Club
- Alphusk Club
- American Association University Women
- American Society Civil Engineers
- American Society for Metals
- Anonymous "MB"
- Aztec Club Athletic Scholarships
- Beta Alpha Psi
- Budd Boyle Memorial Scholarship
- California Congress P.T.A.
- Chi Omega Sorority
- Cooper, Daniel William
- Coronado Woman's Club
- Country Friends
- Del Cerro Woman's Club
- Dow Chemical Company
- Dresser, Elizabeth
- Ellis, George William Memorial
- Executive Secretaries, Inc.
- Finder, George A. Memorial Scholarship
- Fireman's Assoc., Ladies Auxiliary
- Fleischner, Anna S.
- General Dynamics-Astronautics
- Golden, Kenneth
- Haskins & Sells Foundation
- Kappa Beta Nu Sorority
- Kappa Delta Pi
- Kent Manchester Memorial Scholarship
- KOGO-TV
- Lions Club of East San Diego
- Lions Club-College Center
- Linkletter, Art
- Lodge, Catherine Yuhar
- Marcy, May Finney
- Neely Enterprises
- Pacific Beach Jr. Woman's Club
- Perry, Fay Van Ness
- Phi Epsilon Phi
- Pi Lambda Theta
- Realty Board of San Diego
- San Diego Human Factors
- San Diego Women's Club—Home and Garden, Valerian, and Study Sections
- Sanf, Percie Bell
- Shields, Robert Foundation
- Sigma Alpha-Gamma Upsilon Chapter
- Sigma Alpha Iota Alumnae
- Sigma Phi Epsilon—Bruce Sandell
- Silvergate Lions Club
- Silverman, Ann and David
- Solar Recreation
- Storr, Dorothy C.
- Stott, Kenneth W.
- Thearle Music Company
- Trott, Wilma Tyler
- Union-Tribune Charities
- Western Electronics
- Whitney, Guilford H., Foundation
- Williams, DeWitt Bisbee
ADMISSION

APPLICATION FOR ADMISSION

FILING OF APPLICATIONS

Deadline for Filing Application. An application for admission to the college may be filed during the semester preceding the one in which the applicant expects to enroll. The last dates for filing applications are as follows:

For fall semester: July 15.
For spring semester: December 15.

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

(1) Application for admission or readmission, accompanied by a $5 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).

(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 College. 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) 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.

Transfer students with more than 60 units 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 must 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. Since this test is scheduled to be given at the same time as the college aptitude test, a separate reservation for the test need not be made.

(3) English Test for Foreign Students. For admission purposes, all entering foreign students whose native language is not English must take this test. The test will be scheduled by the counselor for foreign students. This test does not take the place of the writing competency test required for graduation.

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.

(3) Mathematics Competency Test. A mathematics competency test is required of all candidates for any of the secondary school credentials before admission to teacher education. The test is the same test as the one given to clear the graduation requirement for competency in mathematics. Graduate students must make a reservation for this test at the Test Office in the Administration Building.

Qualification Tests.

Mathematics Placement Examinations. Required of students before enrollment in any of the following courses: Mathematics 3, 4, 12, 20, 21, 22, 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

Admission Requirements

Requirements for admission to San Diego State College are in accordance with Title 5, Chapter 3, Subchapter 2 of the California Administrative Code as amended by the Board of Trustees of the California State Colleges on January 21, 1967. 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 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 composite score on the ACT which provides an eligibility index placing him among the upper one-third of California high school graduates. The grade point average is based upon the last three years and does not include 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.

<table>
<thead>
<tr>
<th>Grade Point Average</th>
<th>ACT Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.21 and above</td>
<td>Eligible with any score</td>
</tr>
<tr>
<td>2.80</td>
<td>19</td>
</tr>
<tr>
<td>2.40</td>
<td>21</td>
</tr>
<tr>
<td>2.00</td>
<td>24</td>
</tr>
<tr>
<td>1.99 and below</td>
<td>Not eligible</td>
</tr>
</tbody>
</table>

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-third of California high school graduates for 1966-67. The minimum required eligibility index is ACT 829 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 the ACT.

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. Such applicants are not required to take the ACT.

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

Recommended Preparation. Overall excellence of performance in high school subjects and evidence of academic potential provide the basis for admission at San Diego State College. 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 a 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.

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

A typical high school program

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Freshman Year</th>
<th>Sophomore Year</th>
<th>Junior Year</th>
<th>Senior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH (Four years recommended)</td>
<td>English</td>
<td>English</td>
<td>English</td>
<td>English</td>
</tr>
<tr>
<td>Social Studies (Three years recommended)</td>
<td>Social studies</td>
<td>Geometry</td>
<td>Advanced Algebra for science majors</td>
<td>Advanced Mathematics for science majors</td>
</tr>
<tr>
<td>MATHEMATICS</td>
<td>Algebra</td>
<td>Advanced Algebra for science majors</td>
<td>Chemistry (with laboratory)</td>
<td>Physics (with laboratory)</td>
</tr>
<tr>
<td>SCIENCE</td>
<td>Life science (Botany, Biology, or Physiology)</td>
<td>Continue the same language</td>
<td>Continue the same language</td>
<td>Recommend continue the same language</td>
</tr>
<tr>
<td>FOREIGN LANGUAGE</td>
<td>Foreign language</td>
<td>Continue the same language</td>
<td>Continue the same language</td>
<td>Recommend continue the same language</td>
</tr>
<tr>
<td>PHYSICAL EDUCATION</td>
<td>P.E.</td>
<td>P.E.</td>
<td>P.E.</td>
<td>P.E.</td>
</tr>
<tr>
<td>ELECTIVES</td>
<td>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 by high school summer sessions to take courses which otherwise could not be included within the regular semesters.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*For 1967-68 the minimum eligibility index is ACT—741. It is computed by multiplying grade point average by 200 and adding it to 10 times the composite ACT score.
ADVANCED PLACEMENT EXAMINATIONS

San Diego State will grant advanced placement and advanced credit to high school students who have satisfactorily completed the Advanced Placement Tests prior to their enrollment at the college. 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 be sent to the college. To obtain credit or advanced placement, the student should obtain and file an application form in the office of the Vice President for Academic Affairs during the student's first registration at the college.

ADMISSION AS AN UNDERGRADUATE TRANSFER

Any applicant who has attempted college work will be considered for admission under one of the following provisions. An applicant must report all college work attempted (including extension and correspondence courses) for which credit has been granted.

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 acceptable college work attempted and he 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 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.

ADMISSION OF GRADUATE STUDENTS

FILING OF APPLICATIONS

All students holding a baccalaureate degree who desire to enroll at this college for post graduate study must apply for admission to the college through the Office of Admissions. In making the application, they must observe the procedures outlined above for admission to the college. If accepted, they will be admitted with unclassified graduate standing or with undergraduate standing.

FILING OF RECORDS

The student must file official transcripts from EACH college or university attended (including extension, correspondence, summer session, or evening courses) for the time period during which credit was earned. 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 of San Diego State College. 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. 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 Graduate Division and must comply with all other admission procedures outlined above.

Admission

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 the college as a classified graduate student if he satisfactorily meets the professional, personal, scholastic, and other standards for graduate study, including qualifying examinations, prescribed by the appropriate college authorities. 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 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 the college may be required to withdraw from all graduate degree curricula offered by the college.

GRADUATE BULLETIN

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

ADMISSION OF FOREIGN STUDENTS

Applicants for admission as either graduate or undergraduate whose education has been acquired 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 during the last six years. The applicant must submit evidence that he is able to pursue a course of study at San Diego State College. If accepted, he will be admitted with classified standing.

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 College. 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 College 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 opportunities 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

Students who receive notice that they are eligible for admission to the college 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 opening day of the semester for which he proposes to enroll. 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 opening day 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 parent or parent's residence in California is 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 residence 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 the Graduate Division.

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.

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:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Outstanding achievement</td>
<td>4</td>
</tr>
<tr>
<td>B: Commendable</td>
<td>3</td>
</tr>
<tr>
<td>C: Satisfactory</td>
<td>2</td>
</tr>
<tr>
<td>D: Passing</td>
<td>1</td>
</tr>
<tr>
<td>F: Failure</td>
<td>0</td>
</tr>
<tr>
<td>I: Incomplete</td>
<td>0</td>
</tr>
</tbody>
</table>

| Cr Credit | (Not counted in grade average, but units allowed) |
| And Audit | (No credit and not counted in grade average) |
| W Withdrawal passing | (Not counted in grade average) |
| WF Withdrawal failing | (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 Office. Students must complete the thesis within one calendar year after registration in the course. If the thesis is not completed within this period, the student must re-register for the course.

GENERAL REGULATIONS

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 the degree and the incomplete cannot be made up after the incomplete on his record, he must officially withdraw as a candidate for graduation.

GRADE REPORTS TO STUDENTS

Following the close of the seventh week of instruction (eighth week of the semester), reports are sent to students who are doing unsatisfactory work. These deficiency reports, known as D notices, are optional with an instructor. Students should be aware of their progress in a course and not depend upon receipt of formal notice if work is unsatisfactory.

At the end of each semester or summer session in which the student is enrolled, a grade report is sent to the student.

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 College 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 College.

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.

STUDENT DISCIPLINE AND ATTENDANCE

Any student may be placed on probation, suspended, or expelled for one or more of the following causes:

(a) Disorderly, unethical, vicious, or immoral conduct.
(b) Misuse, abuse, theft, or destruction of state property.

The period for which the student may be placed on probation or suspended by the president shall not exceed 12 months. Fees or tuition paid by or for the student for the semester or summer session in which he is suspended will not be refunded. If the student is a minor, the president shall immediately notify the parent or guardian of the action taken. (Reference: California Administrative Code, Chapter 5, Sections 41301, 41302, 41303.)

The above penalties may be applied in cases involving academic dishonesty: cheating in tests, examinations, laboratory work, written work (plagiarism)—that is, for any attempt to get credit for work not performed.
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 limitations:
(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. A repeated course may not be counted toward graduation.
(b) A student with junior status may carry upper division units 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 representatives. 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 is required 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 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. The rules of the Graduate Division concerning academic load must be observed. (For further information, refer to the Graduate Office.)

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 the limits. Extension and corresponding 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 the cost exceeds fees already paid. Application for credit by examination must be made within the time limits for filing a change of program listed in the Academic Calendar each semester. In summer sessions the total units earned for courses and examinations can not exceed three units 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 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 or 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. A student is not permitted to register as an auditor during registration week. A student desiring to audit a course must file a special auditor program card bearing the instructor's signature with the Registrar's Office during the second or third weeks of a semester. 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. Each grade is recorded 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.
General Regulations

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.

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 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.

APPLICATION FOR AN EVALUATION
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 40901, 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.

UNDERGRADUATE PROGRAM
For the undergraduate student, a normal semester's program is 16 units, with 16 units considered the minimum full-time load. A student may carry up to 17½ units with the permission of his adviser. Greater variations are subject to approval of the Vice President for Academic Affairs, or his authorized representative.

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.

GRADUATE PROGRAM
For information on study list limits for the graduate program, 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 Registrar's Office. The code designation for a major carried on the student's identification card is considered his official major.

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

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 from his government, or (c) be a reservist called to immediate extended extended active duty. (Not applicable to other military personnel enrolled in the college.)

Enrolment 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 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.

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General Regulations

READMISSION

A student who withdraws from college must file application for readmission if a full semester's absence between the time of his withdrawal and return to college.

A $5 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, or changing a section of the same course.

A change of program may be made on or before the published dates. Forms for charge for each change of program must be obtained at the Registrar's Office. A fee of $1 is charged for each change of program made after registration. The effective date 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 scheduled time. Any student who finds it impossible to take a final examination on the date reported and must make arrangements with the instructor to have an incomplete grade making up incomplete grades.

WITHDRAWAL AND READMISSION

OFFICIAL WITHDRAWAL

The student is held for every course appearing on his official student 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. 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, 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 college will receive a failing grade in all courses which he stops attending. An unofficial withdrawal is one in which the student stops attending classes without filing official withdrawal forms within the deadlines established for withdrawal. Veterans; unofficially withdrawing will have veteran's allowances immediately suspended and will be subject to full repayment of allowances received after date

GRADUATE DIVISION REGULATIONS

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

TRANSFER TO GRADUATE SCHOOLS

Attention of students who plan to transfer to graduate schools is called to the fact that admission to graduate programs, at this or any other college or university, may be determined by the student's undergraduate preparation. A bachelor's degree from an accredited collegiate institution does not necessarily assure admission to a graduate school. The student's undergraduate scholastic standing and selection of courses appropriate to graduate study in the institution to which the student expects to transfer are factors in determining his eligibility for admission. The University of California, for example, reserves the right to evaluate and possibly reduce the credit in certain work which has been used for the student's bachelor's degree.

Examples of such work would be credit for nurses' training, credit transferred from certain foreign schools, credit for military service, courses of a nonacademic nature, or credit by examination.

The student should determine as early as possible in his undergraduate program what the requirements are of the graduate school to which he expects to transfer. His undergraduate program, in consultation with his adviser, should be planned accordingly.

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.
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. 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. Lower-division prerequisite and related courses required by the department in preparation for the major may be used in general education if applicable. Such course or courses, however, may not be used as part of the maximum unit requirement in the student’s major.

**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.

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**
The Mathematics Competency Test is required of all new students before registration. Students failing to make a satisfactory score on this Mathematics Competency Test (except those students taking the B.E. degree) may satisfy the graduation requirements by satisfactorily completing Mathematics 3, 10B, or 18, or by satisfactorily completing programmed instructional material designated by the Mathematics Department.

**SPEECH COMPETENCY TEST**
The Speech Competency Test is given to students who are enrolled in Speech Arts 3, Oral Communication, a required course in general education for all bachelor’s degrees except the B.E. degree. Students failing the test are required to enroll concurrently in Speech Arts 2, Oral Communication Laboratory, and complete the course for an additional one unit of credit (not applicable to general education) as part of the graduation requirement in speech competency.

**WRITING COMPETENCY TEST**
The Writing Competency Test must 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 must take this test before registration regardless of the degree for which they are working. 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.
8. AMERICAN INSTITUTIONS

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

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
(b) History 172A and 172B
(c) Political Science 1 and 2
(d) Political Science 113 and 142 or 143 or 148.

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.

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

Courses meeting requirements in American History

- History 6A and 6B
- History 176A and 176B
- History 177A and 177B
- History 179A and 179B
- History 181A and 181B
- History 172A
- History 177A and 177B

Courses meeting requirements in U.S. Constitution

- Political Science 2
- Political Science 115
- Political Science 127A and 127B
- Political Science 139A and 139B
- History 172A
- History 177A and 177B

Courses meeting requirements in California Government

- Political Science 2
- Political Science 115
- Political Science 127B
- Political Science 142
- Political Science 143
- Political Science 148
- 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 45 semester units in general education must be completed in addition to courses in the major. The major is defined as the required block of upper division courses. The student should refer to the requirements in his major field before selecting general education 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 45 units but without course credit. Permission to take such examinations must be obtained from the Dean of the College 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 Dean's permission.

PATTERN OF GENERAL EDUCATION AREA REQUIREMENTS

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
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<tbody>
<tr>
<td>Units</td>
<td>Units</td>
</tr>
<tr>
<td>A. Natural Sciences</td>
<td>9</td>
</tr>
<tr>
<td>B. Social Sciences</td>
<td>9</td>
</tr>
<tr>
<td>C. Literature, Philosophy, and the Arts</td>
<td>8</td>
</tr>
<tr>
<td>D. Communication</td>
<td>5</td>
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<tr>
<td>Oral communication</td>
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<tr>
<td>Written communication</td>
<td>3-6</td>
</tr>
<tr>
<td>E. Personal and Social Development</td>
<td>7</td>
</tr>
<tr>
<td>Health education</td>
<td>2</td>
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<tr>
<td>Physical education</td>
<td>2</td>
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<tr>
<td>Psychology</td>
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<tr>
<td>Electives</td>
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<tr>
<td>F. General Electives</td>
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<td>Aerospace Studies</td>
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<tr>
<td>Mathematics</td>
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</table>

Total units required

SPECIFIC REQUIREMENTS

For specific explanation of requirements in general education, refer to the following descriptions:

NATURAL SCIENCES

A. Natural Sciences (9-12 units). Students must include at least one course from Group 1 and at least one of the options from Group 2. If, in meeting these requirements, the student has not completed at least nine units, additional courses may be selected as indicated in Group 3. The courses selected must include at least one unit of laboratory in one of the groups. Not more than 12 units from this area may be counted in the total requirement of 45 units of general education.

Group 1. Life Sciences

(a) Lecture and laboratory

- Biology 1 and 2, or
- Botany 4.

(b) Lecture only

- Biology 1.
Graduation Requirements

Group 2. Physical Sciences
(a) Lecture and laboratory
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 2A and 3A, or 4A, or 5.
(b) Lecture only
Astronomy 1; Geography 1 or 3; Geology 2; Physical Science 1, 2, or 5; Physics 2A.

Group 3. Electives
Any course in astronomy, biology, botany, chemistry, geology, microbiology, oceanography, physical science, physics, or zoology.

SOCIAL SCIENCES
B. Social Sciences (9-12 units). Students must complete the requirements in Groups 1 and 2, and may elect courses from Group 3 to complete a minimum of nine and maximum of 12 units in this area. The Group 1 requirements may be met in whole or in part by examination, or by other options described in this section of the catalog on American Institutions.

Group 1. American Institutions
History 17A and 17B; or 172A and 172B; or Political Science 1 and 2; or 115 and 142 or 143 or 148.
If the entire requirement is met by examination, substitute three units in anthropology, economics, geography, (except 1 or 3), or sociology (except 35), and three units in history or political science for the six-unit requirement.

Group 2. Social Sciences
Select one course: Anthropology 1A, 1B, or 1C; Economics 1A or 103A; Geography 2; or Sociology 1 or 10.

Group 3. Electives
Business Administration 30A, 134; or any course in the departments of anthropology, economics, geography (except 1 or 3), or sociology (except 35).

LITERATURE, PHILOSOPHY, AND THE ARTS
C. Literature, Philosophy, and the Arts (8-12 units). Students must complete Groups 1, 2, and 3, and may elect courses from Group 4, but may not count more than six units in any one of the fields of literature, philosophy, art, or music, nor more than 12 units in the area as a part of the 45 unit requirement in general education.

Group 1
Select one course in literature from English 2, 50A, 50B, 52A, 52B, 56A, 56B, 60A, 60B; Humanities 66A, 66B.

Group 2
Philosophy 1A or 20; Humanities 66A, 66B; or any course in literature in the departments of English, foreign language, and comparative literature.

Group 3
Two or three units selected from Art 2A, 5, 50A, 50B, 51; or Music 7A, 51, 52, 70 through 88, 151, 170 through 188; or Philosophy 1A or 20 (if neither is elected under Group 2); or students may substitute a maximum of three units of mathematics courses numbered 18 or above.

Group 4. Electives
Up to three units of courses in the departments of art, music, or philosophy; or any course in literature in the departments of English, foreign language, and comparative literature; or Speech Arts 5, 67, 130, 154A, 154B, 190; or History 4A, 4B, 111A, 111B.

COMMUNICATION
D. Communication (5-8 units). Students must complete Groups 1 and 2, and may elect one course from Group 3, but may not count more than eight units in the area as a part of the 45 unit requirement in general education.

Group 1
Speech Arts 3 or 4 (or two units of 1X for foreign students).

Group 2
English 1A.

Group 3. Electives
English 1B, 61, 62, 106; or Speech Arts 11A, 55A, 60A, 60B.

PERSONAL AND SOCIAL DEVELOPMENT
E. Personal and Social Development (7-10 units). Students must complete Group 1 and may elect courses from Group 2, but may not count more than 10 units in the area as a part of the 45 unit requirement in general education.

Group 1
Psychology 1;
Health Education 21; and
Four semesters of physical education activities.
(A physical education activity taken in summer session may be counted in lieu of one taken during the fall or spring semester.)

Group 2. Electives
Business Administration 182; Health Education 65, 90; Home Economics 1, 4A, 15, 35, 70, 120; Industrial Arts 5, 6, 85; Library Science 1; Psychology 11, 12, 14, 106, 107, 145; Social Welfare 35; Sociology 33.

ELECTIVES
F. Electives (0-18 units). Students must complete the minimum requirements in areas A through E. To fulfill the total requirement of 45 units in general education, students may elect courses within the areas as indicated or may select from the following courses:

1. Aerospace Studies
Four units will be granted for completion of Aerospace Studies 131A-131B. Two additional units will be granted for completion of Aerospace Studies 141A-141B. These six units correspond to the parts of the AFROTC program which lie in the areas of social science, natural science, communication, and other areas of the general education pattern; however, these units will not be included within the unit minima or maxima specified in any such area.

2. Foreign language
A maximum of six units may be selected in foreign language.

3. Mathematics
A maximum of six units in this area of general education electives may be elected in Mathematics 3, 10A, 10B, or in courses numbered 18 and above.
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 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 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.

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 OF CURRICULA OFFERED

<table>
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<tr>
<th>Majors</th>
<th>Applied Arts and Sciences</th>
<th>Liberal Arts and Sciences</th>
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<th>School of Engineering</th>
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| Latin-American studies        | AB | BS | AB | MA | MA | MA | MA | Standard teaching credential with specialization in:
| Management                    | AB | BS | AB | MA | MA | MA | MA | (a) Elementary teaching       |
| Marketing                     | AB | BS | AB | MA | MA | MA | MA | (b) Secondary teaching        |
| Mathematics                   | AB | BS | AB | MA | MA | MA | MA | (c) Junior College teaching    |
| Mechanical engineering        | AB | BS | AB | MA | MA | MA | MA | Specialized preparation (as a substitute for a minor) |
| Microbiology                  | AB | BS | AB | MA | MA | MA | MA | Standard designated services credential |
| Music                         | AB | BS | AB | MA | MA | MA | MA | Standard supervision credential |
| Nursing                       | AB | BS | AB | MA | MA | MA | MA | Standard administration credential |
| Office management             | AB | BS | AB | MA | MA | MA | MA |                             |
| Philosophy                    | AB | BS | AB | MA | MA | MA | MA |                             |
| Physical education            | AB | BS | AB | MA | MA | MA | MA |                             |
| Physical science              | *AB| BS | AB | MA | MA | MA | MA |                             |
| Political science             | AB | BS | AB | MA | MA | MA | MA |                             |
| Psychology                    | MA | MS | MA | MA | MA | MA | MA |                             |
| Public administration         | AB | BS | AB | MA | MA | MA | MA |                             |
MINORS FOR THE BACHELOR'S DEGREE

Accounting
Aerospace studies
Anthropology
Art
Astronomy
Biology
Botany
Business education
Business management
Chemistry
Classics
Comparative literature
Dance
Economics
Employee relations
Engineering
English
Finance
French
Geography
Geology
German
Health education
History
Home economics
Industrial arts

Insurance
Italian
Journalism
Library science
Marketing
Mathematics
Microbiology
Music
Office management
Philosophy
Physical education
Physical science
Physics
Political science
Production and operations management
Psychology
Public administration
Radio and television broadcasting
Real estate
Recreation
Russian
Social welfare
Sociology
Spanish
Speech arts
Zoology

GRADUATE DIVISION
GRADUATE DIVISION

ORGANIZATION AND ADMINISTRATION

All graduate work leading to advanced degrees is under the jurisdiction of the Graduate Division and responsibility for all graduate curricula is delegated to a Graduate Council under the chairmanship of the Dean of Graduate and Professional 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 4004 of the Administrative Code.

ASSOCIATION MEMBERSHIP

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

DEGREES OFFERED

All advanced degrees are conferred by the Trustees of the California State Colleges upon recommendation of the faculty of San Diego State College. 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.

DOCTOR OF PHILOSOPHY

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

MASTER OF ARTS

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

- Anthropology
- Art
- Biology
- Business Education
- Chemistry
- Economics
- Education
- English
- French
- German
- Geography
- Health Education
- History
- Industrial Arts
- Latin American Studies
- Mathematics
- Music
- Philosophy
- Physical Education
- Physical Science
- Physics
- Political Science
- Psychology
- Social Science
- Sociology
- Spanish
- Speech Arts

MASTER OF SCIENCE

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

- Aerospace Engineering
- Astronomy
- Biology
- Business Administration
- Chemistry
- Civil Engineering
- Electrical Engineering
- Geology
- Mathematics
- Mechanical Engineering
- Physics
- Psychology
- Public Administration

MASTER OF BUSINESS ADMINISTRATION

MASTER OF SOCIAL WORK

ADMISSION PROCEDURES

MATRICULATION

Any student, holding the baccalaureate degree and wishing to be admitted to San Diego State College 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.

Unclassified graduate students are not eligible to enroll in 200-numbered courses except with permission of the instructor and the Dean of Graduate and Professional 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 College.
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, 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 and the Master of Science degrees require 30 semester units of graduate work; the Master of Business Administration and the Master of Social Work are two-year master's degrees and require 34 and 38 units of graduate work respectively. At least 30 units of work must be earned in residence at San Diego State College 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 AND SCIENCES

DEGREE PROGRAMS

REQUIREMENTS FOR THE A.B. OR B.S. DEGREE

Students taking majors offered in applied arts and sciences must complete the graduation requirements listed below for the A.B. or B.S. 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. 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. degree or 36 upper division units for the B.S. 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-five units in liberal 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. OR B.S. DEGREE

The major consists of a prescribed pattern of upper division courses totaling not less than 24 units for the A.B. 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 45 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. 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 special major, and the major in social science, both of which require work in three or more departments, 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.

LIST OF MAJORS FOR THE A.B. DEGREE
IN APPLIED ARTS AND SCIENCES

Art
Astronomy
Biology
Chemistry
Geology
Home economics
Special major
Psychology
Journalism
Mathematics
Music
Physical education
Physical science
Speech arts
Public administration
Recreation administration
Social science

Referred to also in Teacher Education.

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

List of Majors for the B.S. Degree

Biology
Botany
Chemistry
Environmental health
Geology
Health education
Microbiology
Nursing
Physics
Microbiology and medical technology curriculum
Radio and television
Broadcasting
Zoology

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 Division of the Social Sciences.

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. The social science major in liberal 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.

Requirements

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, 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, including six units of U.S. history, must be completed either in lower division prerequisites or in the major.

Minor. A minor is not required with this major for the degree.

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.
Applied Arts and Sciences

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 section 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.

GENERAL EDUCATION AND DISTRIBUTION OF COURSES

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.

DISTRIBUTION OF COURSES

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 4.
   (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 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.

   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.

B. Social Science

1. American Institutions

   Political Science 1 and 2 or Political Science 115 and 142 or 143 or 148, or History 17A and 17B or History 172A and 172B. (May be met in whole or in part by examination or by various options. Refer to catalog for this 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.)

2. Social Science

   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.

C. The Humanities and Fine Arts

1. A one-year course in western civilization

   Choose either History 4A-4B or English 32A-32B.

2. Six units in literature, philosophy, or the history or appreciation of art or music. To be taken in a department or departments other than that in which the requirement in western civilization was met. Applicable courses: Art 3, 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 10 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.
D. Other

1. Foreign language as required by the major department. The foreign language requirement of a knowledge of a language other than one’s native tongue may be met 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

   Oral—Speech Arts 3 or 4........... 2-3
   Written—English 1A-1B............. 6
   (If excused from all or part of the requirement in written communication, an equal number of units in literature.)

3. Psychology 1...................... 3

4. Health Education 21.............. 2

5. Physical education activity courses (Four semesters required.)

   TOTAL: 51-60

   UNITS REQUIRED FOR GRADUATION: 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.

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

**Majors**

- Anthropology
- Art
- Asian Studies
- Astronomy
- Biology
- Botany
- Chemistry
- Economics
- English
- European studies
- French
- Geography
- Geology
- German
- History
- Latin-American studies
- Mathematics
- Microbiology
- Philosophy
- Physics
- Political science
- Psychology
- Russian
- Social science
- Social welfare
- Sociology
- Spanish
- Special Major
- Curricula
- Africa and the Middle East
- American studies
- Humanities

**Minor**

A minor is not required with this curriculum.
HUMANITIES

IN LIBERAL ARTS AND SCIENCES

The Humanities curriculum is offered by the Division of the Humanities. 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 Division of the Humanities, 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 through the Divisions of the Social Sciences and the Humanities. 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. 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. Forty-two upper division units to include Spanish 104A-104B (Comparative Literature 104A-104B will not be accepted), 106A-106B, and Portuguese 131-132; 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

SOCIAL SCIENCE MAJOR
WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in social science is offered by the Division of the Social Sciences.

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, 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.I., 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.

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.I., 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.
SCHOOL OF
BUSINESS ADMINISTRATION

DEPARTMENTAL ORGANIZATION
Five departments comprise the School of Business Administration: Accounting, Business Law and Finance, Management, Marketing, and Business Education. 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 Arts degree for teaching service with a concentration in business education, the Master of Science degree in business administration with concentrations in eight 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 BUSINESS LAW AND 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 BUSINESS EDUCATION
Major in Business Education with specialization in secondary teaching
Minor in Business Education

DEPARTMENT OF MANAGEMENT
Major in Management with the B.S. degree
Minor in 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.
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 ideology, U.S. Constitution, and California state and local government.
9. 45 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 in 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

Prerequisites: Business Administration 1A-1B, 30A, 80, Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20. (22 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, 101, 102, 106, 118, 127, 132, 150, and Economics 100A or 100B; six units selected from the following:

Economics: Economics 135, 170
Finance, Management, Marketing, and Business Education: 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.)
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 166 must be included. At least eleven units must be in upper division courses.

DEPARTMENT OF BUSINESS LAW AND FINANCE

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

Prerequisites. Business Administration 1A-1B, 30A-30B, 80, 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 120, 121, 124, 125, 127, 132 and 150; and 15 units selected from Business Administration 106, 107, 116, 128, 131, 140, 170, 171, 173, 174; Economics 111, 131, 135, 138, 142, 170, 171, and 185. 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/or 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.

Prerequisites. Business Administration 1A-1B, 30A-30B, 80, 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 127, 132, 140, 158, 170, 171, 172, 173, 174, Political Science 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.

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, 80, Economics 1A-1B, and Economics 132.

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) 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

Prerequisites: Business Administration 1A-1B, 30A, 80; Economics 1A-1B; Mathematics 7, 12, and 20. (23 units.)

Major: Business Administration 102, 127, 131, 132, 133, 134, 135, 140, 142, 149, 150, Economics 100A, and Mathematics 130A, (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, 123, 133, and Sociology 120. (18 units.)

(c) Production and Operations Management: (1) Business Administration 136 and either 137 or 138; and (2) six units from Business Administration 152, 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 20 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) Life, Physical, and Social Sciences: A minimum of eight units to be selected, with consent of adviser, from one department in the Divisions of Life, Physical, or Social Sciences, excluding the Department of Economics. All upper division courses and the following lower division courses are suitable: Chemistry 1A-1B, 4, or 5 and Physics 4A-4B-4C.

(b) Humanities and Fine Arts: A minimum of eight units to be selected, with consent of adviser, from one department in the Divisions of Humanities and Fine Arts. All upper division courses and the following lower division courses are suitable: Art 5, 50A-50B, 51, 52A, 52B, Music 52, Speech Arts 4, 40A-40B, 61, and 64. All courses in a foreign language are acceptable but at least eight units must be taken in one language.

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 36 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-30B, 80; Economics 1A-1B, Mathematics 20, and either Economics 2 or Mathematics 12. (25 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 137, 132, 136, 137, 156, 157, and 158; nine units selected from Business Administration 152, 153, 154, 159, 161, 162, 163, 164, 165, 166, 167, 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 19 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.

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 BUSINESS EDUCATION

OFFICE MANAGEMENT MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major in office management is offered with two options: (1) the major with a concentration in office administration (38 upper division units); and (2) the major with a concentration in executive secretarial (37 upper division units).

Requirements

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 18-19 additional units of General Electives approved by the adviser, at least 12 units of which must be in courses outside the fields of business administration and economics.

PROFESSIONAL CURRICULUM

(Required of all students in the major)

Prerequisites. Business Administration 1A, 1B, 30A, 30B, 73, 74, 80, Economics 1A, 1B, 2, and Mathematics 7 and 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 186. In addition, students must complete the courses in one of the Areas of Concentration.

AREAS OF CONCENTRATION

(Select one option)

(1) OFFICE ADMINISTRATION

Major (continued). Thirteen upper division units, in addition to courses in the Professional Curriculum, to include the following: Business Administration 100 and 164; and six units selected from Business Administration 120, 128, 145, 151, 182, 189.

(2) EXECUTIVE SECRETARIAL

Prerequisites. Business Administration 72 and 75B. (5 units.)

Major (continued). Twelve upper division units to include Business Administration 183 and nine units selected from Business Administration 120, 128, 145, 164, 182, 189.

GENERAL ELECTIVES

In addition to requirements in general education, in the Professional Curriculum, and in one of the Areas of Concentration, students in the Office Administration option must complete 18 units of lower or upper division General Electives, or 19 units in the Executive Secretarial option, courses to be selected with approval of the adviser. At least 12 of these units must be in courses outside the fields of business administration and economics.

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 for the Office Management Major for the B.S. degree, outlined above. In addition, students must complete, in their postgraduate year, a minimum of six upper division or graduate units acceptable toward the credential.
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 EDUCATIONAL RESEARCH
The Bureau of Educational Research is an organized research activity of the School of Education. Its chief purpose is to facilitate research by faculty and students in the area of education. For further information, refer to the section in this catalog on Research Facilities, under Special Programs and Services.

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

DEGREES

MASTER'S DEGREE
The Master of Arts degree with a major in education with concentrations in ten areas is 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.

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 College will be recommended by the college to the State Department of Education for the credential.

LIST OF CREDENTIALS

<table>
<thead>
<tr>
<th>Credential</th>
<th>School Service Authorized</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) A standard teaching credential with specialization in:</td>
<td></td>
</tr>
<tr>
<td>(a) Elementary teaching</td>
<td>Teach kindergarten and grades one through nine</td>
</tr>
<tr>
<td>(b) Secondary teaching</td>
<td>Teach major and minor in grades seven through twelve</td>
</tr>
<tr>
<td>(c) Junior College teaching</td>
<td>Teach major in junior college</td>
</tr>
</tbody>
</table>

By completing specialized preparation, additional authorization may be earned in: (1) Specialization in Teaching of Exceptional Children, authorizing teaching in the area of mentally retarded or speech and hearing handicapped in kindergarten and grades one through fourteen; and (2) Specialization in Librarianship, authorizing service as librarian and teaching of librarianship in kindergarten and grades one through fourteen.

(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 |

† This program is not offered at San Diego State College.
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 second semester of the sophomore 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 and mathematics competency 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.

TRANSFER STUDENTS

Elementary education students who have completed two or more semesters of work in another college, upon transferring to San Diego State College, should make application for admission to Teacher Education as soon as they enroll in the college. Secondary education students should enroll 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. According to present law, teachers on provisional credentials are required to embark upon a program with an accredited institution leading to a degree and/or a credential before the provisional credential can be renewed. Before the renewal can be certified by San Diego State College, the student must be fully matriculated in the college and must complete admission to Teacher Education. (Refer to the requirements stated above for admission to Teacher Education.) Also, at the time of renewal, successful teaching experience must be verified. For an evaluation of college credit completed to date, make formal application at the Evaluations Office, Administration Building, San Diego State College. 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 College 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 degree.
GENERAL EDUCATION REQUIREMENTS FOR ELEMENTARY, SECONDARY, AND JUNIOR COLLEGE TEACHING

In addition to meeting the general education requirements for graduation, described in the section of this catalog on Graduation Requirements, credential candidates must meet the pattern of area requirements outlined below. Because these general education requirements for a credential are similar in many respects to those for graduation from San Diego State, students will, by careful selection of courses, be able to meet most of both sets of requirements concurrently.

PATTERN REQUIREMENTS

Forty-five semester units of course work must be completed in the following areas. (Not more than six semester units of course work taken to satisfy this requirement shall apply toward the fulfillment of the requirements for either major or a minor.)

1. Humanities, excluding foreign languages for the purposes of this requirement but including a year of English. (In addition, the applicant shall demonstrate competency in composition either by passing a course in composition or by passing an examination given by the institution in lieu thereof.)

2. Social Sciences. (The course work taken to satisfy the requirement of knowledge of the Constitution of the United States may be counted toward this requirement.)

3. Natural Sciences.

4. Mathematics, requiring as a prerequisite an understanding and knowledge of high school algebra and geometry.

5. Fine Arts.

6. A foreign language. (The successful completion in an approved institution of a course in a foreign language shall be accepted in lieu of work in a foreign language but shall not count toward the 45 semester units specified.) For any credential, these units must have been completed successfully in a high school two full school years in a single foreign language.

Specialization in Elementary Teaching

Candidates for the Standard Teaching Credential with specialization in elementary teaching must complete course work in five of the six areas. In addition, they must have completed three semester units of course work in the theory of the structure, arithmetic, and algebra of the real number system or three semester hours of course work in calculus, if this content has not been included in (5) above.

Specialization in Secondary and Junior College Teaching

Candidates for the Standard Teaching Credential with specialization in secondary or junior college teaching must complete course work in four of the six areas listed above.

STANDARD TEACHING CREDENTIAL—ELEMENTARY

GENERAL REQUIREMENTS

To be recommended by San Diego State College 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 minor and of the required undergraduate work in professional education, this fifth year may be postponed, and completed during the first five years of teaching. Further details on this option are available in the office of the Coordinator of Elementary Education.)

III. Forty-five semester hours in general education as outlined in the preceding section on 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, 122, 101 or 202 (50-51 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 Education 150, Mathematics 10A or 18, Music 2, Physical Education 53, and Speech Arts 3.

MAJORS AND MINORS FOR ELEMENTARY TEACHING

Candidates for the Standard Teaching Credential with specialization in elementary teaching must complete a major in addition to the required courses in professional education. Advisers for these majors will be in the School of Education unless stated otherwise in the major description.

MAJOR

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.

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. 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:

Departmental Majors
Art
Chemistry
English
French
German
Music
Physics
Fine Arts
Fine Arts and Humanities
Fine Arts and Social Sciences
Physical Sciences
Psychology
Social Sciences

Interdepartmental Majors
Fine Arts
DESCRIPTION OF INTERDEPARTMENTAL MAJORS
FOR ELEMENTARY TEACHING

FINE ARTS MAJOR

FOR ELEMENTARY TEACHING

Prerequisites. Art A and 2A; Music 2, 10A, 10B, 10C; and Speech Arts 3.

Teaching Major. Twenty-five upper division units to include the following:
Arts 10, 118A, 119A, or 119A, 108 or 156; Music 144, 145, 146; either one course
selected from Arts 106A, 111A, 117A, 119A, 120A, or two units from Music 117
through 118; Speech Arts 110, 170; and three units selected from Speech Arts 108,
130, 151-S, 159, 191.

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

Prerequisites. Courses must be selected from the same two areas as those to be
used for the upper division concentrations: Art A, 2A; or Music 2, 10A, 10B, 10C;
or Speech Arts 3, 63; plus six units in either English or Philosophy.

Teaching Major. At least nine units as specified in one of the following areas:
Arts 118A, 119A, 156 or 108; Music 144, 145, 146A, and

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

Prerequisites. Courses must be selected from the same two areas as those to be
used for the upper division concentrations: Art A, 2A; Music 2, 10A, 10B, 10C;
or Speech Arts 3, 63; plus six units in one of the following: Anthropology,
Economics, Geography, History, Political Science, Psychology, or Sociology.

Teaching Major. At least nine units as specified in one of the following areas:
Art 10, 118A or 119A, 108 or 156; Music 144, 145, 146, 146A, and

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.

MINOR

Students who are not completing an academic major must complete an
additional requirement of one or two minors. The acceptable minors for elementary

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 below.
School of Education

LIST OF MINORS

Minors will be selected from the following list:

- Biology
- Chemistry
- English
- French
- Geography
- German
- Health Sciences
- Industrial Arts

- Italian
- Mathematics
- Music
- Physical Education
- Physics
- Psychology
- Russian
- Spanish
- Specialization in Speech and Drama
- Librarianship
- Teaching of Exceptional Children

SPECIALIZED PREPARATION

AS A SUBSTITUTE FOR A MINOR

Specialized preparation in one of the areas listed below may be substituted for minor for elementary, secondary, or junior college teaching. These programs are described later in this section of the catalog, under the title: Specialized Preparation. The following programs are offered:

(a) Librarian. Specialized preparation to serve as a school librarian and to teach librarianship may be substituted for a minor, but only if the major is in an academic subject matter area.

(b) Teacher of Exceptional Children in one of the following areas: (1) Mentally Retarded or (2) Speech and Hearing Handicapped. Specialization in one of these areas may be substituted for a minor, but only if the major is in an academic subject matter area.

STANDARD TEACHING CREDENTIAL—SECONDARY

GENERAL REQUIREMENTS

To be recommended by San Diego State College 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-five semester units in general education as outlined in the preceding section on 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 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, and 212 (24 units). Also required is Health Education 151 (2 units).

MAJORS AND MINORS 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.

MAJOR

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 on Courses and Curricula, under the heading of the department offering the major. Interdepartmental majors, not limited to a single department, are described below. Also listed below is a description of the major in Biological Sciences, defined in the California Administrative Code, Title V, Education, as a single subject. 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:

- Art
- Biological Sciences
- Business Education
- Chemistry
- Economics
- English
- French
- Geography
- German
- Health Sciences
- History
- Home Economics
- Industrial Arts
- Mathematics
- Music
- Physical Education (Men)
- Physical Education (Women)
- Physics
- Psychology
- Russian
- Speech and Drama
- Social Sciences

INTERDEPARTMENTAL MAJORS FOR SECONDARY TEACHING

PHYSICAL SCIENCES MAJOR

FOR SECONDARY TEACHING

The teaching major in the physical sciences for secondary teaching requires an undergraduate major in physical science, or equivalent.

The physical science teaching major requires a minimum of 24 upper division units, 15 units of which must be in chemistry or physics. This requirement can be met in the undergraduate program as part of the physical science major, or may be completed in the postgraduate year. All courses for the teaching major must be approved by the adviser in the physical sciences for teaching programs.

Postgraduate Year. In the postgraduate year the credential candidate must complete a minimum of six upper division or graduate units in the major or minor. Courses in the major must be approved by the adviser in the physical sciences for teaching programs.

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

Prerequisites. 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 follows: Anthropology 1A-1B, 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 graduate 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.

BIOLoGICAL SCIENCES MAJOR FOR 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.)

MINOR

Minors for secondary teaching available at this college are listed 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 below.

LIST OF MINORS

Minors will be selected from the following list:

Art
Biology
Business Education
Chemistry
Economics
English
French
Geography
German
Health Sciences

History
Home Economics
Industrial Arts
Italian
Mathematics
Music
Physical Education (Men)
Physical Education (Women)

Physics
Political Science
Psychology
Russian
Spanish
Speech and Drama
Specialization in
(a) Librarianship
(b) Teaching of Exceptional Children

SPECIALIZED PREPARATION

AS A SUBSTITUTE FOR A MINOR

Specialized preparation in one of the areas listed below may be substituted for a minor in elementary, secondary, or junior college teaching. These programs are described later in this section of the catalog, under the title: Specialized Preparation. The following programs are offered:

(a) Librarianship. Specialized preparation to serve as a school librarian and to teach librarianship may be substituted for a minor, but only if the major is in an academic subject matter area.

(b) Teacher of Exceptional Children in one of the following areas: (1) Mentally Retarded or (2) Speech and Hearing Handicapped. Specialization in one of these areas may be substituted for a minor, but only if the major is in an academic subject matter area.

STANDARD TEACHING CREDENTIAL—JUNIOR COLLEGE

GENERAL REQUIREMENTS

To be recommended by San Diego State College 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-five semester hours in general education as outlined in the preceding section in General Education.

III. One of the majors 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.)

IV. 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, 251, 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.

Requirements consist of the following: Education 167, 168 or 169, 171, 172, 173, 182, Psychology 109, Speech Arts 170, 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 Arts 70. (3 units.)
- Upper Division: Speech Arts 100, 170, 171A, 171B, 172, 173, 174, 176, 177, 178, 179A, 179B (34 units); Speech Arts 180A, 180B (6 units); and Education 167 and 184. (7 units.)

STANDARD DESIGNATED SERVICES CREDENTIAL

PUPIL PERSONNEL SERVICES

To be recommended by San Diego State College 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:

1. A master's degree in an academic subject 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.

2. 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.

3. 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 311 or equivalent.

Notes: 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 Guidance Studies for further information.

SPECIALIZATION IN HEALTH

To be recommended by San Diego State College 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:

1. Possession of a valid certificate of public health nursing issued by the California State Board of Public Health. (Waived for applications filed prior to September 1, 1967.)

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

3. The following professional courses: Education 111 or 113, 167, 115 or 230; Health Education 152, 153; Nursing 36, X-150. (20 units.)

4. 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.

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

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

1. 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.

2. II. The possession of a valid basic credential.

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

4. IV. Admission to the program for school supervision and administration. (For details, see the Coordinator of Administrative Studies.)

5. V. The following professional courses:
   (a) For the elementary school concentration, Standard Supervision Credential: Education 260, 261, 262, 263, 264A-B-C, and 266A-B-C.
   (b) For the secondary school concentration, Standard Supervision Credential: Education 260, 261, 262, 263, 265A-B-C, and 267A-B-C.

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 College 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.
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 meet 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 College 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 30 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 College (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

Courses in general education must be distributed as follows:

(a) Social sciences

Shall include required instruction in American history, institutions and ideals, U.S. Constitution, and California state and local governments; and courses selected from the fields of anthropology, economics, geography, history, political science, sociology, and similar fields. Courses must be selected from two or more of these fields.

(b) Natural sciences

Shall include the fields of astronomy, biology, botany, chemistry, geology, physics, physiology, zoology, and similar fields. At least one course must be selected from a physical science and one from a life science.

(c) Literature, philosophy or the arts

Courses in fine and practical arts shall not exceed 3 of these 6 units.

(d) Health and physical education

2 units

(e) Oral and written expression

3 units

(f) Psychology

2 units

(g) Additional units in general education

May be selected in whole or in part from the foregoing six general areas or may include courses in family life education or mathematics or not more than 6 units in foreign language. At least one course in general education must include instruction in fire prevention.

(2) Teaching background, minimum

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:

(a) Art. Includes subject matter, laboratory or activity in the graphic or industrial arts.

(b) English and speech. Includes oral and written expression, American or world literature, children's literature, dramatics, or use of books and libraries.

(c) Physical education, health, and hygiene. Includes personal hygiene, first aid, health education, games, rhythms, or physical activities.

(d) Mathematics.

(e) Music.

(f) Social science, including geography.

(g) Natural science.

(3) Major in elementary education

24 units

Shall include courses from each of the following areas:

(a) General elementary school methods or methods of teaching basic elementary school subjects.

(b) Principles of elementary education or elementary school curriculum.

(c) Child psychology or child growth and development.

(d) Other appropriate professional courses in education including instruction in the use and educational value of audio and visual aids.

(4) Credit for teaching experience

8 units

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.

(5) Additional units required

32 units

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.

Total 124 units

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 40303, 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 administrative 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 College 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 31 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.

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. 45 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 55 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 45 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.

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 Annoucement of Courses.

LOWER DIVISION REQUIREMENTS

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Units</th>
<th>Spring semester</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. 1A, General</td>
<td>5</td>
<td>Chem. 1E, Chem. for Engrs.</td>
<td>3</td>
</tr>
<tr>
<td>Math. 30, Anal. Geom, and Calc.</td>
<td>5</td>
<td>Math. 31, Diff. and Integ. Calc.</td>
<td>4</td>
</tr>
<tr>
<td>Engr. 20, Engr. Graphics</td>
<td>2</td>
<td>Phys. 4A, Principles</td>
<td>4</td>
</tr>
<tr>
<td>Engr. 1A, Comp.</td>
<td>3</td>
<td>Engr. 25, Engr. Materials</td>
<td>3</td>
</tr>
<tr>
<td>P.E. Activity</td>
<td>½</td>
<td>Sp. Arts 3 or Health Ed. 21</td>
<td>2</td>
</tr>
<tr>
<td>16½</td>
<td>½</td>
<td></td>
<td></td>
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Sophomore Year

<table>
<thead>
<tr>
<th>Units</th>
<th>16½</th>
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</thead>
<tbody>
<tr>
<td>Math. 32, Diff. and Integ. Calc.</td>
<td>4</td>
</tr>
<tr>
<td>Phys. 4B, Principles</td>
<td>4</td>
</tr>
<tr>
<td>Engr. 30, Engr. Meas. Anal.</td>
<td>2</td>
</tr>
<tr>
<td>American Institutions</td>
<td>3</td>
</tr>
<tr>
<td>P.E. Activity</td>
<td>½</td>
</tr>
</tbody>
</table>

16½

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.

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, ethical, 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

<table>
<thead>
<tr>
<th>Junior Year</th>
<th>Units</th>
<th>Spring semester</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engr. 109B, Electr. Mach.</td>
<td>3</td>
<td>Engr. 115, Fluid Mech.</td>
<td>4</td>
</tr>
<tr>
<td>115, Prin. of Econ.</td>
<td>3</td>
<td>1Biol. 1, Ideas of Biol.</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>16</td>
<td></td>
<td></td>
</tr>
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</table>

Senior Year

<table>
<thead>
<tr>
<th>Units</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engr. 116, Rate Processes</td>
<td>3</td>
</tr>
<tr>
<td>Engr. 150, Aerodynamics</td>
<td>3</td>
</tr>
<tr>
<td>Engr. 154, Exper. Aerodyn.</td>
<td>3</td>
</tr>
<tr>
<td>Electives within major</td>
<td>3</td>
</tr>
<tr>
<td>1Lit. or Philosophy</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Approved as part of student's master plan by the Professor-in-Charge.
2 Recommended general education course.
### CIVIL ENGINEERING

**Junior Year**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engr. 106, Thermodynamics</td>
<td>Engr. 100B, Electr. Mach.</td>
<td>4</td>
</tr>
<tr>
<td>Engr. 116, Resist. of Materials</td>
<td>Engr. 115, Fluid Mech.</td>
<td>3</td>
</tr>
<tr>
<td>Math 118A</td>
<td>Engr. 120A, Struc. Anal. I</td>
<td>4</td>
</tr>
<tr>
<td>Biol. 1, Ideas of Biol.</td>
<td>Psych. 1, General</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 1A, Prin. of Econ.</td>
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<td><strong>Total Units:</strong></td>
<td><strong>Total Units:</strong></td>
<td><strong>Total Units:</strong></td>
</tr>
<tr>
<td>17</td>
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</tbody>
</table>

**Senior Year**

| Engr. 122, Soil Mech. | Engr. 121, Reinf. Concrete | 3 |
| Engr. 127, Highway Engr. | Engr. 118, Rate Processes | 3 |
| Electives within major | Electives within major | 3 |
| Lit. or Philosophy | Lit. or Philosophy | 3 |
| Geol. 33, Gen. Geol. for Engrs. | | 1 |
| **Total Units:** | **Total Units:** | **Total Units:** |
| 16 | 17 | 17 |

### ELECTRICAL AND ELECTRONIC ENGINEERING

**Junior Year**

| Engr. 108, Thermodynamics | Engr. 101, Elem. of Appl. Elect. | 2 |
| Math. 118A | Engr. 115, Fluid Mech. | 4 |
| Adv. Math. for Engrs. | Engr. 110, Network Analysis | 4 |
| Econ. 1A, Prin. of Econ. | Electives within major | 1 |
| Biol. 1, Ideas of Biol. | Psych. 1, General | 3 |
| **Total Units:** | **Total Units:** | **Total Units:** |
| 16 | 17 | 17 |

**Senior Year**

**Control Systems**

| Engr. 116, Resist. of Materials | Engr. 118, Rate Processes | 3 |
| Engr. 131, Electromech. Dev. | Engr. 138A, Control Systems | 3 |
| Engr. 112, Transients | Engr. 138B, Control Systems Lab. | 3 |
| Engr. 134A, Electron. Cir. Anal. | Electives within major | 1 |
| Engr. 135A, Electronic Lab. | Lit. or Philosophy | 3 |
| **Total Units:** | **Total Units:** | **Total Units:** |
| 17 | 17 | 17 |

**Communications**

| Math. 118B | Engr. 118, Rate Process | 3 |
| Engr. 116, Resist. of Materials | Electives within major | 1 |
| Lit. or Philosophy | Lit. or Philosophy | 3 |
| **Total Units:** | **Total Units:** | **Total Units:** |
| 17 | 17 | 17 |

† Approved as part of student’s master plan by the Professor in Charge.
‡ Recommended general education course.

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### MECHANICAL ENGINEERING

**(Design)**

**Junior Year**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engr. 106, Mfg. Processes</td>
<td>Engr. 110, Thermodynamics</td>
<td>2</td>
</tr>
<tr>
<td>Engr. 108, Thermodynamics</td>
<td>Engr. 116, Resist. of Materials</td>
<td>4</td>
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<tr>
<td>Math. 118A</td>
<td>Engr. 145, Mech. of Mach.</td>
<td>3</td>
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<tr>
<td>Adv. Math. for Engrs.</td>
<td>Econ. 1A, Prin. of Econ.</td>
<td>3</td>
</tr>
<tr>
<td>Engr. 109A, Metallic Materials</td>
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<td>3</td>
</tr>
<tr>
<td>Engr. 115, Fluid Mech.</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Engr. 146A, Mach. Design</td>
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<td>3</td>
</tr>
<tr>
<td></td>
<td>Lit. or Philosophy</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Units:</strong></td>
<td><strong>Total Units:</strong></td>
<td><strong>Total Units:</strong></td>
</tr>
<tr>
<td>17</td>
<td>17</td>
<td>17</td>
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</tbody>
</table>

**Senior Year**

| Engr. 148, Engr. Thermo. | Engr. 100B, Electr. Mach. | 4 |
| Engr. 190C, Engr. Appl. | Engr. 118, Rate Processes | 2 |
| Electives within major | Electives within major | 3 |
| Biol. 1 Ideas of Biol. | Psych. 1, General | 3 |
| Lit. or Philosophy | Lit. or Philosophy | 3 |
| **Total Units:** | **Total Units:** | **Total Units:** |
| 17 | 17 | 17 |

**MECHANICAL ENGINEERING**

**(Energy Conversion Systems)**

**Junior Year**

| Engr. 108, Thermodynamics | Engr. 100B, Electr. Mach. | 4 |
| Math. 118A | Engr. 110, Resist. of Materials | 4 |
| Econ. 1A, Prin. of Econ. | Psych. 1, General | 3 |
| | Lit. or Philosophy | 3 |
| **Total Units:** | **Total Units:** | **Total Units:** |
| 17 | 17 | 16 |

**Senior Year**

| Engr. 118, Rate Processes | Engr. 140, Heat Transfer | 3 |
| Engr. 143, Gas Dynamics | Engr. 190F, Engr. Appl. | 2 |
| Electives within major | Electives within major | 9 |
| | Lit. or Philosophy | 3 |
| **Total Units:** | **Total Units:** | **Total Units:** |
| 17 | 17 | 17 |

† Approved as part of student’s master plan by the Professor in Charge.
‡ Recommended general education course.
SCHOOL OF
SOCIAL WORK

The School of Social Work offers a two-year program of professional education at the graduate level leading to the Master of Social Work degree.

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 Master of Social Work degree 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.

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

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 whatever changes in the following typical requirements that may seem desirable in satisfying the requirements of the specific dental college.

The curriculum for dental hygiene is essentially the same as for predentistry.

Students ordinarily elect to concentrate in chemistry and zoology with a major in one and a minor in the other.

High school students planning to enter dentistry should include in the high school program 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 pre dental 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 Division of Life Sciences. This form must be submitted to the Life Sciences 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 Education 21, Speech Arts 1, English 1A, English 2 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 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 for students who fail to receive acceptance from a dental college after completing the above-described 60 units. Chemistry 112, Zoology 100, Art 119A, Psychology 11, 106 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 interest of the student. These are the major-minor pattern and the general major pattern. Subject to individual variation, the fields of economics, history, and political science should receive first consideration when choosing the pattern of concentration as being the most effective background for later professional study in law and for possible activities in the field of business.

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 special needs.

Recommended. Economics 131, 133, 150, 170; History 151A-151B, 175A-175B; Political Science 111A-111B, 135A-135B.

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 towards 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.

Courses to be included in the program during the first two undergraduate years: Biology 1 and 2, Chemistry 1A-1B, and 4 or 5; six semester units of English, to include English 1A; two years of a modern foreign language (German or French); Physics 2A, 2B, 3A, 3B; Zoology 50 or 60.

Courses to be included in the undergraduate program during the third and fourth years: Chemistry 12 and 112, Zoology 100 and 106.

The following courses are strongly recommended for inclusion in the undergraduate program: Biology 15, 101, Biology 155 or Zoology 154; Mathematics 21 and 22 or equivalent.

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 many professional programs 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.
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 Summer 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. Distinguished 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 SDSU 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 aircraft and aircrew familiarization. Cadets receive physical training and participate in competitive sports. They are trained in the use of weapons, drill and ceremonies, and observe selected Air Force units perform everyday operations of the Air Force.

FLIGHT INSTRUCTION

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 $40 per month is given for twenty months of the AFROTC program. Cadets receive approximately $135 during the Summer 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, 12 units of which must be in upper division courses. Previous military experience may qualify veterans for entry into upper division work.

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 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.

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) I, II. 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

IN THE DIVISION OF AEROSPACE STUDIES

Faculty
Professor: Waid (Chairman)
Assistant Professors: O'Brian, Rothman, Smith, G. S.

Offered by the Division of Aerospace Studies

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

Minor in Aerospace Studies.

Summer Camp.

Flight instruction.

AEROSPACE STUDIES MINOR

The minor in aerospace studies consists of 15 to 22 units, 12 units of which must be in upper division courses. Previous military experience may qualify veterans for entry into upper division work.

UPPER DIVISION COURSES

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

Three lectures and one hour of leadership laboratory.

First semester: The nature of war; development of air power; and Air Force doctrine.

Second semester: 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 111A and 131B.

First semester: A study of the professional officer; the Military Justice System; leadership theory and practice.

Second semester: 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 Division. Flight instruction is given by a contracted civilian flying school. Students may qualify for the FAA private pilot certificate.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of Aerospace Studies Division chairman.

EXTENSION COURSE

X-133. Summer 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 Division Chairman.
ANTHROPOLOGY
IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty
Professors: Ezell, Rogers, S. (Chairman)
Associate Professors: Anderson, A.; Goldkind
Assistant Professors: Buck, Lewis, H.; Mann, Provencher, Rohrli, Whitney

Offered by the Department of Anthropology
Master of Arts degree with a major 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 78 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 in anthropology to include Anthropology 102, 103, 152, 154, 167, and 197. (100A–100B may not be counted in the minimal upper division course requirements.) Courses should be selected in consultation with an adviser.
In addition to the major, supporting courses in a field of emphasis should be chosen from the following groups:
Archaeology: Art, geography, geology, history.
Physical anthropology: Psychology, statistics, zoology
Museology: Art, education, psychology.
Ethnology and social anthropology: History, languages, psychology, political science, social science.

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. Human Origins (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. Culture Origins (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 100B.

1C. Primitive Societies (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.

UPPER DIVISION COURSES
100A-100B. Principles of Anthropology (3-3)
Human evolution as a biocultural process; man's relation to other forms of life and to his habitat; the growth of cultures; the interplay between biology, culture, and society. Not open to students with credit in Anthropology 1A and 1B. Anthropology 100A-100B may not be used to fulfill minimal upper division requirements in the anthropology major or minor or the special major.

102. Physical Anthropology (3) I
Prerequisite: Anthropology 1A or 100A.

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.
An introduction to 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
A survey of 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.

149. Kinship and Social Organization (3) I
Prerequisite: Anthropology 1C or 100B.
Comparative study of kinship systems and the structure of social relationships throughout the world. An examination of the methodological orientations and theories relating to social organization with primary emphasis on non-Western societies.

150. Ethnological Field Methods (3) I
Prerequisite: Anthropology 122.
A survey of 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.

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.

154. *Social Anthropology* (3) II
Prerequisite: Anthropology 122.
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.
Analysis of the social organization and culture of present-day small agricultural communities with special 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 interpretation 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.

160. *Primitive Technology* (3) I
Prerequisite: None. Units of anthropological specialization.
Techniques of tool manufacture, subsistence, shelter, clothing and arts and crafts of non-industrial peoples.

161. *The California Indian* (3) I
A survey of native California Indian culture with stress on the Indian groups of Southern California. The Indians, 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.
Survey of 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, includes such topics as ethnic and regional differences within national societies, population change, social consequences of economic changes, changing stratification systems, values, institutional change.

164. *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.

165. *Honors Course I, II (Credit to be arranged)*
Refer to the Honors Program.

166. *History of Anthropological Theory* (3) II
Prerequisite: Anthropology 1A or 1B or 1C or 100A or 100B.
A review of the development of theories which lie behind the modern science of ethnology and archaeology. Applications of the theory of culture to field methods and interpretation of findings.

167. *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.

168. *Backgrounds of Mexican Civilization* (3) Summer
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.

169. *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.

170. *Ethnohistory of North America* (3) II
Prerequisite: Anthropology 1C or 100B.
Description and analysis of native cultures and the role of environmental and historical factors in North America.

171. *Indian Cultures of the Southwest* (3) I
Prerequisite: Anthropology 1B or 1C.
Indian cultures of the past and present in the Southwestern states. Arts, crafts, architecture and religion as revealed through archaeology and ethnology.

172. *Archaeological Field Methods* (3) II
Prerequisite: Anthropology 103.
Application, through excavation, laboratory analysis, and preparation of reports, of the methods and techniques of archaeology.

173. *Prehistoric Archaeology of Europe* (3) II
Prerequisites: Anthropology 1A and 1B, or 100A and 100B.
A review of 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.

174. *Cultures of Southeast Asia* (3) II
Prerequisite: Anthropology 1C or 100B.
Prehistoric 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.

175. *Earlly Near and Middle Eastern Civilizations* (3) I
Prerequisite: Anthropology 1B and 174.
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)
Prerequisite: Anthropology 1C or 100B.
The ancient and present peoples of mainland China, Japan, Korea, and Mongolia, and their cultures.

178. Cultures of Oceania (3)
Prerequisite: Anthropology 1C or 100B.
The aboriginal cultures and peoples of Melanesia, Australia, Micronesia, and Polynesia in prehistoric, historic, and modern times.

179. Applied Anthropology (3)
Prerequisite: 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. Precambrian Cultures of Mesoamerica (3)
Prerequisite: Anthropology 1B or 100B.
The development of civilization in Pre-Columbian Mexico and Central America before the Toltecs, Classic Maya, and related cultures. Formerly entitled Precambrian Civilizations of Middle America.

181. Classic Pre-Columbian Civilizations of Middle America (3)
Prerequisite: Anthropology 1B or 100A.
Aboriginal Mexican and Central American civilizations through the Age of Exploration and Conquest. Aztecs, Mixtecs, Zapotecs, Maya, and related cultures.

182. Post-Conquest Cultures of Middle America (3)
Prerequisite: Anthropology 1C or 100B.
Aboriginal and mixed cultures of Mexico and Central America in colonial and recent epochs. Aftermath of conquest and exploitation.

197. Investigation and Report (3)
Prerequisite: Consent of instructor.
Analysis of special topics in anthropology and preparation of reports on the results of the study.

199. Special Study (1-6)
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.

222. Historical Linguistics (3)
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: 12 units of upper division credit in anthropology.
A functional and structural approach to the social organization of a wide range of cultures. An examination of theories and generalizations regarding the stability and integration of a wide variety of human societies.

255. Culture and Society in the Nahua Area (3)
Prerequisites: Anthropology 1B or 1C and 12 units of upper division credit in anthropology.
A course designed to permit concentrated studies of the area and those related to it, based on archaeology, aboriginal records, colonial accounts, and modern studies; and to permit various approaches to such studies.

256. Cultures and Societies in Southern Mesoamerica and Central America (3)
Prerequisites: Anthropology 1B or 1C and 12 units of upper division credit in anthropology.
Courses in studies of ancient civilization in areas of higher development, based on archaeology, aboriginal records, colonial accounts, and recent studies; and to permit various approaches to such studies.

267. Contemporary Theory in Cultural Anthropology (3)
Prerequisite: 12 units of upper division credit in anthropology.
Contemporary theoretical developments in cultural anthropology: examination of proposed conceptual frameworks, methodologies, hypotheses, and theories. An analysis of recent literature, with evaluation oriented toward significance for research.

298. Special Study (1-6)
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. Six units maximum credit.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ART

IN THE DIVISION OF THE FINE ARTS

Faculty
Emeritus Faculty: Andrews, Jackson, Ruizco
Professors: Bigelow, Dirks, Longenecker, Sorenson, Swiggett (Chairman)
Associate Professors: Fisch, Lingren, Tanzer, Wallace, R.
Assistant Professors: Baker, K., Baxter, R., Berg, Bowne, Cowington, Higgins, Hopkins, Hunter, L., Miller, A., Rogers, J.
Instructor: Orth
Lecturers: Groover, Peterson, T.

Offered by the Department
Master of Arts degree with a major 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 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 78 of this catalog. A minor is not required with this major in art.
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 74 of this catalog.

The major in art may be planned with an emphasis on crafts, on graphic arts, on graphic communication, on environmental design, or on art education. The program with emphasis on crafts leads in the direction of industrial design, cabinet making, sculpture, weaving, textile design, ceramics, jewelry design, and the like. The program with emphasis on graphic arts leads in the direction of such fields as illustration, portraiture, landscape painting, mural design, and fashion design. The program with emphasis on graphic communication leads in the direction of the professional goal of art direction, advertising design, fashion illustrating, or production illustration. The program with emphasis on environmental design leads in the direction of interior decoration. The program in art education prepares for teaching in elementary or secondary schools.

A minor is not required with this major.

EMPHASIS ON CRAFTS


Major. A minimum of 24 upper division units to include Art 106A, 111A, 113A; six units selected from Art 117A, 117B, 119A, 119B; and 12 units of upper division art electives.

EMPHASIS ON GRAPHIC ARTS

Preparation for the major. Art A, B, 2A, 2B, 14A, 15A, 16A, 50A, 50B, and four units of art electives. (24 units.)


EMPHASIS ON GRAPHIC COMMUNICATION


EMPHASIS ON ENVIRONMENTAL DESIGN

Preparation for the major. Art A, B, 2A, 2B, 8, 13, 50A, 50B, 61, 95A, and 95B. (25 units.) Recommended: Art 14A.


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 A, B, 2A, 2B, 14A, 15A, 17A or 18A, 50A, 50B, and 61. (23 units.)

Major. A minimum of 24 upper division units to include 117A or 118A, 119A, 120A, 156, 161, and twelve units of art electives eight of which should be in one area of concentration, as approved by the adviser in art for teaching programs.

SECONDARY TEACHING


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, selected after faculty evaluation of undergraduate work.

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 A, B, 2A, 2B, 15A, 16A, 50A, and 50B; in the upper division, Art 156 (or one of the following: Art 153, 154, 155); and six units from Art 106A, 115A, 116A, 117A, 119A, 120A, 156. (27 units.)

ART APPRECIATION, HISTORY AND ORIENTATION

Many students, regardless of the field in which they may be majoring, recognize the need for an intelligent approach to the subject of art and art appreciation. However, due to the popular feeling that art is a subject requiring "talent," these students may refrain from enrolling in art courses. For students who desire a better understanding of art, but who do not intend to major in art, the following courses are recommended:

Units

Art 5, Art Orientation .................................................................................................................. 2
Art 50A-50B, History and Appreciation of Art ........................................................................... 4
Art 51, Survey of Art of the Middle Ages .................................................................................. 2
Art 52A-52B, Survey of Oriental Art ....................................................................................... 2
Art 8, The House and Its Environment ..................................................................................... 2
Other courses which require certain skills but which are not beyond the ability of the average college student are:

Art 61, Design in Crafts .......................................................................................................... 3
Art 2A, Design and Aesthetics ............................................................................................... 3
Art 94, Costume design ......................................................................................................... 2
Art 108, The House and Its Environment ............................................................................. 2
A. Drawing and Composition (2) I, II
Six hours. No prerequisite.
Problems involving perspective to develop ability to draw still life, furniture, exteriors, interiors, and the like.

B. Drawing and Composition (2) I, II
Six hours. Prerequisite: Art A.
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 (2) I
Two lectures. No prerequisite.
An illustrated lecture course dealing with aesthetic meaning and its relation to the structure of art products. Designed to increase both understanding and appreciation of the visual world in general and of the fine arts in particular.

7. Line, Color and Display (2) I, II
Six hours. No prerequisite.
The principles of line, color and arrangement applied to store and window display. Study and observation of windows, color and materials used in display. Building models and practical problems in arranging colors, textures, and forms in windows to fit different kinds of merchandise. (Students who may later wish to apply for upper division credit for this course as applied to a major will be required to do additional work.)

8. The House and Its Environment (2) I, II
Architecture, interior design, landscape and city planning for forming man's physical and aesthetic environment.

12. Furniture Design (2) 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 (2) I, II
Six hours.
Prerequisite: Art 2A.
Fundamental art principles applied to lettering, extension of verbal statement through accurate lettering and (original) problems using letter characters as design elements. General introduction to type through hand lettering and typographic design. (Formerly entitled: Lettering.)

14B. Intermediate Graphic Communication (2) I, II
Six hours.
Prerequisite: Art 14A.
The application of lettering to posters, newspaper and magazine advertising, and other forms of commercial art. The study of composition combined with lettering and special study of modern tendencies in publicity. (Formerly entitled: Posters and Commercial Art.)

15A. Life Drawing (2) I, II
Six hours.
Prerequisite: Art B.
Drawing from the nude model.

15B. Life Drawing (2) I, II
Six hours.
Prerequisite: Art 15A.
Continuation of Art 15A.

16A. Oil Painting (2) I, II
Six hours.
Prerequisite: Art B.
Composition of still-life and landscape in color.

16B. Oil Painting (2) I, II
Six hours.
Prerequisite: Art 16A.
Landscape and more advanced composition in color.

17A. Sculpture (2) I, II
Six hours.
Prerequisite: Art 2B. Recommended: Industrial Arts 5.
Creative design in such materials as clay, wood, stone, concrete, etc.

17B. Sculpture (2) I, II
Six hours.
Prerequisite: Art 17A.
Continuation of Art 17A.

18A. Watercolor Painting (2) I, II
Six hours.
Prerequisites: Art A and B.
Composition of still-life and landscape in watercolor.

18B. Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 18A.
Continuation of Art 18A.

19A. Ceramics (2) I, II
Six hours.
Prerequisite: Art 2A.

19B. Ceramics (2) I, II
Six hours.
Prerequisite: Art 19A.
Continuation of Art 19A. Introduction to use of the potters wheel and application of glaze for surface enrichment.

50A. Appreciation and History of Art (2) I, II
Two lectures. No prerequisite.
A survey of 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
Two lectures. No prerequisite.
The period from the Renaissance through the modern school treated in the same manner as in 50A.
Art

51. Survey of the Art of Middle America (2) Irregular
Two lectures. No prerequisite.
A study of Middle American art from earliest time to the present.

52A. Survey of Japanese Art (3) I
A study of the arts of Japan.

52B. Survey of Chinese Art (3) II
A study of the arts of China.

61. Design in Crafts (3) I, II
Six hours.
Prerequisite: Art 2A.
Study of visual and structural form in crafts.

60A. Jewelry (2) I, II
Six hours.
Prerequisite: Art 2A.
Design and fashioning of jewelry and tableware.

60B. Jewelry (2) I, II
Six hours.
Prerequisite: Art 70A.
Continuation of Art 70A.

80A. Weaving (2) I, II
Six hours.
Prerequisite: Art 61.
Study of structure and design of woven fabrics. A variety of exercises in traditional, contemporary, and experimental weaves using a wide range of materials. Introduction to the basic mechanics and techniques of hand weaving.

80B. Weaving (2) I, II
Six hours.
Prerequisite: Art 80A.
Continuation of Art 80A.

94A. Costume Design (2) I, II
Six hours.
Prerequisite: Art 2A.
Original designs of modern costumes suitable to the individual or to distinct types; the drawing of fashion figures; the rendering of fabrics and textures.

94B. Costume Design (2) I, II
Six hours.
Prerequisite: Art 94A.
Continuation of Art 94A.

95A. The Contemporary House (2) I, II
Six hours.
Prerequisites: Art A, 2A, and 8.
Elementary problems in neighborhood planning, house design, interior design and landscaping. (Formerly entitled: Interior Design.)

95B. General Interior Design Theory (2) I, II
Six hours.
Prerequisite: Art 95A.
New conceptions of space in architecture, landscape and interior design. Various approaches to interior design. Relationship of furniture, fabrics, light, color and art concepts. (Formerly entitled: Interior Design.)

UPPER DIVISION COURSES

100A. Advanced Drawing (2) I, II
Six hours.
Prerequisite: Art B.
A course in 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 (2) I, II
Six hours.
Prerequisite: Art 100A.
A course in drawing with color wherein objects are represented in such a manner as to include kinaesthetic responses. Aesthetic organization of materials is stressed.

103-S. Classroom Display for Teachers (3) Summer
A lecture and workshop course for elementary and secondary teachers in principles and techniques of modern display to meet various subject, classroom, and school requirements. Special attention to individual problems and needs.

106A. Printmaking (2) I, II
Six hours.
Prerequisites: Art B and 2A.
Introduction to printmaking media: woodcut, wood-engraving, serigraphy, lithography, and intaglio (copper and zinc engraving, drypoint, etching, aquatint, and mixed media). Special emphasis on technical processes.

106B. Printmaking (2) I, II
Six hours.
Prerequisite: Art 106A.
Concentration upon the creation of fine prints in media selected from those studied in Art 106A.

106C. Printmaking (2) I, II
Six hours.
Prerequisite: Art 106B.
Continuation of Art 106B with advanced creative studies in printmaking.

107. Color and Design in Merchandise (2) I, II
(Same course as Bus. Adm. 159)
Six hours. No prerequisite.
Principles of line, mass, and color applied to the design of manufactured goods, especially consumer goods, and to merchandise display. Shape and color in relation to utility and sale value. Practical problems.

108. The House and Its Environment (2) 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 (2) 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 10 or 61.
115A. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 115A.
Continuation of Art 115A.

115B. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 115B.
Continuation of Art 115B.

115C. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 115C.
Continuation of Art 115C.

116A. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 16A or 16B.
Painting in oil from still life, landscape, or models, stressing composition.

116B. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116A.
Continuation of Art 116A.

116C. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116C.
The influence of art media and picture plane on aesthetic organization in representational painting.

116D. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116D.
Creative design in such materials as clay, wood, stone, concrete, etc.

117A. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 17A.
Continuation of Art 17A.

117B. Advanced Sculpture (2) 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.

117C. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117C.
Continuation of Art 117C.

118A. Advanced Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 18A.
Composition of still life and landscape in watercolor.
118B. Advanced Watercolor Painting (2) I, II
Six hours.
Prerequisites: Art 118A.
Continuation of Art 118A.

119A. Ceramics (2) I, II
Six hours.
Prerequisites: Art 19B.
Basic methods of forming, decorating, glazing and firing pottery forms with emphasis on the use of the potter's wheel.

119B. Ceramics (2) I, II
Six hours.
Prerequisites: Art 119A.
Continuation of Art 119A. Further development of knowledge, skills and philosophy of ceramics through individual creative projects.

119C. Ceramics (2) I, II
Six hours.
Prerequisites: Art 119B.
Continuation of Art 119B with advanced creative projects.

119D. Advanced Ceramics (2) I, II
Six hours.
Prerequisites: Art 119C.
An advanced study of ceramic design through creative projects of clay forms.

120A. Advanced Design (2) I, II
Six hours.
Prerequisites: Art B and 2B.
Advanced work in pure design, two and three dimensional. Re-examination of color theory and design principles.

120B. Advanced Design (2) I, II
Six hours.
Prerequisites: Art 120A.
Continuation of Art 120A.

123. Art Education Colloquium (2) Irregular
Prerequisites: Minimum of 14 units of upper division art completed.
Historic and current art education philosophies, lectures, readings, papers and discussion.

133A. Visual Presentation (2) I, II
Six hours.
Prerequisites: Art A, B, and 2A. Art 18A recommended.
Mechanical and freehand drawing. Methods, materials, and tools of the professional designer stressing art principles in colored renderings of architectural plans, elevations, perspectives, and working drawings. Exploration of many art media including watercolor, designers' color, colored pencils, chalks, and dyes.

133B. Visual Presentation (2) I, II
Six hours.
Prerequisite: Art 133A.
A continuation of Art 133A with an emphasis on freehand visualization and description of design projects. Presentation techniques will include two- and three-dimensional mock-ups and photography.

135A. History and Theory of Interior Design (2) I, II
Prerequisites: Art 50A-50B.
The history and theory of interior design from earliest times to the 18th century.

135B. History and Theory of Interior Design (2) I, II
Prerequisites: Art 50A-50B.
The history of interior design from the 18th century to the present.

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
Three lectures.
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
Three lectures.
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.

156. History of Modern Art (3) I, II
Three lectures.
Prerequisites: Art 50A and 50B.
Development of painting, sculpture and architecture from the French Revolution to the present.

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
Architecture from primitive times to the present.

161A. Design in Crafts (2) I, II
Six hours.
Prerequisite: Art 61.
Advanced creative design in varied craft media stressing visual and structural form.

161B. Design in Crafts (2) I, II
Six hours.
Prerequisite: Art 161A.
Advanced creative design in varied craft media stressing visual and structural form.
161C. Advanced Crafts (2) I, II
Six hours.
Prerequisite: Art 161B.
Advanced study in crafts such as textile design, mosaic, metal forming, enameling, serigraphy and other crafts media.

161D. Advanced Crafts (2) I, II
Six hours.
Prerequisites: Art 161C.
Advanced study in crafts in one specific area of study chosen with consent of instructor.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170A. Jewelry (2) I, II
Six hours.
Prerequisites: Art 70A and 70B.
Advanced problems in design and fashioning of jewelry and tableware.

170B. Jewelry (2) I, II
Six hours.
Prerequisite: Art 170A.
Continuation of Art 170A.

175. Problems in Art for Teachers (1-3) Irregular
Prerequisite: Consent of instructor.
Special problems in design adapted to the needs of teachers in service. May not be used to satisfy any pattern requirement for a credential. May be repeated once for credit.

180A. Advanced Weaving (2) I, II
Six hours.
Prerequisites: Art 80A and 80B.
Advanced problems in fabric design and weave construction including tapestry and rug weaving techniques.

180B. Advanced Weaving (2) I, II
Six hours.
Prerequisite: Art 180A.
Continuation of Art 180A.

190. Principles and Elements of Visual Aesthetic Organization (2)
Three hours.
Prerequisites: Senior standing and Art 5.
An intensive investigation of visual aesthetic materials and the psychological principles involved in aesthetic organization.

191. Gallery Exhibition Design (2) I, II
Six hours.
Prerequisite: Consent of instructor.
Fundamental art elements and principles applied to the theories and techniques of gallery exhibition design.

193A. Drawing and Illustration for Graphic Communication (2) I
Six hours.
Prerequisites: Art B, 2A, 115A.
A course involving 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.

193B. Drawing and Illustration for Graphic Communication (2) I
Six hours.
Prerequisite: Art 193A.
Continuation of Art 193A.

194A. Costume Design (2) I, II
Six hours.
Prerequisite: Art 2A.
Original designs of modern costumes suitable to the individual or to distinct types; the drawing of fashion figures; the rendering of fabrics and textures.

194B. Costume Design (2) I, II
Six hours.
Prerequisite: Art 194A.
Continuation of Art 194A.

195A. Interior Design (2) 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 (2) 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 (2) 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 (2) I, II
Six hours.
Prerequisite: Art 195C.
The complete conception and execution of all stages of a full-scale interior design project.

196A. Visual Communication Media (2) I, II
Six hours.
Prerequisites: Art 94A and 114A.
Special emphasis in developing concepts on a personal level and its application to layout—newspaper, magazines and editorial. (Formerly entitled: Fashion Layout.)

196B. Visual Communication Media (2) I, II
Six hours.
Prerequisite: Art 196A.
Continuation of 196A.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the instructor.

GRADUATE COURSES

206A-206B. Creative Printmaking (1-6)
Advanced creative work in selected printmaking media based upon the analysis of the history and philosophies of printmaking from its inception through contemporary concepts. May be repeated to a maximum of six units towards the master's degree.
Astronomy

216A-216B. Creative Painting (1-6)
Prerequisites: Art 112A, 112B, 116A, and 116B.
Aesthetic organization of selected visual subject matter in the medium of colors in oils. May be repeated to a maximum of six units towards the master's degree.

217A-217B. Creative Sculpture (1-6)
Prerequisites: Art 117A, B, C, and D.
Aesthetic organization of selected subject matter in the media of sculpture. May be repeated to a maximum of six units towards the master's degree.

219A-219B. Creative Crafts (1-6)
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. May be repeated to a maximum of six units towards the 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.

291. Seminar in Creative Art (3)
Seminars in creative art are offered to provide discussion and independent research in specified areas and include 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 the 291 series is applicable to 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

292A-292B. Seminar in Art History (3-3)
Prerequisites: Art 50A and 50B.
An intensive 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)
Prerequisites: A semester course in art appreciation.
An intensive study of the activity of creative expression and aesthetic appreciation in the area of visual experience. The aesthetic analysis of original works of art.

298. Special Study (1-6)
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.
Guidance in the preparation of a project or thesis for the master's degree.

ASTRONOMY

IN THE DIVISION OF THE PHYSICAL SCIENCES

Offered by the Department of Astronomy
Master of Science degree with a major 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 78 of this catalog.

Preparation for the major, Astronomy 9, 10, 50, 51, and Physics 4A-4B-4C.
(20 units.) Recommended: Chemistry 1A-1B.

Major. A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B, 198A-198B; and nine units of physics to include Physics 101, 103, and 105. Recommended: Physics 106, 151, 175; and Astronomy 103, 105, and 150.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics to include Mathematics 50, 51, 52, 119, and three units of upper division mathematics electives. (Mathematics 124, 170, or 175 recommended.)

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 74 of this catalog.

Preparation for the major, Astronomy 9, 10, 50, 51, and Physics 4A-4B-4C.
(20 units.) Recommended: Chemistry 1A-1B.

Major. A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B, 198A-198B; and nine units of physics to include Physics 101, 103, and 105. Recommended: Physics 106, 151, 175; and Astronomy 103, 105, and 150.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics to include Mathematics 50, 51, 52, 119, and three units of upper division mathematics electives. (Mathematics 124, 170, or 175 recommended.)

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 astronomy majors. 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.
Astronomy

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.
A study of compass corrections, time, line of position, use of celestial co-ordinates, etc. A few class hours devoted to the use of tables such as H.O. 214 for the solution of astronomical triangles.

50. Physics of the Solar System (3) I
Prerequisite: Credit or concurrent registration in Mathematics 50 and Physics 4A.
A mathematical treatment of the structure and composition of the Solar System with a study of the physical nature of the sun, planets, satellites, comets, and meteors. Not open to students with credit in Astronomy 1.

51. Physics of the Stellar System (3) II
Prerequisite: Mathematics 30 and Physics 4A.
Application of mathematical and physical principles to stellar astronomy and the universe.

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 1B.
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. Practical Astronomy (3-3)
Two lectures and three hours of laboratory.
Prerequisites: Astronomy 50 and 9 and credit or concurrent registration in Mathematics 51. Astronomy 104A is prerequisite to 104B.
Determination of latitude, longitude, and time. Study of methods of reduction of photographic plates. Study of precession, nutation, proper motion, refraction, and adjustment of equatorial telescope.

105. History of 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, Besse, etc.

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 51. 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. (Formerly Astronomy 110.)

166. Honor's Course (Credit to be arranged) I, II
Refer to the Honors Program.

180. Celestial Mechanics (3) I, II
Prerequisite: Mathematics 52.
A study of 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: Astro course 198A.
Laboratory work, progress reports, oral and written reports.

199. Special Study (1-6) 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.
Biology

280. Orbit Theory and Computation (3)
Prequisite: 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.

297. Research (Credit to be arranged)
Research in one of the fields of astronomy. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

Biology

Major. A minimum of 24 upper division units to include Biology 101, 110, and 155; 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 74 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 12; Mathematics 21 and 22; Physics 2A-2B and 3A-3B. (35 units.)

Major. A minimum of 24 upper division units to include Biology 101, 110, and 155; 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 74 of this catalog.
A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B and 12; Mathematics 21 and 22; Physics 2A-2B and 3A-3B. (35 units.)

Major. A minimum of 36 upper division units to include Biology 101, 110, and 155; 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 or the equivalent, and a minimum of nine upper division units in biological sciences selected with approval of the biology adviser.

Biology Minor

For the Standard Teaching Credential

Specialization in Elementary Teaching
The minor in biology for elementary teaching consists of Chemistry 2A-2B plus at least 20 units in biology to include Biology 1, 2, and 4. Electives in the biological sciences must be chosen in consultation with the departmental adviser for teaching programs. It is recommended that electives be selected from: Zoology 50, 60, 150, 119-S; Botany 101, 103, 119-S; Microbiology 101 or 110; Biology 109, 115, 159, or 165.

Specialization in Secondary Teaching
The minor in biology for secondary teaching consists of Chemistry 1A-1B, and 2, 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, chemistry, and physics. Three years of French, German or Russian are recommended.

OTHER CURRICULA IN THE BIOLOGICAL SCIENCES

Within the majors offered in the biological sciences, curricula may be arranged for students interested in preparing for the fields of entomology, fish and game, plant quarantine, and wildlife. Students planning to specialize within the area of the biological sciences should consult with the departmental adviser in selection and arrangement of courses.

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. (Formerly Zoology 9.)

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. Not open to students with credit for or concurrent enrollment in, another course in statistics.

22. Principles of Human Physiology (3) II
   Prerequisite: Biology 1 or Zoology 8.
   Principles of human physiology with special emphasis on nerve and muscle physiology. Not open to students with credit for Biology 9. (Formerly Zoology 22.)

23. Human Physiology Laboratory (1) I, II
   Three hours of laboratory.
   Prerequisite: Credit or concurrent registration in Biology 22.
   Laboratory work in human physiology. Not open to students with credit for Biology 9. (Formerly Zoology 23.)

25. Introduction to Heredity (3) I, II
   Study of the mechanism of heredity emphasizing the biological interrelationships of humans and representative plants and animals.

UPPER DIVISION COURSES

101. General Physiology (4) I, II
   Two lectures and six hours of laboratory.
   Prerequisites: Biology 1, 2, and 15; Chemistry 1A, 1B, 12; and Physics 2A, 2B, 3A, and 3B.
   The physiological processes at the cellular, tissue and organ levels.

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.

104. Vertebrate Embryology (4) I, II
   Two lectures and six hours of laboratory.
   Prerequisite: Zoology 60 or 106.
   Analysis of development with an emphasis on embryonic differentiation.

105. Developmental Biology (4) I, II
   Two lectures and six hours of laboratory.
   Prerequisites: Zoology 50 and Chemistry 1A-1B.
   Analysis of differentiating systems.

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
   Two lectures and three hours of laboratory.
   Prerequisite: Biology 15.
   Theory and practices of fishery management. Life histories and biology of important game and food fishes.

113. Biological Oceanography (4)
   Two lectures and six hours of laboratory.
   Prerequisites: Biology 15, Zoology 30, Chemistry 1A, 1B, Physics 2A, and 2B.
   A study of benthic and pelagic marine organisms and their environmental parameters.

114. Advanced Ecology (3) I, II
   Two lectures and three hours of laboratory.
   Prerequisite: Biology 110.
   The ecology of individuals, populations, or communities.

115. Conservation of Wildlife (3) I, II
   Prerequisite: Biology 7.
   Plant and animal resources with emphasis on their conservation and intelligent use. (Formerly Biology 158.)
152. Comparative Animal Physiology (4) I
Two lectures and six hours of laboratory.
Prerequisites: Biology 101 and consent of instructor.
The functional and phylogenetic aspects of responses and nutrition throughout
the animal kingdom. (Formerly Zoology 142.)

150. Radiation Biology (3)
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)
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)
One lecture and six hours of laboratory.
Prerequisites: Biology 1, 2, and 15; Chemistry 1A and 1B; Physics 2A, 2B, 3A and
1B. Recommended: Chemistry 4 or 5, and Biology 101.
The principles and application of radioisotopes in biology. Radionuclide measure-
ment, safe handling, tracer and radioautography techniques.

155. Genetics (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Biology 155.
The physical basis of heredity. Study of the chromosomes and chromosome be-
havior in relation to problems in heredity and evolution.

158. Human Genetics (4)
Two lectures and six hours of laboratory.
Prerequisites: Biology 15, and Zoology 60 or 106 or Biology 104.
Principles of genetics as related to human biology with consideration of the
applied fields of medical genetics, genetic counseling, and population studies. Stu-
dents with credit for Biology 159 may enroll but will receive only two additional
units of credit. (Formerly Zoology 164.)

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.
(Formerly Zoology 165.)

160. Experimental Evolution (3) II
Two lectures and three hours of laboratory.
Prerequisite: Biology 15.
The theories of evolution and speciation with emphasis on 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.

165. Biology of Natural Populations (3)
Prerequisite: A college course in biology.
A consideration of the relation of modern concepts of genetics, ecology and
physiology to natural populations with emphasis on the problems of human popu-
lations.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

167A-167B. Biology for Teachers (4-4)
(Not to be offered in 1967-68)
Two lectures and six hours of laboratory.
Prerequisites: Biology 1 and 2, or equivalent.
A 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)
Two lectures and three hours of laboratory.
Prerequisites: Biology 15 and 155, Mathematics 22 or 50.
Discontinuous and continuous variation in natural populations.

170-5. Contemporary Problems in Biology (1) Summer
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.
Prerequisites: Biology 15 and Mathematics 22, or equivalents.
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.

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 153, 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 max-
imum credit for Biology 198 or a combination of this course with Microbiology or
Zoology 198.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units in biological science with grades of A or B and consent
of instructor.
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 Biology (2)
Prerequisite: Biology 101 or 103.
May be repeated with new content to a maximum of four units.

220. Seminar in Growth and Development (2)
Prerequisite: Biology 104 or 105.
May be repeated with new content to a maximum of four units.

221. Analysis of Development (3)
Prerequisites: Biology 104 or 105.
A detailed consideration of modern analytical trends in developmental biology.

230. Speciation (3)
Prerequisites: Biology 110 and 155; or Biology 160.
Concepts and principles of the origin of species.

231. Seminar in Ethology and Comparative Psychology (2)
(Same course as Psychology 231)
Prerequisite: Biology 110 or Psychology 114.
A seminar in the types of species specific behavior patterns and their function in the living systems of animals. May be repeated with new content to a maximum of four units.

240. Seminar in Ecology (3)
Prerequisite: Biology 110 or 112.
May be repeated with new content to a maximum of four units.

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 150.
May be repeated with new content to a maximum of four units.

261. Seminar in Environmental Radiation (2)
Prerequisite: 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.

270. Seminar in Genetics (2)
Prerequisite: Biology 155.
May be repeated with new content to a maximum of four units.

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.

277. Microbial Genetics Laboratory (3)
Nine hours of laboratory.
Prerequisites: Microbiology 1 or 101; Biology 276; Chemistry 113B or 116B.
The design, methods, and execution of research in microbial genetics.

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 (1-6)
Research in one of the fields of biology. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
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.
Guidance in the preparation of a project or thesis for the master's degree.

BOTANY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty
Emeritus Faculty: Harvey
Professor: Gallup (Chairman)
Associate Professor: Preston, Wedberg
Lecturer: Steele

Offered by the Department
Master of Arts degree with a major 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.

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 78 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; Botany 4, Chemistry 1A-1B, and 12; Mathematics 21 or 40; and Physics 2A-2B and 3A-3B. (35-37 units.)

Major: A minimum of 24 upper division units to include Biology 101, 110, and 155; Botany 101 or 102 or 103, 150, and 190A-190B. Botany 114 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 74 of this catalog.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Botany 4; Chemistry 1A-1B, and 12; Mathematics 21 or 40; and Physics 2A-2B and 3A-3B. (35-37 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 101 or 102 or 103, 114, 130, and 190A-190B; Microbiology 101. Botany 140 is 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.

LOWER DIVISION COURSES

4. Fundamentals of Botany (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Biology 1.
Basic processes and structure of plants.

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) I
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 115. Botany 101 recommended.
Kinds, relationships, systematic arrangement, and geographical distribution of vascular plants; collection and identification.

119-S. Field Botany (4) Summer
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) II
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.

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. (Formerly numbered 107.)

140. Plant Anatomy (4) I
Two lectures and six hours of laboratory.
Prerequisites: Biology 1 and 2. Botany 4 recommended.
The arrangement of structural elements within plant organs, with emphasis on cell and tissue types. (Formerly numbered 104.)

162. Agricultural Botany (2) II
Field trips to be arranged.
Prerequisites: Biology 1 and 2. Botany 4 or Zoology 121 recommended.
A study of California crop plants, their general identification, cultural methods, and regional distribution.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

172. Polynology (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, ethnobotany, and medicine.

190A. Senior Investigation and Report (1) I
One discussion period and two additional hours to be arranged.
Prerequisite: 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.

192. Special Study (1-6) 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 to a master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Business Administration

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the 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 Faculty: Brown, E., Wright
Professors: Brodshuter, Ferrel, Lamden (Dean), Odmark
Associate Professors: Dodds, Harned, Snudden (Chairman)
Assistant Professors: Bloom, Gilbert, Purcell, Wade

Department of Business Education
Emeritus Faculty: Amsden
Professors: Acher, Crawford, M. Gibson, Pemberton (Chairman), Straub
Associate Professors: Langenbush, LeBarron
Lecturers: Sponseller

Department of Business Law and Finance
Professors: Bredensteine, Hipsaks
Associate Professors: Nye, W., Reznikoff (Chairman)
Assistant Professors: Chapman, Fisher, H., Fisher, R., Nainan, Reints

Department of Management
Professors: Belcher, Hodge, Peters, Pierson (Chairman), Torbert
Associate Professor: Srbic
Assistant Professors: Archison, Galbraith, Ghormade, Hampton
Lecturer: Mitton

Department of Marketing
Professors: Hale, Sharkey
Associate Professors: Barber (Chairman), Darley, Wotruba
Assistant Professors: Akers, Lindgren, McFall
Lecturer: DeJulien

CURRICULA

Offered by the School of Business Administration
Master of Science degree in business administration with concentrations available in eight areas; a Master of Arts degree for teaching service with a concentration in business education; and a Master of 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, office management, real estate. (Described in the section on the School of Business Administration.)

 Minor s in the following fields: accounting, business education, business management, employee relations, insurance, marketing, office 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. Principles of Accounting (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.
Introduction to the theory and principles of accounting as they relate to single proprietorship, partnership and corporate types of business.

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.

71. Beginning Typewriting (2) I, II
Four hours per week.
Fundamentals of typewriting. Development of personal-use skills. Not open to students with credit for high school typewriting.

72. Advanced Typewriting (2) I, II
Four hours per week.
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
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.

UPPER DIVISION COURSES

100. Intermediate Accounting (4) I, II
Prerequisites: Business Administration 1A and 1B.
Theories and principles underlying balance sheet and income statements of partnerships and corporations.

101. Advanced Accounting (3) I, II
Prerequisite: Business Administration 100.
Problems involved in ventures, consignments, installment sales, estate accounting, consolidations, insurance and foreign exchange.
102. Cost Accounting (4) I, II
Prerequisites: Business Administration 1A and 1B.
Theories and practices of job order, process cost, and standard cost systems; distribution cost analysis; use of cost data for management control and planning.

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; and survey of gift, estate and social security taxes.

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
Prerequisite: Business Administration 101.
General principles of auditing; duties, ethics, and responsibilities of the auditor; procedures for verification of financial records used by public accountants and internal auditors; auditor's opinion and report.

114. Accounting Systems (2) II
Prerequisite: Business Administration 101.
General principles underlying the design and installation of accounting systems; survey of methods and procedures necessary for internal control applicable to various businesses; familiarity with potential and limitations of various data processing equipment.

115. Financial Statements (2) I, II
Prerequisite: Business Administration 100.
The construction, composition, analysis and interpretation of Balance Sheets, Income Statements and other related reports.

116. Controllership (2) II
Prerequisite: Business Administration 100.
The functions of the controller and his role in policy decisions; organization, techniques, and reports for financial and operating control. A case discussion approach is used.

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 sureryship. Special emphasis on problem-solving techniques. Not open to students with credit in Business Administration 30B.

119. C.P.A. Review (3) I, II
Prerequisites: Business Administration 101, 102, 106, 107, 108, 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) I, II
Prerequisite: Business Administration 120.
All standard forms of insurance except life; includes automobile, liability, workers' 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, II
Prerequisite: Business Administration 120.
Economic and social aspects of life insurance; nature of life insurance and annuity contracts; life legal principles; actuarial theory of probabilities, premiums, reserves, and nonforfeiture values; company operational activities; agency development and management.

125. Estate Planning (3) 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. Sale of life insurance as a career.

127. Fundamentals of Finance (3) I, II
(Same course as Economics 131)
Prerequisites: Economics 1A and 1B or 103A and 103B, and Business Administration 1A and 1B.

128. Investments (3) I, II
Prerequisite: Business Administration 127.
Investment principles and practices with emphasis upon problems of the small investor. Sources of information, types of stocks, bonds, mechanics of purchase and sale, investment trusts, real estate mortgages, and the like.

129. Credit Management (3) I, II
Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.
Credit management, credit and lending policies. Credit and lending policies in domestic and foreign business relations, major financial institutions, and government.

130. Financial Analysis and Management (3) I, II
Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.
Evaluation 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. 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.
Analysis of 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: Consent of instructor and 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 Mathematics 130A.
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.

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
Two lectures and two hours of laboratory.
Prerequisites: Mathematics 7 or equivalent, and Business Administration 132.
The methods and concepts of gathering information, analyzing and reducing data,
and preparing accounts and timely reports to management. Unified operations man-
tement, 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
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 interview-
ing, 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 employ-
ment. Comparison of underlying theory to current practice. Not open to students
with credit in Political Science 146.

143. Problems in Employee Relations (3) II
Prerequisite: Business Administration 140.
The employee relations function. Analysis of current practices as effective solu-
tions to problems in this area. Guided research into the nature of employment re-

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.
Study of 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
Prerequisite: Business Administration 150.
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.

152. Retailing Principles (3) I, II
Prerequisite: Business Administration 150.
Study of retail stores, emphasizing the problems of store managers and merchand-
ising 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; measure-
ment 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 de-
velopment and change. Study of the individual consumer's behavior in relation to
the selling-buying process.

157. Research (3) I, II
Prerequisites: Business Administration 150 and Economics 2 or Mathematics 12.
Formal research techniques and analysis for marketing decisions; principles of
decision making.

158. Research Laboratory (1)
Prerequisites: Business Administration 157.
Applications of market research techniques to selected topics. Uses and limita-
tions 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 Economics 2 or Mathematics 12.
The analysis and interpretation of marketing and business information. Study of
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 and Wholesaling (3) I, II
Prerequisites: Business Administration 132 and 150.
Analysis of industrial market channels of distribution, advertising policies, merchandising techniques, applications and techniques of marketing research in industrial marketing and wholesaling; planning marketing programs for industrial products and wholesaling.

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.

165. Foreign Marketing (3) II
Prerequisites: Business Administration 150.
Areas and promotion of foreign marketing; foreign marketing organizations and methods; technical and financial features of international markets; organization and trade channels. Determinants and principles of foreign marketing policies.

166. Honors Course I, II (Credit to be arranged)
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) 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
Prerequisite: Business Administration 170.
Study of 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
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) Summer
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 Secretaryial 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. Office Management (3) I, II
Administrative theories as they apply to typical offices; interrelationship of personnel, equipment, and services; emphasis on quantitative and qualitative aspects of office systems.

185. Office Systems and Automation (3) I, II
Prerequisite: Mathematics 7.
Principles and techniques used in formulating, installing, and operating modern office systems; the functions of business machines, including integrated and electronic data processing equipment, in these systems; applications to modern office situations.

186. Data Processing Practicum (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Business Administration 7 and Business Administration 185.
Fundamentals of systems flow charting and computer programming; computer applications to typical automated data processing problems.

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.

197. Business Forecasting (3) I, II
Prerequisites: Business Administration 127.
Business forecasting, and related problems confronting the business firm; forecasting techniques; specific forecasts. Emphasis on 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 original study of a problem connected with business under the direction of one or more members of the business administration staff.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.
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 X² tests. Simple and multiple correlation. In 202B: The design of statistical experiments and various research techniques such as simulation, linear programing, 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. Emphasis on 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. An intensive study of 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.

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; statement of affairs; estates and trusts.

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.

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.

226. Seminar in Real Estate (3)
Prerequisite: Business Administration 222.
Current problems in real property. Regional land use planning.

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)
Two lectures and two hours of laboratory.
Prerequisites: Business Administration 202B, 230.
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. Operations Research (3)
Prerequisite: Business Administration 230.
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.

239A. 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.

239B. Seminar in Production Management (3)
Prerequisite: Business Administration 232.
Analysis by quantitative techniques for managerial planning and decision making. Applications of operations research and other concepts to industrial situations.

240. Employee Relations (3)
Prerequisite: Business Administration 201B.
Analysis of theories and factors underlying managerial policies and practices involving employees.

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.
Study of 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.
Analysis of 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.
Study of 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.

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)
An intensive 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 subject matter. Maximum of six units may be applied for the master's degree program.

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 Office Administration (3)
Prerequisite: Business Administration 273.
Advanced study of contemporary problems in office administration. Emphasis on current trends and developments and on individual student research.

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.
Chemistry

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.

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.

298. Special Study (1-6)
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. Guidance in the preparation of a project or thesis for the master's degree.

CHEMISTRY IN THE DIVISION OF THE PHYSICAL SCIENCES
(The Department of Chemistry is on the approved list of the American Chemical Society.)

Faculty
Professors: Harrington, N., Hellberg, Isensee, Joseph, Landis, Malik, Robinson, Rowe, Spangler, Stewart, C. (Chairman), Walba, Wiek
Associate Professors: Grubbs, Jensen, Jones, W., O'Neal, Ring, Sharts, Wadsworth, Woodson
Assistant Professors: Abbott, Mathewson, J., Richardson, W.

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.

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. All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 74 of this catalog.
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) Plan A, a chemistry major with the A.B. degree and Certificate of the American Chemical Society, designed to prepare students for graduate work in chemistry; and
(3) Plan B, a chemistry major with the A.B. degree, designed for students who do not intend to become professional chemists but who desire the major in chemistry (without the Certificate of the American Chemical Society) as part of a liberal education or as preparation for entering a related profession.

CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY
The Department of Chemistry is on the approved list of the American Chemical Society. Programs leading to the B.S. degree or the A.B. degree (Plan A) are designed to meet the standards prescribed for the Certificate of the American Chemical Society. The program leading to the A.B. degree (Plan B) is not offered with the Certificate. Foreign language (German) is required in all programs leading to the Certificate of the American Chemical Society. Under Plan B, foreign language is not required.

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.

Foreign Language Requirement. (a) Credit in German 8A-8B or (b) completion of German 1 and 2 with a grade of C or better and a demonstrated proficiency in the reading of scientific German as determined by the Chemistry Department in consultation with the Department of German and Russian.
### Chemistry

**Outline for the B.S. Degree and Certificate**

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<tr>
<th>First year</th>
<th>Units</th>
<th>Second year</th>
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<td>Chemistry 111</td>
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* Premedical and preclinical students will take Biology 1 and 2.

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**Chemistry Major—Plan A**

**WITH THE A.B. DEGREE IN APPLIED ARTS AND THE SCIENCES AND CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY**

Plan A is offered for students who wish to take the A.B. degree in applied arts and sciences and at the same time meet the requirements of the American Chemical Society and the requirements of most universities for admission to graduate work in chemistry.

Students taking this major must complete a minor in another field.

**Preparation for the major.** Chemistry 1A-1B, 5, 12, and 13; Physics 4A-A-4B-4C; and Mathematics 50, 51, and 52. (44 units.)

**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.

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**Chemistry Major—Plan B**

**WITH THE A.B. DEGREE IN APPLIED ARTS AND THE SCIENCES FOR RELATED PROFESSIONS**

Plan B is designed for students who desire the major in chemistry as part of a liberal education or in preparation for training in a related profession or for high school teaching. Plan B is not designed for students who intend to become professional chemists or who intend to earn advanced degrees in chemistry or who plan to teach in junior colleges. Through Plan B and an appropriate choice of electives, graduates can meet the requirements for admission to medical and dental schools.

A minor is not required with this major.

**Preparation for the major.** Chemistry 1A-1B, 4, and 12, Physics 2A-2B and 3A-3B, and Mathematics 21 and 22. (32 units.) French or German recommended.

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**Foreign Language Requirement.** (a) Credit in German 8A-8B or (b) completion of German 1 and 2 with a grade of C or better and a demonstrated proficiency in the reading of scientific German as determined by the Chemistry Department in consultation with the Department of German and Russian.
### Outline for Plan B

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<td>Psychology 1</td>
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<td>Biology 1</td>
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<tr>
<td>P.E. activity</td>
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<td>16⅔</td>
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</table>

* Premedical and preental students will take Biology 1 and 2.
* An equal number of elective units may be substituted for the French or German.

### 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 78 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 all college courses (taking the required courses in chemistry, physics, and mathematics as specified in Plan A, chemistry major in applied arts and sciences), students may complete the requirements for both the liberal arts and sciences degree and the preparation for graduate work in chemistry.

**Preparation for the major.** Chemistry 1A-1B, 4, and 12; Physics 2A-2B and 3A-3B; and Mathematics 21 and 22. (32 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.

#### LOWER DIVISION COURSES

**1A-B. General Chemistry (S-S) I, II**

Three lectures and six 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 (S) 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 (S) 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 (S) 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 foods and the role of vitamins, hormones and electrolytes in life processes.

**4. Elementary Quantitative Analysis (S) I, II**

Two lectures and six hours of laboratory.

**Prerequisite:** Chemistry 1B or 2B.
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.

12. Organic Chemistry (4) I, II
Three lectures and three hours of laboratory.
Prerequisite: Chemistry 1B.
Stresses aliphatic compounds and includes an introduction to aromatic compounds.

13. Organic Chemistry Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Open only to students enrolled concurrently in Chemistry 12.
Study of the theory and practice of laboratory operations. Synthesis of typical aliphatic compounds.

22. Glass Blowing (1) II
Three hours of laboratory.
Prerequisite: Chemistry 1B.
Elementary training in the manipulation of glass.

UPPER DIVISION COURSES

109A-109B. Fundamentals of Physical Chemistry (3-3) I, II
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 Plan "A" A.B. or B.S. major in chemistry.

109C. Fundamentals of Physical Chemistry Laboratory (2) I, 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 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.
Stresses aromatic compounds, continues with more complex aliphatics and introduces mechanisms of organic reactions.

113. Organic Chemistry Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Open only to students enrolled concurrently in Chemistry 112.
Study of theory and practice of laboratory operations. Synthesis of typical aromatic compounds.

114A-114B. Clinical Biochemistry (4-4)
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 4 or 5 and 12.
Principles of biochemistry and analytical methods applied to blood, urine, and other body fluids. This course cannot apply to the major in chemistry.

115A-115B. Fundamentals of Biochemistry (3-3)
Two lectures and three hours of laboratory.
Prerequisites: Chemistry 4 or 5, and 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)
Three lectures per week.
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
Three lectures per week.
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) I, II
Three hours of laboratory.
Prerequisite: Concurrent registration in Chemistry 127B.
Laboratory work in synthetic inorganic chemistry.
110A-110B. Principles of Chemical Engineering (3-3) (Same course as Engineering 160A-160B)
Prerequisite: Chemistry 109A or 110A
Prerequisites: Chemistry 112 and credit or concurrent registration in Chemistry 109A or 110A.
A systematic study of 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.

160A-160B. Principles of Chemical Engineering (3-3)
Prerequisites: Engineering 160A-160B
Prerequisites: 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 (Credit to be arranged) I, II
Refer to the Honors Program.

170. Radiochemistry (3) I, II
One lecture and six hours of laboratory.
Prerequisites: 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.

171. Chemical Literature (1) II
Prerequisite: Upper division standing in chemistry.
An introduction to the availability, scope and use of the chemical literature.

175. Selected Topics in Chemistry (1-3) I, II
Prerequisite: Consent of instructor.
A study of selected topics in modern chemistry. May be repeated for credit with new subject matter for a total of six units.

198. Senior Project (1-6) 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 (1-6) 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.

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 (Credit to be arranged)
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.

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 (Credit to be arranged)
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 (Credit to be arranged)
Prerequisite: Chemistry 112.
Selected topics in organic chemistry. Maximum credit six units applicable on a master's degree.
Comparative Literature

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in comparative literature are drawn from departments in the Division of the Humanities.

All reading assigned for classes in comparative literature is in English translations, and no knowledge of any foreign language is required.

Major work is not offered in comparative literature; however, courses in this field may be used as part of the English major. For specific information, refer to English.

A minor is offered in comparative literature.

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
(Same course as English 52A-52B)
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.

70A-70B. Introduction to Oriental Literature (3-3)
Major writings in translation, with emphasis each semester on the literature of one oriental country.

UPPER DIVISION COURSES

101A-101B. Modern Continental Fiction (3-3)
(Same course as English 101A-101B)
Selected works by modern novelists and short story writers of continental Europe. First semester, the late nineteenth century; second semester, the twentieth century.

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 115)
A study of the narrative, poetry, and prophecy of the King James version of the Bible. Readings, reports, lectures, and discussions.

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.
Economics

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.

152A-152B. World Drama (3-3)
(Same course as English 152A-152B)
Study of 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.

110. 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.

159. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

ECONOMICS

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty
Emeritus Faculty: Cameron, Ryan
Professors: Anderson, G. K., Babat, Barley, Flagg, Gifford, McCullough, Neuner, Turner, M.S. (Chairman)
Associate Professor: Yamamura
Assistant Professors: Chadwick, Jencks
Lecturers: Behrens, Gardner, Girard, Johnson, D. L., Ryan, Smith, L. G.

Offered by the Department
Master of Arts degree with a major 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 78 of this catalog.

Students majoring in economics must complete a minor in another field.

Preparation for the major. Economics 1A-1B (or 103A-103B), 2; and at least six units from Business Administration 1A, 1B, Mathematics 21 and higher numbered courses, or Philosophy 1A, 1B, and 20. (13 units.) Students planning careers in law, business or government 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 related fields to be selected with approval of the Departmental Academic Requirements Committee. Students planning to pursue graduate work in economics are advised to take Economics 107, Quantitative Economics. (Economics 103A-103B may not be used to fulfill minimal upper division requirements in the 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
The minor in economics for secondary teaching consists of not less than 21 units to include Economics 1A-1B and 15 upper division units in economics courses 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.

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 5 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.

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.
110. 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.

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 Land Economics (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Analysis of 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.

142. Business Cycles (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
Analysis of fundamental factors in economic fluctuations. Examination of business cycle theories, and of 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.
A study of 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
Prerequisites: Economics 1A and 1B or 103A and 103B.
A 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 (Credit to be arranged) I, II
Refer to the Honors Program.

170. Government and Business (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
General survey of 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 101A and 101B.
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.

172. Public Utilities (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.

173. Economic Resources and Growth (3) II
Prerequisites: Economics 1A and 1B or 101A and 101B.
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 101A and 101B.
Old age pensions, health insurance, unemployment insurance, and Social Security Act. Strength and weakness of existing systems.

190. International Economics-Principles (3) I
Prerequisites: Economics 1A and 1B or 101A and 101B.
National welfare and foreign trade. Foreign exchange and the balance of payments, financing foreign trade. Regulations over trade and obstructing factors. Doctrines of international trade.

195. International Economics-Problems (3) II
Prerequisites: Economics 1A and 1B or 101A and 101B.
International economic conflict and cooperation, international economic communities (common markets), international economic conferences and organizations.

196. Economics of Underdeveloped Areas (3) II
Prerequisites: Economics 1A and 1B or 101A and 101B.
The nature and causes of economic underdevelopment. An analysis of problems and policies for the economic development of underdeveloped areas of the world.

197. Research Design and Method (3) II
Prerequisites: Economics 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 (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200A-200B. Seminar in Advanced Economic Theory (3-3)
Prerequisites: Economics 100A and 100B and 107.
Individual research, seminar reports, group discussions of problems in economic theory.

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.

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.

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.

241. Econometrics (3)
Prerequisite: Economics 197.

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 1A-1B or 103A-B; and 150 or 153.
Research in comparative labor problems, including problems of labor and social legislation, medical economics, poverty problems, labor force structural problems, and labor market mobility.

256. Seminar in Utilities and Water Resources (3)
Prerequisite: Economics 172 or Economics 173.
Advanced study and group discussion of selected topics in utility economics and regulation, and the economics of water resource development.
Education

274. Seminar in Economic Concentration and Monopoly Power (3)
Prerequisite: 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.

295. Seminar in International Economics (3)
Prerequisite: Economics 190 or 195 or 196.
Individual and group research into selected topics; group discussion of procedures and results.

296. Seminar in the Economics of Underdeveloped Countries (3)
Prerequisite: Economics 196.
Theories regarding underdevelopment and policies for development of economically underdeveloped countries.

297. Research (3)
Prerequisite: Classified graduate standing and consent of instructor.
Independent research project in an area of economics.

298. Special Study (1-6)
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.
Guidance in the 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 Faculty: Corbett, Hammad, E., Hammad, I., Kinder, Madden, R., White.

IMPERIAL VALLEY CAMPUS

Assistant Professors: Baldwin, Brown, W., Cockrell, Gast, Harmon, Smith, A., Strong
Lecturers: Hinshaw, McKay, Ward.

Offered by the School of Education
Master of Arts degree in education with concentrations in ten areas. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.) B.Ed. 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. Emphasis on the development of 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, Summer
Prerequisite: Senior standing and a minimum of 12 units in education.
Emphasis on the relationship between historical and philosophical foundations upon which the public school system has been established. Emphasis on the 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.

Psychological Foundations

110. Psychological Foundations of Education for Secondary Teachers (5) I, II
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, 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. (Formerly entitled: Development and Learning.)

111. The Learner in the Elementary School (3) I, II, Summer
Prerequisites: Psychology 1 and admission to Elementary Education. Psychology and admission to Elementary Education. Emphasis on the learner's intellectual, emotional, and physical development during childhood and early adolescence, including basic principles of child guidance and counseling. Direct observation required. (Formerly Education 112, Child Growth and Development.)

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Education

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. (Formerly Education 111, Educational Psychology.)

113. Growth and Development of the Adolescent (3) Irregular
Study of 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 and kindergarten-primary teachers training 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.

116. 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.

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.

Subject fields for section 121 are as follows:

Offered in the Fall Semester
121A. Methods in Art
121B. Methods in English
121C. Methods in Home Economics
121D. Methods in Industrial Arts
121E. Methods in Foreign Languages
121F. Methods in Mathematics
121G. Methods in Music
121H. Methods in Physical Science
121I. Methods in Speech Arts
121M. Methods in Social Science
121N. Methods in Life Science
121Q. Methods in Business Skills
121V. Methods in General Science

Offered in the Spring Semester
121B. Methods in English
121D. Methods in Industrial Arts
121F. Methods in Mathematics
121K. Methods in Physical Science
121M. Methods in Social Science
121N. Methods in Life Science
121V. Methods in General Science

Offered Irregularly
121P. Methods in Health Education
121H. Methods in Phys. Ed. (Men)
121J. Methods in Phys. Ed. (Women)

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.

125. Organization and Administration of Music Education (2) II
Administration of an instrumental music program: purchase, care, depreciation of instruments and equipment; development of interest, ethics, schedule-making; operation and maintenance of music library; personnel and equipment records; the achievement point system; the marching band show; rehearsal procedure.

126. Workshop in Secondary Education (3 or 6) Summer
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 (6)
Three lectures and two hours of activity.
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.

130A. Arithmetic (2 or 3) I, II, Summer

130B. Language Arts (2 or 3) I, II, Summer

130C. Student Teaching (2) I, II

131. Second Elementary Education Practicum (6)
Three lectures and two hours of activity.
Prerequisites: 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 A through C below.

131A. Reading (2 or 3) I, II, Summer

131B. Social Studies (2 or 3) I, II, Summer

131C. Student Teaching (2 to 4) I, II

132. Third Elementary Education Practicum (10)
Four lectures and four hours of activity.
Prerequisites: Education 112 and 131.
Curriculum, principles, methods, and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed A through D below.

132A. Science (2 or 3) I, II, Summer

132B. Art (2 or 3) I, II, Summer

132C. Music (2 or 3) I, II, Summer

132D. Student Teaching (4 to 8) I, II

133. Children's Literature in Elementary Education (3) Irregular
A survey of children's literature with an emphasis upon the selection and use of material in the elementary classroom.

134. Laboratory in Elementary Education (3) Summer
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.
Education

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 the language through the use of tapes, film strips, records, films, language laboratories, and written materials.

137. Reading Difficulties (3) I, Summer
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 Practice (2) I, II; (3) Summer
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. Audiovisual Instruction (3) I, II, Summer
Three lectures and two hours of laboratory.
Audiovisual materials and techniques as they affect learning; operation of equipment.

141. Creating Audiovisual Materials for Classroom Use (3) Irregular
Prerequisite: Education 140.
Practice in the creation and evaluation of instructional materials, such as 35 mm. filmstrips, 16 mm. films, scripts, recordings and other audiovisual materials.

143-5. Workshop in Educational Television (6) Summer
(Same course as Speech Arts 143-5)
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.

144. Application of Programmed Instruction (3) Irregular
Prerequisite: Education 112 or 110, or Psychology 175.
Application of programmed instructional materials to the teaching process, i.e., punch and strip devices, programmed texts, teaching machines. Selection, evaluation, systems. Individual preparation of instructional programs; laboratory practice.

151. Measurement and Evaluation in Elementary Education (3) I, II, Summer
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 or equivalent.
Basic tests of statistical significance with special reference to the interpretation of educational data.

Honors Course

155. Honors Course (Credits to be arranged) 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, Summer
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, Summer
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, Summer
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.)

169. Curriculum and Methods for Teaching Mentally Retarded Children in the Secondary School (3) I, Summer
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.)
Education

170. Workshop in Special Education (6) Summer
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, Summer
Prerequisites: Education 110 or 112, and Education 167 or Psychology 109 or Speech Arts 170.
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, Summer
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 21.

174. Principles and Methods of Speech Correction (3) I
(Same course as Speech Arts 174)
Prerequisites: Speech Arts 100 and 170, or consent of instructor.
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 Arts 176)
Prerequisites: Speech Arts 100 and 170.
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.

177. Audiology (3) I
(Same course as Speech Arts 171)
Prerequisite: Consent of instructor.
Anatomy, physiology, and psycho-physiology of the human ear, theories of hearing, medical aspects, pathology, audimetric techniques with practice, including tuning fork assessment, pure tone screening techniques, discrete frequency, pure tone threshold testing, play audiometry, and speech audiometric procedures. Meets audimetric certification requirement.

178. The Teaching of Lipreading (3) II
(Same course as Speech Arts 178)
Prerequisite: Education 177 or Speech Arts 171.
History, theory, and methods of lipreading and language development for the deaf, including hearing conservation and education. Aids for the classroom teacher; program and materials of instruction for the specialized teacher.

Student Teaching

180A-180B. Directed Participation, Secondary (1-3) 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.

180C-180D. Directed Teaching Secondary (3-3) I, II
Prerequisites: Concurrent registration in Education 232 is required for Education 190C. Any grade below C is unacceptable for a credential. Systematic observation, participation, and teaching under supervision in a junior or senior high school. A weekly seminar or conference is required.

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) Summer
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) Summer
Prerequisite: Consent of director of the conference. Course may be taken three times for credit.
A series of lecture and discussion sessions centered 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) Summer
May be taken three times for credit. Course does not fulfill credential requirement.
A series of lectures, discussions, and demonstrations, centered on problems in the use of audiovisual instructional materials. Designed for teachers, supervisors, audiovisual representatives, and others interested in current developments in this area.

199. Special Study (1-4) I, II, and Summer
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.
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 Junior College Programs.

Sociological Foundations

201. The Junior College (2)
Fieldwork, including observation and audiovisual experiences required.
Overview of philosophy, history, aims, scope, function, outcomes, principles and problems of the junior college. Relation of the junior college to elementary and secondary schools and to four-year colleges.

202. Social Foundations (2 or 3) I, II, Summer
Prerequisite: Education 131C.
Sociological, historical, and philosophical foundations of American Education and their influence on present-day educational practices.

204. Comparative Education (3) I, Summer
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.
Advanced study of 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.
Advanced study of philosophical backgrounds of educational thought, a study of comparative philosophies, and an analysis of selected current trends and problems.

207. Educational Sociology (3) Irregular
Prerequisite: Education 100 or 101.
A study of 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) Summer
Prerequisite: Teaching experience.
Advanced study of community influences on learning and child growth and development, and of group techniques; implications for curriculum planning. Provides opportunity for work on individual problems of the participants.

Procedures of Investigation

211. Procedures of Investigation and Report (3) I, II, Summer
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.)
231. Theory and Process of Pupil Appraisal (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Education 225A, 225B, and 226.
Measurement theory and procedures, including interpretation of test results to pupils, parents, and teachers. (Formerly entitled: Techniques of Pupil Appraisal.) Not open to students with credit in Education 237.

232. Theory and Process of Vocational Choice (4) I, II
Three lectures and three hours of laboratory and/or field work.
Prerequisites: Education 225A, 225B, and 226.
Vocational choice theory, occupational and educational materials used in career planning. Not open to students with credit in Education 237.

233. Theory and Process of School Counseling (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Education 225A, 225B, and 226.
Counseling theory and techniques, interviewing and case study methods. Supervised practice in interviewing school age pupils, analyzing interviews, and writing reports. Not open to students with credit in Education 238 or Psychology 152.

234. Theory and Process of Group Work in Guidance (2) I, II
One lecture and three hours of laboratory.
Prerequisites: Education 225A, 225B, and 226.
Group process and individual growth, theories of group interaction, group therapy, and group leadership techniques: applications for the school setting. Not open to students with credit in Education 238.

237. Measurement and Information in Guidance (6) Summer
Five units of lecture and one unit of laboratory.
Prerequisites: Education 225A, 225B, and 226. Application to enter the course must be made early during the preceding semester. 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.

238. School Counseling: Individual and Group (6) Summer
Five units of lecture and one unit of laboratory.
Prerequisites: Education 225A, 225B, and 226. Application to enter the course must be made early during the preceding semester. Counseling theory and techniques, individual and group. Not open to students with credit in Education 233 or 234.

239. Professional Seminar in Guidance (2) I, II
Prerequisites: Education 231, 232, 233, and 234, or equivalent.
Study of current problems, issues, and research in pupil personnel services. Not open to students with credit in Education 333.

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.
Advanced study of trends in reading instruction. Topics include developmental sequences in reading skills and abilities, reading in the content fields, individual differences, and interests. Students will develop individual projects or problems.

243. Seminar in Social Studies in Elementary Education (3) Irregular
Prerequisite: Credit or concurrent registration in Education 211.
Advanced study of problems in teaching social studies in the elementary school with emphasis on the study of the scientific research in the field.

244. Seminar in Language Arts in Elementary Education (3) Irregular
Prerequisite: Credit or concurrent registration in Education 211.
Advanced study of problems in teaching language arts in the elementary school, including spelling, literature and written and oral communication. Emphasis will be on the study of 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, Summer
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, Summer
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.
Advanced study of the problems of teaching science in the elementary school with emphasis on the literature of science education.

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: Junior College (2)
Prerequisites: Education 223 and concurrent registration in Education 316.
The teaching process at the junior 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.
Education

254. Advanced Problems in Secondary School Instruction (3) II, Summer
Prerequisites: Teaching experience and consent of instructor.
An analysis of the scientific research and philosophical principles in secondary school instruction.

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) Summer
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 Curriculum 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, Summer
Federal, state and local school administrative relationships including the financial and legal structure at these three levels.

261. Education Leadership (3) I, II, Summer
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. (Formerly Education 278.)

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, Summer
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.

264A-264B-264C. Seminar in Elementary School Administration and Supervision (2-2-2) I, II, Summer
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 266A, 266B, 266C.
Field experience in the elementary schools. Approval of local school district required for 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 267A, 267B, 267C.
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 165, and 270.
Advanced study of the theories, principles and practices in working with emotionally handicapped.

272. Seminar in Education of the Gifted (3)
Prerequisite: Education 222.
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 Psychology 109.
Review of studies and investigation in learning and adjustment of retarded children including etiology, classification, diagnosis and assessment.

274A. Utilizing Audiovisual Materials in the Classroom (3) I, Summer
Prerequisite: Education 148.
A critical analysis of research evaluating the use of visual, auditory, and other sensory materials in education.

275. Administering the Use of Audiovisual Materials (3) II, Summer
Prerequisite: Education 148.
Organizing, supervising, and coordinating audiovisual centers as an integral part of educational systems.

276. Seminar in Programmed Instruction (3 to 6) Irregular
Prerequisite: Education 148.
An in-depth study of programmed instruction, with emphasis on construction of programs, application to teaching situations. Analysis and revision of programmed projects.

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 curriculum 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 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, Summer
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 (1-6) I, II, Summer
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II, Summer
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

Student Teaching and Internship

316. Directed Teaching Junior College (4) I, II
Prerequisites: Admission to Teacher Education and approval of the Junior College program coordinator. Credit in Education 201 and 223 and concurrent registration in Education 251.
Systematic observation, participation, and teaching under supervision in a junior college. Any grade below C is unacceptable for a credential. A weekly seminar or conference is required.

330. Guidance Internship (2-6) I, II, Summer
Application to take the course should be made early during the preceding semester.
Supervised internship experience in pupil personnel activities with school age pupils. May be repeated with new content for additional credit.

331. Field Work in School Guidance (2-6) I, II
Prerequisites: Education 231, 232, 233, and 234.
Application of concepts and procedures of pupil personnel services in public schools. Daily observation and practice. Weekly seminar sessions with college staff.

332. Practicum in School Counseling (3) I, II
Prerequisites: Education 231, 232, 233, and 234. Application to take the course must be made early during the preceding semester.
Supervised experience in group and individual counseling and career planning with school age pupils. Not open to students with credit in Education 333.

333. Advanced Seminar and Practicum in Counseling (6) Irregular and Summer
Prerequisites: Education 237 and 238. Application to take the course must be made early during the preceding semester.
Supervised experience in group and individual counseling and career planning with school age pupils, and study of current problems, issues, and research. Not open to students with credit in Education 239 or 332.

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 in Audiovisual Education (2-6) I, II
Application to take the course should be made during the preceding semester.
Supervised internship experience in audiovisual services in the public schools.

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 Engineers' Council for Professional Development)

Faculty
Professors: Bedore, Capp (Dean), Fitz, Johnson, P., Lodge, Morgan, C., Quitt, R., Shurts, Stone, S., Walling
Associate Professors: Bauer, Conly, Dharmarajan, Noorany, Stone, H.
Assistant Professors: Bilterman, Brown, W. I., Burns, Chan, Fergin, Hundal, Lin, Skaar, Slinn, Stratton
Instructor: Nimtz
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 skills 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.
No prerequisite.
Development of skills and techniques of drawing for engineers. Elementary orthographic and pictorial drawing theory. Introduction to basic theorems of descriptive geometry. Theory 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.

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 (2) 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 (1) I, II
Three hours of laboratory.
Prerequisites: Engineering 30 and Mathematics 51.
Analysis of engineering problems and solutions using the digital computer. Fundamentals of programming and programming language commands.

50A. Engineering Mechanics I (3) I, II
Prerequisites: Physics 4A and credit or concurrent registration in Mathematics 51.

50B. Engineering Mechanics II (3) I, II
Prerequisites: Engineering 50A, and credit or concurrent registration in Mathematics 52.
Elements of kinematics, central force motion, systems of particles, moments and products of inertia, Euler's equations of motion, vibration and time response. Engineering applications. Vector notation will be used. (Formerly Engineering 51.)

60. Electric Circuits (2) 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 (3-2)
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.

UPPER DIVISION COURSES

100A. Electric Circuits (3) I, II
Prerequisites: Physics 4B and Mathematics 51.
Indirect current circuits, magnetic circuits, induced voltages, single-phase and polyphase 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 (2) 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.
Prerequisite: Engineering 100B and credit or concurrent registration in Engineering 101. Not open to students filing an electrical engineering major plan.
A laboratory course to include selected experiments in electrical circuits, electrical machinery, and electronics.

106. Manufacturing Processes (2) I
One lecture and three hours of laboratory.
Prerequisite: Engineering 25.
Analysis of the various machines, tools, and processes used in modern manufacturing and fabrication operations.
108. Thermodynamics (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Physics 4C, Engineering 25 and 30, and credit or concurrent registration in Engineering 50B.
Generalized concepts of force, displacement, work and energy; development of laws of classical thermodynamics; general equations of thermodynamics; application to simple chemical systems.

109A. Metallic Materials (3) II
Two lectures and three hours of laboratory.
Prerequisites: Engineering 25 and Physics 4C.
Ferrous and nonferrous metallurgy. Effect of heat treatment, aging, and other processes on physical properties. Significance of design criteria on selection of materials.

109B. Nonmetallic Materials (3) I
Two lectures and three hours of laboratory.
Prerequisite: Engineering 109A.
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 (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 50B and 109, and credit or concurrent registration in Mathematics 198A.
Statics and dynamics of incompressible and compressible fluids. Viscosity, fluid friction, laminar and turbulent flow. Flow in pipes and open channels. Introduction to hydraulics and flow about immersed objects.

116. Resistance of Materials (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 25 and 50B, and credit or concurrent registration in Mathematics 18A.
Elastic and plastic properties and strength of engineering materials. Analysis of types of failures, stress analysis and deformation of simple structural and machine members. Laboratory testing procedures and experimental confirmation of elastic and plastic theory.

118. Transfer and Rate Processes (3) I, II
Prerequisites: Engineering 115 and Mathematics 18A.
Fundamentals of rates of change in enthalpy and composition of matter; heat and mass transfer and chemical reaction rates.

120A. Structural Analysis I (4) 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.

122. Soil Mechanics and Foundation Engineering (3) I
Two lectures and three hours of laboratory.
Prerequisites: Geology 33, Engineering 116, and credit or concurrent registration in Engineering 115.
Principles of mechanics of soils; physical and mechanical properties; consolidation, shear strength and compaction; lateral earth pressures and bearing capacities; shallow and deep foundations. Laboratory studies applied to 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.

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 aerial 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.

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 117.
Selection, design, and control of mixes of various materials used in highway engineering practice. Emphasis on strength and properties of plain concrete and asphalt.

130. Network Analysis (4) 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.

131. Electromechanical Control Devices (3) I
Two lectures and three hours of laboratory.
Prerequisites: Engineering 50B and 100B; Mathematics 118A; and credit or concurrent registration in Engineering 101.
Application of amplifiers, thyristors, rototrols, synchros, and servos in servo-systems and other devices.
132. Time-Domain Analysis of Linear Networks (3) I
Prerequisites: Engineering 130 and 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 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, II
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 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) II
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) II
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.

139A. Advanced Field Theory (3) II
Prerequisites: Engineering 137 and credit or concurrent registration in Engineering 144B and 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.

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)
Two lectures and three hours of laboratory.
Prerequisite: Engineering 108.
Thermodynamic theory of air conditioning and refrigeration.

145. Mechanics of Machinery (4) I
Three lectures and three hours of laboratory.
Prerequisite: Engineering 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) 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)
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 Mathematics 118A.
Analysis of mechanical vibration; single- and multi-degree of freedom systems; free and forced vibrations; vibration isolation; vibration absorbers. Theory of vibration measuring instruments.

147B. Experimental Vibrations (3) II
Prerequisite: Engineering 147A.
Experimental problems utilizing vibration excitation equipment, recording systems, transducers, digital and analog computers.
146. 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)
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 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 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 149 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 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
One lecture and three hours of laboratory.
Prerequisites: Credit or concurrent registration in Engineering 150.

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.

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 (Credit to be arranged)
Refer to the Honors Program.

180. Principles of Engineering Economy (3)
Prerequisite: Engineering 115.

181. Hydrodynamics (3)
Prerequisites: Engineering 50B or Physics 105, and 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: Credit or concurrent registration in Engineering 134B.
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. Fuels and Lubricants Laboratory (1)
Three hours of laboratory.
Prerequisite: Engineering 108.
Performance and engineering interpretation of standardized tests of fuels and lubricants. Investigation and analysis of test codes.

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.

186. Advanced Resistance of Materials (3) II
Prerequisites: Engineering 116 and Mathematics 118A.
Advanced topics in resistance of materials including combined stresses, buckling, and failure theories. Introduction to elastic stability and instability.

187. Methods of Analysis (3)
Two lectures and three hours of laboratory.
Prerequisite: Mathematics 118A.
Solutions of advanced engineering problems in fluids, thermodynamics and electricity utilizing the methods of analogs, dimensional analysis and the theory of models.

188. Digital Solutions of Engineering Problems (2) II
Prerequisites: Engineering 50B or Mathematics 7, and Mathematics 118A.
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 Mathematics 118A or 119.
Not open to students filing on electrical engineering master plan.
Analysis of the output-input characteristics of linear, mechanical, electrical, hydraulic, and pneumatic control systems.

190A. Civil Engineering Structural Design (2) II
Six hours of laboratory.
Prerequisites: Engineering 121 and 122.
Introduction to 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. Engineering Applications (Mechanical Design) (2-2) I, II
Six hours of laboratory.
Prerequisites: 190D: Engineering 145, 146A, and 190C.
Application of fundamental engineering principles to the practical design of machinery. Considerations of material properties, stress analysis, mechanisms, kinematics, economics, production, and appearance are taken up as needed. Practical design methods utilizing empirical techniques are emphasized and explained in the individual design of a simple machine. (Formerly numbered 190F.)

190E-190F. Engineering Applications (Mechanical Energy Conversion) (2-2) I, II
190E: One lecture and one three-hour laboratory.
190F: Six hours of laboratory.
Prerequisites: 190E: Engineering 115 and 148.
Prerequisites: 190F: Engineering 145, 146A, and 190E.
Application of engineering science to the design and evaluation of heat-power systems such as propulsion systems, energy conversion systems, or environmental control systems. (Formerly numbered 190E.)

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, Master.

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.

194. Pulse and Digital Circuits (3)
Prerequisite: Engineering 134B.
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)
Prerequisite: Engineering 134B.
Boolean algebra, minimization methods; multiple output functions, combinational logic applied to coding and decoding; gating elements. Asynchronous sequential logic; control and computer applications.

196. Advanced Engineering Topics (1-3) I, II
Prerequisite: Consent of instructor.
Analysis of modern developments in engineering. May be repeated with the approval of the instructor for a total of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

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 Mathematics 118B.
Aircraft and missile structures deforming 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.

AE 205. Flight Dynamics—Theory of Flight Paths (3)
Prerequisites: Engineering 130.
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 240. Advanced Hydrodynamics (3)
Prerequisite: Engineering 181.
Theory of flows in which compressibility and viscosity effects do not predominate. Flow nets, conformal mapping. Applications to subsonic, low, and surface waves.

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.

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.
Study of 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: Mathematics 118B.
Kinetic theory, the Boltzmann equation, the hydrodynamic equations, Chapman-Enskog Theory. Real gases and chemical reactions. Approximations: applications to shock structure, ultrasounds, heat transfer, and hypersonics. Free molecule flow.
Engineering

CE 200. Seminar (2 or 3)  
Prerequisite: Consent of the graduate adviser and instructor.  
An intensive study of advanced civil engineering topics 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 Mathematics 118A.  
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.  

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. Lightning, 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 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.  

CE 242. Sooalgo 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 analyses for 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 290. Advanced Topics in Civil Engineering (2 or 3)  
Prerequisite: Engineering 127.  
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.
Engineering

CE 297. Research (1-3)
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units in course 297 applicable on a
master's degree in engineering.

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.

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)
Prerequisite: Engineering 130 and credit or concurrent registration in Mathe-
ematics 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.
(Formerly entitled: Network Analysis.)

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 syn-
thesis and considerations of pulsed-data systems. (Formerly entitled: Network Synthesis.)

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 189 or Engineering 118A,
Analysis and synthesis of feedback control systems using feedback compensation,
Multiple-loop control systems; ac feedback control systems; optimization.

EE 222. Sampled-Data Systems (3)
Prerequisite: Engineering 118A.
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. (Formerly entitled: Non-Linear Systems.)

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 pro-
gression, 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 switch-
ing 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, harmo-
nic oscillators, VHF power amplifiers including varactor multipliers.

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 node
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,ex-
traction 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.
Engineering

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 of six units of course 296 applicable on a master's degree.

EE 297. Research (1-3)
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units in course 297 applicable on a master's degree in engineering.

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 micromechanics; buckling, vibration, and stability phenomena; hydrodynamics and magnetohydrodynamics; incompressible, compressible, and non-newtonian flow. May be repeated with new subject matter for additional credit.

EM 201. Advanced Dynamics (3)
Prerequisites: Engineering 50B or equivalent, and Mathematics 118A.

EM 203. Theory of Vibrations (3)
Prerequisites: EM 201 and credit or concurrent registration in Mathematics 118B.
Linear and non-linear periodic phenomena as applied to discrete systems and continuous media with application to physical problems.

EM 221. Theory of Elasticity (3)
Prerequisites: Engineering 116 and credit or concurrent registration in Mathematics 118B. Engineering 186 is recommended.
Analysis of stress and strain: Stress-strain relations; the equations of elasticity; uniqueness theorems; compatibility conditions; flexure and torsion. Vector and tensor notation will be used.

EM 225. Theory of Plates (3)
Prerequisites: 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 axi-symmetric and arbitrary loads.

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 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.

Engineering

EM 244. Advanced Fluid Mechanics II (3)
Prerequisite: EM 243.

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 of six units of course 296 applicable on a master's degree.

EM 297. Research (1-3)
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units in course 297 applicable on a master's degree in engineering.

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 210. 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.
ME 212. Gas Dynamics (3)
Prerequisites: Engineering 143 and Mathematics 118B.
Further considerations of the flow of compressible fluids in conduits. Shock fronts, unsteady flow and real gases.

ME 213. Aircraft and Missile Propulsion (3)
Prerequisites: Engineering 142, 143 and Mathematics 118B.

ME 214. Analytical Thermodynamics (3)
Prerequisites: Engineering 149 and Mathematics 118B.

ME 215A-215B-215C. Heat Transfer (3-3-3)
Prerequisites: Engineering 140; Mathematics 118B or consent of instructor. ME 215A is a prerequisite to ME 215B.
Semester A. Conduction heat transfer, multidimensional conduction processes, transient analyses.
Semester B. Convection heat transfer, Advanced theories of forced and free convection.
Semester C. Radiation heat transfer, Solid body and gaseous radiation. (Formerly ME 215A-215B, Heat Transfer.)

ME 216. 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.

ME 220A-220B. Mechanical Vibrations (3-3)
Prerequisites: Engineering 147B and Mathematics 118B.
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 Mathematics 118B.
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 145, 146A, and Mathematics 118B.
Problems in mechanical design involving synthesis of mechanisms wherein displacement, velocity, acceleration and jerk are paramount considerations.

ME 224. Fluid Power and Control Systems (3)
Prerequisites: Engineering 189 or equivalent.
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 109A.
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: Mechanical Engineering 231A.

ME 233. Reactor Materials (3)
Prerequisite: Engineering 109A.
Metallurgical processing, corrosion, and radiation effects of nuclear materials. Selection of reactor materials.

ME 234. High Temperature Materials (3)
Prerequisite: Engineering 109A.
Behavior of metals, cermets, and nonmetallic materials at high temperatures. Effect of environment and service conditions on composition, structure, and physical properties.

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 of six units of course 296 applicable on a master's degree.

ME 297. Research (1-3)
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units in course 297 applicable on a master's degree in engineering.

GRADUATE COURSES IN ENGINEERING

E 200. 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 division chairman and instructor.

E 299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ENGLISH

IN THE DIVISION OF THE HUMANITIES

Faculty
Emeritus Faculty: Dickhaut, Johnson, F., Keeney, Trail
Professors: Adams, J. R., Burnett, Frey, Haskell, Kennedy, Marchand, Montevede, Perkins, Phillips, G., Sanderlin, Sandstrom, Shouse (Chairman), Theobald, Tidwell, Toner
Associate Professors: Baker, J., Dickinson, J. W., Gellens, Gross, Vandervilt, Wanlass, Widmer
Assistant Professors: Benson, Drake, Hendrickson, Hinkle, Keller, McCoy, McCleod, Nichols, Rogers, R., Taylor, H. L., Thane, Tunberg, Zelenovich
Instructor: Davis, G.
Lecturers: Arvater, Black, Brown, R. M. C., Chater, Crafts, Crockett, Denman, Dickinson, S. C., Fahy, Gary, Matula, Rao, Redding, Szep, Zimmerman
Offered by the Department
Master of Arts degree, with a major in English; and Master of Arts degree for teaching service with a concentration 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.

COMPARATIVE LITERATURE
For courses in world literature, see comparative literature; these courses give credit toward the English major and minor or toward the minor in comparative literature.

ENGLISH MAJOR
WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES
All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 78 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. Twelve units of lower division English, to include English 56A and 56B and six units selected from courses numbered 50 and above.

Major. A minimum of 24 upper division units in English, selected with the approval of the departmental adviser, and including at least three units of Shakespeare (117A or 117B), six units of British literature before 1800 (chosen from 116A, 116B, 118A, 118B, 120A, 120B, 143A, 151), and six units of British literature after 1800 (chosen from 119A, 119B, 126A, 126B, 129A, 129B, 143B).

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, such upper division units to be selected from the following: English 101A, 101B, 116A, 116B, 118A, 118B, 119A, 119B, 126A, 126B, 143A, 143B.

Students of junior or senior standing may substitute for any deficiencies in lower division requirements in English (except English 1A and 1B) an equivalent number of units of upper division courses selected from the following: English 101A, 101B, 116A, 116B, 118A, 118B, 119A, 119B, 126A, 126B, 143A, 143B, 151.

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 56A, 56B, and six additional units selected from English courses numbered 50 or above.

Teaching Major. A minimum of 24 upper division units in English to include the following courses: English 117A or 117B, 191, 192; three units selected from 119A, 119B, 120B, 149; six units selected from 130, 131, 132, 133, 134, 135, 189; six units selected from 116A, 116B, 118A, 118B, 119A, 119B, 120A, 120B, 126A, 126B, 129A, 129B, 143A, 143B, 149, 151.
In addition to the major, credential candidates must complete Education 133.

Specialization in Secondary Teaching
Preparation for the major. Twelve units of lower division English, to include English 56A and 56B and six units selected from courses numbered 50 and above.

Teaching Major (Undergraduate). A minimum of 24 upper division units in English, selected with approval of the departmental adviser, to include English 191; three units from English 117A, 117B; six units from English 130, 131, 132, 133, 134, 135; nine units of British literature exclusive of Shakespeare, to include at least three units in literature before 1800 (chosen from 116A, 116B, 118A, 118B, 120A, 120B, 143A, 143B) and at least three units in literature after 1800 (chosen from 119A, 119B, 126A, 126B, 129A, 129B, 143B); and three units from English 141, 195A, 195B, 198. In addition, English 192 (which may be taken either before or after graduation), Education 121B, and Education 122 are required.

Postgraduate Year. Nine upper division or graduate units in literature of which at least three units shall be in British literature, English 290 (Bibliography) and at least one seminar must be included in these nine units. With adviser's approval, English 290 may be taken concurrently with the first seminar the student elects.

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 to include three units in American literature. At least six units must be in upper division courses.

Specialization in Secondary Teaching
The minor in English for secondary teaching consists of 27 units to include the following:
Lower Division: English 1A and a year course chosen from English 50A-50B, 56A-56B, or 60A-60B. (9 units.)
Upper Division: Eighteen units of upper division courses in English to include English 191, 192, and at least one course from each of the following areas: Nineteenth Century English Literature, selected from English 119A, 119B, 126A, 126B, or 143B; Shakespeare, selected from English 117A or 117B; American Literature, selected from English 131, 132, 133, 134, or 135; and three units of electives in upper division English.
Education 122 is required in addition to the minor.

CREDIT IN COURSE SEQUENCES
All elective year courses in the English Department may be begun in either semester, and either semester may be taken singly for credit.

PREREQUISITES
English 1A is prerequisite to all English courses except English 2.
LOWER DIVISION COURSES

R. Reading Laboratory (0) I, II
A seminar tutorial service offered by the English Department to those wishing to improve reading ability, or secure individual help with study problems. Open to all students at any level of college work.

S. Spelling (0) I, II
A seminar tutorial service offered by the English Department to those wishing to improve their spelling through an intensive review of principles and through practice. Open to students at any level of college work.

W. Writing Laboratory (0) I, II
A seminar tutorial service offered by the English Department to those wishing assistance in writing projects, either remedial or advanced. Open to students at any level of college work.

ENGLISH FOR FOREIGN STUDENTS

Foreign students will be assigned to English 1X, 1Y, or 1A on the basis of their performance on the English examination for foreign students and a diagnosis resulting from an oral interview. Neither 1X nor 1Y will satisfy the college general education requirement for written communication, although unit credit will be granted for these courses.

1X. Fundamentals of English for Foreign or Bilingual Students (3) I, II
A first course in English grammar and composition with intensive practice on idiom in the Language Laboratory. At the discretion of the instructor, satisfactory completion of this course qualifies a foreign student for taking either English 1Y or 1A.

1Y. English for Foreign or Bilingual Students (3) I, II
Prerequisite: English 1X or performance on the English examination for foreign students satisfactory to the instructor.

1A-1B. First Year Reading and Composition (3-3) I, II
Prerequisite: English 1A is prerequisite to 1B. First semester: Principles and methods of expository writing. 1A is a required course in general education. Second semester: Further practice in writing, based on the study of selected literature.

2. freshman Literature (3) I, II
Introduction to the reading of literature.

10. Individual Reading (1) I, II
Reading of selected works of drama, poetry, or fiction, by a single author.

20. Latin and Greek Word Derivation (3) I, II
(Same course as General Language 20)
A general and elementary course in philology. Study of Latin and Greek stems of most frequent occurrence in English, and of the English words derived from them. No prerequisite.

50A-50B. Masterpieces of 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.

52A-52B. Masterpieces of World Literature (3-3) I, II
(Same course as Comparative Literature 52A-52B)
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.

56A-56B. Survey of English Literature (3-3) I, II
Prerequisite: English 2 or 1B.
The study of some important works of English literature from the Anglo-Saxon period through the Victorian age, with emphasis upon the literary history of each period.

60A-60B. Literature and Personality (3-3)
A close study of a limited number of the great creators of literature. The goal of the course is to derive, from markedly different specific works, orderly and generalized methods for the interpretation of great literature.

61. Sophomore Composition (3) I, II
Prerequisite: English 1A.
Practical writing beyond the freshman level.

62. Directed Writing (3) I, II
Guidance and extensive practice in effective creative writing, particularly description and narration.

UPPER DIVISION COURSES

100. English Fundamentals (0) I, II
Review of spelling, punctuation, grammar, and usage; exercises in vocabulary building and in fundamental reading skills; theme writing. Three meetings a week with additional optional work in the Reading and Writing Laboratory.

101A-101B. Modern Continental Fiction (3-3)
(Same course as Comparative Literature 101A-101B)
Selected works by modern novelists and short story writers of continental Europe. First semester, the late nineteenth century; second semester, the twentieth century.

106. Creative Writing (3) I
A writing workshop in which the students are given opportunity to criticize each other's work. Emphasis on narrative and description, but freedom to pursue whatever writing interests may interest the student most. May be taken a second time with new material.

110. Individual Reading (1) I, II
The study of selected works of a major author. May be repeated to a maximum of two units.

113. American English (3) I
The development of American English; regional and cultural differences in pronunciation, grammar, and vocabulary.

115. The Bible as Literature (3) I
(Same course as Comparative Literature 115)
A study of the narrative, poetry, and prophecy of the King James version of the Bible. Readings, reports, lectures, and discussions.

116A-116B. The Age of Elizabeth (3-3)
Semester I: Poetry and prose, exclusive of drama. Semester II: The drama to 1642, excluding Shakespeare.

117A-117B. Shakespeare (3-3) I, II
The first semester gives special emphasis to the histories and comedies; the second, to tragedy and the dramatic romances.

118A-118B. Restoration and Eighteenth Century English Literature (3-3) I, II
Selected poetry, prose, and drama. The first semester emphasizes the satiric, comic and pastoral satires of Dryden, Swift, Pope, Addison, Steele, Gay, Prior; and also the first stirrings of the romantic revolt. The second semester concentrates upon Johnson, Boswell, and their circle, and significant preromantic literature.
119A. English Romantic Poetry (3) I
The culmination of the romantic movement in the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats, in relation to the thought of the revolutionary period.

119B. Victorian Poetry (3) II
Tennyson and Browning with their contemporaries and successors, relating English poetry to Nineteenth Century life and thought.

120A. The Seventeenth Century: Milton (3) II
The poetry and major prose works of Milton, with stress on the development of his art and mind, the political and religious background and the events in which Milton participated.

120B. The Seventeenth Century: Metaphysical and Cavalier Poets (3) II
The Metaphysical and Cavalier poets in relation to the cultural and literary backgrounds of the sixteenth, seventeenth, and eighteenth centuries.

126A. Romantic and Victorian Prose (3) I
Romantic and mid-Victorian prose writers, including Coleridge, Hazlitt, Lamb, De Quincey, Carlyle, Landor, Macaulay, and Mill, related to the literary, political, and social movements of the period.

126B. Late Nineteenth Century British Prose (3) II
The essays of Arnold, Thomas Huxley, Newman, Pater, Ruskin, and Stevenson. Study of scientific, aesthetic, and ethical backgrounds.

129A. Early Modern British Literature (3) I
Selected drama, fiction, and poetry of 1588-1620: Shakespeare, Jonson, Marlowe, Webster, and Middleton.

129B. Contemporary British Literature (3) II
Selected British and Irish poetry, with stress on the works of the period 1660-1700: Dryden, Pope, and Swift.

130. American Literature to the Jacksonian Period (3) I
Ideas and representative forms of prose and poetry, studied in the works of such authors as Taylor, Edwards, Franklin, Paine, Finceaux, Bryant, and Irving.

131. The American Romantic Period (3) I
Major American writers of the period 1830-1860.

132. The Frontier and American Literature (3) I, II
The influence of the frontier upon American literature, studied through various regions and movements. Examinations of source materials, biographies, and representative writers.

133. The Rise of Realism in American Prose (3) II
Influences, foreign and native; definition of realism. The romantic attack and the realist defence. Illustrated chiefly through the novel.

134. Twentieth Century American Prose (3) I, II
Ideas and forms in significant novels, stories, and non-fictional prose writings.

135. American Poetry and Drama Since 1865 (3) I, II
Emphasis on twentieth century lyric and dramatic forms and ideas, although crucial forerunners (such as Dickinson) are included.

141. Ideas and Forms in Modern Prose (3) I, II
Significant prose writing in the social and natural sciences, travel, the arts, and other fields. Designed primarily for secondary credential candidates with major or minor in English, but open to other students.

142A-143B. The English Novel (3-3)
The history of the English novel from its beginnings to the present century. Emphasis in the first semester will be on the Eighteenth Century and in the second semester on the Nineteenth Century.

148. The Study of Fiction (3) I
A critical study of forms of contemporary prose narrative with a writing workshop.

149. The Study of Poetry (3) I, II
A course proceeding from simpler to more complex poetic productions. Emphasis on current direction in poetry, and on problems of form. The inclination to write poetry is encouraged.

151. Chaucer (3) I
A study of Chaucer's works, with emphasis on "The Canterbury Tales" and "Troilus and Criseyde."

152A-152B. World Drama (3-3)
(Same course as Comparative Literature 152A-152B)
Study of selected tragedies and comedies from Asian, 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.

155. The Writing of Fiction (3) II
Prerequisite: Consent of instructor. Writing short stories for publication; study and application of commercial market requirements; stress on practical disciplines.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

189. Studies in American Folklore (3) I
American folk songs, tales, legends, superstitions, proverbs, and speech, with particular emphasis on one of these.

191. Advanced Composition (3) I, II
A course designed for prospective teachers of English. This is not a methods course, but a content course in grammar, composition, and journalism. Required of all teaching majors in English; open to other students as an elective.

192. The English Language (3) I, II
Prerequisite: Open only to seniors and graduate students. The study of the history of the English language, of its words and structure, of the changes in inflections, pronunciation, vocabulary, and meaning, and of its use as an instrument of communication and human living.

195A. History of Literary Criticism (3) I
Prerequisite: Open only to seniors and graduate students. A historical survey of the principles and practices of literary criticism from Greek times to the nineteenth century. Readings in the works of Aristotle, Horace, Longinus, Sidney, Boileau, Lessing, Sainte-Beuve, Coleridge, and others.

195B. Theory and Practice of Modern Criticism (3) II
Prerequisite: Open only to seniors and graduate students. A study of the theory and practice of selected nineteenth and twentieth century critics, with attention to the distinctive features of their approach to traditional and modern literary texts.
196. General Linguistics (3) I
(Same course as General Language 196)
Prerequisite: Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish, or German.
A study of the principles of linguistic development illustrated chiefly from the Classical, Romantic, and Germanic language groups.

197. English Linguistics (3) II
(Same course as General Language 197)
Open only to seniors and graduate students who have had either English 192 or 196.
The phonological, grammatical, and lexical structure of English.

198. Comprehensive Reading and Survey (3) II
Prerequisite: Open only to students with nine upper division units 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 (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

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.

260. Problems of Literary Creation (3)
Prerequisite: Consent of instructor and departmental adviser.
Criticism and coaching in the larger forms. May be repeated with new content for additional credit, to a maximum of six units.

290. Bibliography and Methods of Literary Research (3)
Prerequisite: 12 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)
Prerequisite: 12 units of upper division work in English and English 290.
The critical study of a major author, such as Shakespeare, Dickens, Mark Twain. May be repeated with new content for additional credit.

292. Seminar: A Cultural Period (3)
Prerequisite: 12 units of upper division work in English and English 290.
The study, through its literature, of a cultural period such as the Renaissance, the Enlightenment, the Romantic Revolution, or the like. May be repeated with new content for additional credit.

293. Seminar: A Literary Problem (3)
Prerequisite: 12 units of upper division work in English and English 290.
The study of a literary problem, such as Regionalism in America, or European influences on American Literature, or the like. May be repeated with new content for additional credit.

French

294. Seminar: A Literary Type (3)
Prerequisite: 12 units of upper division work in English and English 290.
The study of a literary type, such as the Personal Essay, Epic, Tragedy, and the like. May be repeated with new content for additional credit.

298. Special Study (1-6)
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.
Guidance in the preparation of a project or thesis for the master's degree.

FRENCH

IN THE DIVISION OF THE HUMANITIES

Faculty
Professors: Brown, E. M., Messier (Chairman, French-Italian)
Associate Professor: Piérad
Assistant Professors: Cox, M., Gilbirt, Glasgow, Max, Turner, N. C., Vergani, Woodle
Instructors: Nelson, H., Palmer, D., Reed, D. G.

Offered by the Department of French and Italian
Master of Arts degree with a major 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 78 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 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.
French

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 116.

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 Examination: 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 101A, 110-114 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 101A, 110-114 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; outside reading with oral and written reports.

4. Intermediate (4) I, II
   Prerequisite: French 3 or four years of high school French.
   Continuation of French 3.

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.

40. French Civilization (2) I
    (Same course as Humanities 42)
    Conducted in English. No prerequisite.
    The major currents and characteristics of French culture, as expressed through the centuries in literature, art, philosophy, music, and science.

41. French Civilization (2) II
    (Same course as Humanities 43)
    Conducted in English. No prerequisite.
    Continuation of French 40.
UPPER DIVISION COURSES

101A-101B. Advanced Oral and Written Composition (3-3)
Prerequisites: French 101A with a grade of C or better.
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 with a grade of C or better.
A study of 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.

105A-105B. Nineteenth Century French Theater (3-3)
Prerequisites: French 4 and 11 with grade of C or better.
Classroom reading and discussion of plays from Victor Hugo through Edmond Rostand. Outside reading and reports.

107A-107B. Eighteenth Century Literature (3-3)
Prerequisites: French 4 and 11 with grade of C or better.
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 with grade of C or better.
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 with grade of C or better.
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 with grade of C or better.
The French lyric tradition and its development from the introduction of the genre in the Middle Ages to the contemporary period.

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. To be taken concurrently with Education 112E.

140. French Civilization (2) I
(Same course as Humanities 142)
Conducted in English. No prerequisite.
An advanced course in 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.

141. French Civilization (2) II
(Same course as Humanities 143)
Conducted in English. No prerequisite.
Continuation of French 140.

148. Applied French Linguistics (3)
Prerequisite: French 101A-101B with grade of C or better.
Systematic study of the differences and similarities between the spoken and written forms of present-day French; detailed 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 (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) 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)
Prerequisites: 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 and French 201.
Literature and thought of the 16th century as represented in the works of Rabelais, Montaigne, Ronsard, DuBelly, 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.
General Language

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.
Purpose: and methods of research in the fields of 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.
A study of 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.

298. Special Study (1-6)
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.
Guidance in the preparation of a project or thesis for the master's degree.

GENERAL LANGUAGE

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in general language are drawn from the Department of English and the departments of the foreign languages. Major or minor work is not offered in general language.

LOWER DIVISION COURSES

20. Latin and Greek Word Derivation (3) I, II
(Same course as English 20.)
A general and elementary course in philology. A study of Latin and Greek stems of most frequent occurrence in English, and of the English words derived from them. No prerequisite.

UPPER DIVISION COURSES

196. General Linguistics (3) I
(Same course as English 196.)
Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish, or German.
A study of the principles of linguistic development illustrated chiefly from the Classical, Romanic, and Germanic language groups.

197. English Linguistics (3) II
(Same course as English 197.)
Open only to seniors and graduate students who have had either English 192 or General Language 196.
The phonological, grammatical, and lexical structure of English.

199. Special Study (1-6) I, II
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

GEOMETRY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty
Emeritus Faculty: Blake, Mollitor, Storm
Professors: Eidemiller, Post, Richardson, R., Taylor, J., Yahr (Chairman)
Associate Professor: Finch
Assistant Professors: Blick, Greenwood, Kiewiet de Jonge, Knuth, O'Brien, Wright

Offered by the Department
Master of Arts degree with a major 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 78 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, 2, 3, 60, and Geology 1A. (16 units.)
Geology 1A may be counted as part of a geology minor if desired.

Major. A minimum of 24 upper division units in geography to include Geography 100, 101, 180, 181A, and 12 units of electives in geography, no fewer than six units nor more than nine units of which shall be from among the courses numbered 120 to 139, inclusive.

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

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, 2, 3, 60; and Geology 1A. (16 units.)

Teaching Major (Undergraduate): A minimum of 24 upper division units in geography to include 100, 101, 180, 181A, and 12 units of electives in geography.

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 in the lower division, Geography 1, and either 2 or 60 (Geography 112A-112B may be substituted), and in the upper division, at least nine units of upper division courses in geography (exclusive of Geography 112A-112B). 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

Prerequisite: Geography 1.

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 1.

Theory of meteorological instruments and observations. Practical exercise in surface and upper air observations, weather codes, and elementary weather map analysis.

50. Economic Geography (3) I, II

Prerequisite: Geography 1.

Man's economic activities over the earth's surface. Principles of agricultural production, extractive industries, manufacturing regions, industrial location, and transportation and trade.

85. Quantitative Methods in Geographic Research (3) II

Prerequisites: Geography 1 and 2, and Mathematics 18.

Use of quantitative methods in geographic research with emphasis on the selection and evaluation of data, statistics, and correlations.

Upper Division Courses

100. Climatology (3) I

Prerequisites: Geography 1 and 3. Geography 3 and 100 cannot be taken concurrently. To be taken by geography majors in their junior year.

The causes of climatic phenomena and the regional characteristics of climate.

11. Physiography (3) I

Prerequisites: Geography 1 and Geology 1A. To be taken by geography majors in their junior year.

A study of the physiographic processes and concepts, and of selected areas illustrative of physiographic problems. Types of terrain, their origin, and their distribution over the earth.

105. Soils and Natural Vegetation (3) II

Prerequisite: Geography 1.

The soils and natural vegetation associations of the world; their distribution, classification, development, and relations to climates, landforms and economic activity.

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.

112A-112B. Culture Worlds (3-3)

A study of the evolution, distinguishing cultural characteristics, and physical features of the major cultural regions of the world, with emphasis on the role man has played in the alteration of the natural landscape. 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 112A and 112B; Geography 12B and 112A.

120. California (3) I, II

Prerequisite: Geography 1.

The physical and historical regions of California and the cultural landscapes developed by the successive cultural groups.

121. United States (3) I, II

Prerequisite: Geography 1.

The natural regions of the United States, their formation and economic and historical development.

122. Canada and Alaska (3) II

Prerequisite: Geography 1.

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.

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.

A study of the physical regions and human geography of South America, including a review of the history of colonization and the exploitation of resources.

125. North Africa and the Near East (3) II

Prerequisite: Geography 1.

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.
The geographic bases for the political heritage, economies and peoples of Europe.

127. Soviet Union (3) I, II
Prerequisite: Geography 1.
Analysis of natural resources, agricultural production, industrial growth, and transportation.

129. Oceania (3) II
Prerequisite: Geography 1.
The physical geography, peoples, economies, and trade of Oceania, Australia, and New Zealand.

130. Central and Southern Africa (3) I
Prerequisite: Geography 1.
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.
The geographic bases for the political heritage, economies, and people of Eastern Asia.

132. Southern and Southeastern Asia (3) II
Prerequisite: Geography 1.
The geographic bases for the political heritage, economies, and peoples of Southern and Southeastern Asia.

150. Political Geography (3) I
A study of 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; transportation and world trade.

153. Conservation of Natural Resources (3) I, II
Prerequisite: Geography 1.
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.

154. Water Resources (3) II
Prerequisite: Geography 1.
Occurrence and utilization of water resources and the problems of water resource development.

155. Urban Geography (3) I
Prerequisite: Six units of geography or related experience.
Description and analysis of geographic principles and characteristics related to the distribution, function, structure, and regional setting of urban centers, with discussions of the growth, development and problems of modern cities. Field reconnaissance in local urban areas.

166. Honors Course (Credits to be arranged) I, II
Refer to the Honors Program.

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: For Geography 181A, Geography 1; 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.
Interpretation and evaluation of maps. History of developments in cartography. Study of major mapping organizations of the world and examination of their products.

184. 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.

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.

199. Special Study (1-6) 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

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. May be repeated once with new content.

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. May be repeated once with new content.
Geology

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. May be repeated once with new content.

295. Geographic Research and Techniques of Presentation (2)
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.

298. Special Study (1-6)
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. Guidance in the preparation of a project or thesis for the master's degree.

GEOLOGY

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty
Emeritus Faculty: Brooks
Professors: Gastil, Roberts, Thomas, B. (Chairman)
Associate Professors: Allison, Bassett, Berry, Peterson, Threet
Assistant Professors: Prince, Webster

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 A.B. or B.S. degree in applied arts and sciences.

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 requirement listed on page 78 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 30; and Physics 2A-2B and 3A-3B, or 4A-4B-4C. (34-45 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 A.B. DEGREE IN APPLIED ARTS AND SCIENCES
All candidates for a degree in applied arts and sciences must complete the graduation requirement listed on page 74 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 30; 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. Foreign language is also recommended.

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 requirement listed on page 74 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) Palontology 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 16 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-3B; and Chemistry 4 or 5 or Geology 130. (19-20 units.)

Major (continued). Geology 106; and two of the following courses: Geology 105, 107, 110, 125; and electives approved by the departmental advisor to complete 36 upper division units.

(b) Palontology 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. (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 117, Botany 172.

(c) Geophysics

Additional preparation for the major. Mathematics 50, 51, and 52; and Physics 4A-4B-4C. (25 units.)

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 12; Physics 4A-4B-4C; Mathematics 50, 51, and 52. (33 units.)
Geology

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
No prerequisites.
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.

21. Mineralogy (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: High school chemistry, or credit or concurrent registration in college chemistry.
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 1.

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 and 1B.
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 stereometry applied to structural and stratigraphic problems, and compilation of geologic maps from annotated aerial photographs.

106. Paleontology (4) I
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.

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 per week and 12 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.

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 22, 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.
A study of the morphology, classification and geologic significance of the various microfossils.
Geology

118-S. Summer Field Problems (4-6)
Prerequisite: Geology 108A and consent of instructor.
The employment of 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. Oro Deposits (3) I
Prerequisites: Completion or concurrent registration in Geology 24 and 100.
Geologic relations, origin, distribution, and economics of metallic and nonmetallic 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.

166. Honors Course (Credit to be arranged) 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 108A 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 (1-4) 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 (3 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.

210. Advanced Petrology and Mineralogy (3)
Two lectures and three hours of laboratory.
Prerequisite: Geology 125.
Modern theoretical petrology with emphasis on applications to igneous and metamorphic rocks. X-ray, universal stage, mineralography, and other laboratory techniques and their application to geologic problems.

220. Biostratigraphy (3)
Two lectures and three hours of laboratory.
Prerequisite: Geology 107.
Study of stratigraphic and geochronologic synthesis of geological events and their relationship to the temporal and spatial distribution of life forms. Laboratory analysis of biological data applied to stratigraphic problems.

230. Sedimentology (3)
Two lectures and three hours of laboratory.
Prerequisite: Geology 124.
Classification, distribution, and origin of sedimentary deposits and theory of their interpretation. Mechanical, chemical, and optical analysis of detrital and chemical sediments and sedimentary rocks and their depositional structures.

240. Regional Tectonics (3)
Prerequisite: Geology 100.
A consideration of topics on continental origin, ultimate orogenic force, mechanics of earth deformation and geosynclinal theory, with a survey of classic geologic provinces, and individual projects utilizing techniques of regional synthesis.

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.
Guidance in the preparation of a thesis for the master's degree.

GERMAN

IN THE DIVISION OF THE HUMANITIES

Faculty
Emeritus Faculty: Walker
Professors: Lawson (Chairman, German-Russian), Wolf
Associate Professor: Paulin
Assistant Professors: Boney, Dunkle, Gallari, Tanaka, Westervelt, Wulbern

Offered by the Department of German and Russian
Master of Arts degree with a major 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.
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 78 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 must 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 for permission to take this examination.

Specialization in Elementary Teaching
Preparation for the major. German 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

Teaching Major. Twenty-four upper division units to include German 101A-101B, 102A-102B, 122, 140, 141, 150, and three upper division units of electives in German. In addition to the major, credential candidates must complete Education 156.

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, 122, 140, 141, 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 must 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 for permission to take 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 122.

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.
Prerequisites: German 1 and 2 or German 4.
Concentration: German 2.

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.
Continuation of German 3.

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.

8A-8B. Scientific Reading (2-2) I, II
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.

UPPER DIVISION COURSES

101A-101B. Advanced 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.
A study of 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.
An introduction to the literature of the German Enlightenment, the “Storm and Stress” the Classical Age, and the beginnings of the Romantic School. Outside readings and reports.

105A-105B. German Literature of the 19th Century (3-3)
Prerequisites: German 4 and 11.
An introduction to the literature of German Romanticism, Young Germany, Realism, and Naturalism. Outside readings and reports.

108. Renaissance and Baroque Literature (3)
Prerequisites: German 4 and 11.
German literature of the 16th and 17th centuries.

110A-110B. Contemporary German Literature (3-3)
Prerequisites: German 4 and 11.
An introduction to the main developments in German literature from Neo-Classicisim to the present. Outside readings and reports.

114. Goethe (3)
Prerequisites: German 4 and 11.
Goethe's lyric, epic, and dramatic poetry (excluding Faust).

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.

116. Schiller (3)
Prerequisites: German 4 and 11.
Schiller as poet, dramatist, critic and philosopher, with emphasis on his classical period.

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 in French, Italian, Russian, or Spanish 122. To be taken concurrently with Education 121E.

130. German Syntax and Stylistics (2)
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.
An advanced course in 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 (2)
Prerequisites: German 4 and 11.
Intensive study of the sounds, intonation, and elocution of German.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) 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: 12 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 (3)
Prerequisite: 12 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.

203. The German “Nouvelle” (3)
Prerequisite: 12 units of upper division German.
The development of the “Nouvelle” as a literary form from Goethe to the present.

204. The German Novel in the Twentieth Century (3)
Prerequisite: 12 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: 12 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: 12 units of upper division German.
Representative works of German dramatic literature from Kleist to Hauptmann.

240. German "Gesellschaftsleben" in the 19th and 20th Centuries (3)
Prerequisite: 16 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.
Greek

251. Seminar in Eighteenth-Century Literature (3)
Prerequisite: 18 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: 18 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: 18 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.

200. Research and Bibliography (3)
Prerequisite: 12 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.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisites: 18 units of upper division German and consent of staff; to be ar-
ranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to can-
didacy.
Guidance in the preparation of a project or thesis for the master's degree.

GREEK

IN THE DIVISION OF THE HUMANITIES

Faculty
Assistant Professor: Warren

Offered by the Division of the Humanities
Courses in Greek.
Major or minor work in Greek is not offered. A minor in Classics, described in
this section of the catalog under Humanities, is offered.

LOWER DIVISION COURSES

1. Elementary (4) I
Introduction to Attic Greek, emphasizing intensive reading in Attic prose.

2. Elementary (4) II
Prerequisite: Greek 1 or equivalent.
Continuation of Greek I.

UPPER DIVISION COURSES

103. Readings in Classical Greek (3) I
Prerequisite: Greek 2.
Intensive reading in classical authors, such as Xenophon, Plato, and Sophocles.

Health Education

104. Readings in Classical Greek (3) II
Prerequisite: Greek 103.
Continuation of Greek 103.

190. Special Study (1-6) I, II
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

HEALTH EDUCATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL
EDUCATION, AND RECREATION

Faculty
Professors: Gravunder, Harper (Chairman), Kirzinger
Associate Professors: Burgess, McTaggart
Assistant Professors: Boskin, Fellers, Pailleman
Lecturers: Escamilla, Huff, Shelly, Thompson

Offered by the Department
Master of Arts degree for teaching service with a concentration in health educa-
tion. (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 74 of this catalog.
A minor is not required with this major.

Preparation for the major. Health Education 29, 65; Home Economics 4A;
Zoology 8 and either Biology 9, or 22 plus 23; Psychology 12; Biology 1; and
Sociology 31 (23 units).

Major. A minimum of 36 upper division units to include Health Education 100,
145, 146, 150, or 151, 153, 169, 192, Ed. 121P; the remaining units to be selected
from Health Education or closely related fields with approval of adviser.

HEALTH EDUCATION MINOR

The minor in health education consists of from 15 to 22 units in health education,
nine units of which must be in upper division courses approved by the departmental
adviser in health education; courses to include Health Education 108, 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 Education 29, 65; Biology 1; Home Economics 4A; Zoology 8; and either Biology 9, or 22 and 23; Sociology 1 and 35. (23 units.)

Teaching Major (Undergraduate). A minimum of 36 upper division units to include Health Education 100, 145, 146, 151, 155, 160 or 169, 176 or 192; Psychology 106; Sociology 140; and Education 121P; remaining units to be selected from Health Education and closely related fields.

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 Education 21, 29, and 65; and in the upper division 12 units to include Health Education 100, 145, 146, 151, and four units of electives. In addition, students must complete Education 121P. Courses should be selected in consultation with the departmental advisor in health education.

Specialization in Secondary Teaching

The minor in health sciences for secondary teaching consists of 21 units to include Health Education 21, 29, and 65; and in the upper division 15 units to include Health Education 100, 145, 146, 151, and four units of electives. In addition, students must complete Education 121P. Courses should be selected in consultation with the departmental advisor in health education.

LOWER DIVISION COURSES

21. Principles of Healthful Living (2) I, II

An application of modern knowledge to the development of understandings, attitudes, and practices essential to healthful living. A required general education course. 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.

UPPER DIVISION COURSES

100. Introduction to Health Education (3)

History and principles of health education and its role in modern society. An orientation course for students with a professional interest in health education.

145. Safety Education and Accident Prevention (3) I, II

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, Summer

Standard Red Cross course for instructors in first aid plus medical-legal problems of emergency care of accident victims. (Formerly Physical Education 161.)

147. Traffic Safety and Driver Education (3) I, Summer

Analysis of traffic accidents including pedestrian accidents; natural laws and traffic laws as applied to traffic safety; safe use and care of vehicles; instructional approaches.

148. Advanced Driver Education and Driver Training (3) II, Summer

Prerequisite: Health Education 145 and 147.

Principles and procedure in organizing, conducting, and supervising programs in driver education and driver training including psycho-physical testing; behind-the-wheel training; teaching with simulators.

150. Health Education for Elementary Teachers (2) I, II

The teacher's function in the different aspects of the elementary school health program, with emphasis upon the planning and presentation of educational materials and upon community resources and relationships. Not open to students with credit in Health Education 151.

151. Health Education for Secondary Teachers (2) I, II

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 health programs. Not open to students with credit in Health Education 130.

153. Administration of the School Health Program (2) 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 Education (2) Summer

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. May be taken three times for credit.

160. Introduction to Public Health (3)

Prerequisite: Health Education 65.

Philosophy, development, organization, administration, and legal aspects of public health in the United States. Disease prevention and control, health education, and health in the United States. Emphasis on the functions and activities of official health departments, voluntary agencies, private physicians, and others engaged in professional health work.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

169. World Health (3) II

Prerequisite: Health Education 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) I, II, 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.

175. Health in Later Maturity (3) I

An approach to the conservation of human resources, with particular 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 employment; professional contributions; relationships, influences upon health and medical care: professional health programs. Not open to students with credit in Sociology 121.

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Health Education

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 (1-6) 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 Education.
Prerequisite: Six units applicable on a master's degree.

201. Interdisciplinary Factors in Health Education (3)
Prerequisite: Fifteen units completed in Health Education.
Prerequisite: Synthesis of basic scientific and cultural principles which contribute to an understanding of human well-being and how it is deliberately influenced.

202. Measurement and Evaluation in Health Education (3)
Prerequisite: Health Education 133.
Prerequisite: General and specific approaches to measurement in Health Education; data gathering techniques; organization, presentation, and interpretation of data; basic principles of evaluation of student achievement.

210. School Safety Programs and Procedures (3)
Prerequisite: Health Education 145.
Prerequisite: Advanced consideration of school safety programs including legal bases and requirements, personnel responsibilities, liability, instruction, maintenance, and school transportation.

270. Communicable and Non-Communicable Disease (3)
Prerequisite: Undergraduate major or minor in Health Education.
Prerequisite: Study of selected diseases. Individual investigation and discussion.

271. Habit-forming and Addicting Drugs (3)
Prerequisite: Undergraduate major or minor in Health Education.
Prerequisite: Non-medical use of stimulants and depressants; habituation, addiction, and control. Individual investigation and discussion.

273. Special Study (1-6)
Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.
Prerequisite: Individual study. Six units maximum credit.

299. Thesis (3)
Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Prerequisite: Guidance in the preparation of a project or thesis for the master's degree.

HISTORY

IN THE DIVISION OF THE HUMANITIES

Faculty
Professor: Hanvey, Merrill, Nasar, Pincetl, Rader (Chairman), Ragen, Ridout, Rohde, Webb
Associate Professors: Norman, Ruetten
Assistant Professors: Berge, Cox, Flemion, Munter, O'Brien, A., Reid, J., Shatz, Smith, R. T., Starr, Stoddart, Sullivan
Lecturer: DaFaut

Offered by the Department
Master of Arts degree with a major 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 78 of this catalog. A minor is not required with this major.

Preparation for the major: History 4A-4B or 8A-8B. (6 units.) Recommended; both 4A-4B and 8A-8B, and Political Science 1 and 2, or Economics 1A-1B. No freshman shall enroll in more than one lower division course in history during any one semester without permission of the major adviser.

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.

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, including at least one 200-numbered history course (other than 201, 251A, 251B, 270A, or 270B, unless the student is admitted to graduate status in history).

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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 17A-17B; and 12 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.
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) the U.S. Constitution 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)
Survey of the history of the western hemisphere from its discovery to the present time. This year course meets the graduation requirement in American history, institutions and ideals. 8B meets the graduation requirement in California State and local government.

17A-17B. American Civilization (3-3)
Prerequisite: History 17A is prerequisite to History 17B.
Survey of 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.

UPPER DIVISION COURSES

101A-B. 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. Introduction to 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. (Formerly numbered History 197.)
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)

154A-154B. Modern Britain (3-3)
First semester: The development of constitutional and social patterns from the Glorious Revolution to the French Revolution, emphasizing the immediate background of parliamentary democracy, the Victorian age and political thought from the Utilitarians to the Fabians.

156. The Byzantine Empire and Its Successors (3)
History and civilization of the traditional Near East from the founding of Constantinople in 330 A.D. to the present day. The latter part of the course will stress the decline of the Ottoman Turks and the establishment of modern national states in the region.

157. The Arab States, Israel, and Iran (3)
History and civilization of the Arab World and the Middle East from the rise of Islam in the 7th century to the present. The expansion of the Arab, the penetration of Western ideas, the development of nationalism, and the interests and foreign policy of America in this strategic area will be stressed.

158A-158B. Africa (3-3)
Semester I: The historical development of North Africa; the growth and decline of imperialism, especially in French North Africa. Semester II: The history of Africa south of the Sahara.

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.

161. Mexico (3) I
Prerequisite: History 8A-8B or 160A-160B.
An intensive study of colonial and modern Mexico with special emphasis on the 20th century.

162. Argentina, Brazil, and Chile (3) II
Prerequisite: History 8A-8B or 160A-160B.
An intensive study of the three leading Hispanic Powers of South America.

163. The Caribbean Area (3)
Prerequisite: History 8A-8B or 160A-160B.
The development of Central America and the Spanish Main with emphasis on the 20th century.

164. History of the Andean Countries (3)
The fusion of Andean cultures and institutions with those of Spain to form the modern nations of Ecuador, Peru and Bolivia. Emphasis on recent problems and conditions.

165A-165B. Economic, Social, and Intellectual Development of Latin America (3-3)
Prerequisites: At least nine units in Latin American History and some acquaintance with the Spanish language. Designed for students in the Latin American Studies program, foreign trade, and foreign service.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

167A-167B. Diplomatic History of Latin America (3-3)
Origins of Inter-Americanism; relations among the Latin American nations; the origins and development of the American States, Latin America in World Affairs.

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 administration 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.

172A-172B. Civil War and Reconstruction: The United States from Jackson to Grant (3-3)
Prerequisite: History 171A is prerequisite to History 171B.
Lectures and readings on Jacksonian democracy, territorial expansion, the Mexican War, the slavery controversy, the Civil War and Reconstruction.

174. Emergence of the United States as a World Power (3) I, II
Postwar reconstruction and economic developments to the close of the nineteenth 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)
Lectures and readings in the field of American foreign relations since 1776, with special emphasis in the second semester, upon affairs since 1900. A general survey course. This year-course meets the graduation requirement 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)
A study of the changes in agriculture, industry, labor, banking, transportation, and commerce in a capitalist society with special emphasis on the prominent personalities who made the changes possible.

179A-179B. Intellectual History of the American People (3-3)
A study of the ebb and flow of ideas in the United States since the founding of the English colonies, with special 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. A critical examination of 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.

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 1879; Spanish and Mexican heritage Semester II: 1879 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)
Historical method and research in some aspect of history.
HOME ECONOMICS
IN THE DIVISION OF THE FINE ARTS

Faculty
Emeritus Faculty: Comin, Talboy
Professor: Cannon (Chairman)
Associate Professors: Campbell, Dorris, Thomas, A.
Assistant Professors: Anderson, Z., Martin, M., Nordquist, Schupp
Lecturers: Barnwell, Baunegartner, Berlin, Boggs, Milne, T., Price, Reed, T.

Offered by the Department
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 74 of this catalog.
A minor is not required with this major.
The major in home economics is available in three areas of emphasis: (1) General home economics, (2) Food and nutrition, and (3) Human development and family life.

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 service or dietetic internship, or a three-year apprenticeship under a qualified dietician in a recognized hospital, a student is eligible for membership in the American Dietetic Association and recognition as a qualified dietician. Additional food and nutrition careers include extension service, teaching, business, health agencies and research.

Requirements
Preparation for the major: Home Economics 2, 3, 4A, 15, 35, 40, 45, 70; Art 2A; Biology 1, 2; Business Administration 1A; Chemistry 2A-2B; 3, Economics 1A; Physics 5; Sociology 1; and Zoology 22. (50 units.)

Major: Thirty-seven units to include Home Economics 100, 102, 103, 104, 105, 106, 151, 152, 180; Microbiology 101; Psychology 106; and six units to be selected with consent of the adviser, from Business Administration.

MAJOR WITH EMPHASIS IN HUMAN DEVELOPMENT AND FAMILY LIFE
(This emphasis subject to change effective September, 1967; contact the departmental adviser for information.)

Objectives. (1) to make available for all students general education for marriage, parenthood, and family living which promotes satisfying relations in home and community; (2) to provide professional education for work with children and families in connection with nursery schools, parent education, Home Advising Service, recreation, and community programs such as Girl Scouts and Campfire Girls; (3) to offer preprofessional education for college teaching, research, marriage and family counseling, and community social services for families.

Requirements
Preparation for the major: Home Economics 2, 3, 35, 40, 45, 70; Sociology 1; Psychology 12, 22, 40; Zoology 22; Art 2A; Anthropology 1C. (31 units.)

Major. Twenty-five upper division units to include Home Economics 135, 151, 170, 171, Psychology 145, and ten additional units selected with approval of the adviser to meet one of the stated objectives of this program. Courses will be selected from home economics, sociology, psychology, anthropology, and social welfare.

HOME ECONOMICS MINOR
The minor in home economics consists of 18 units in home economics to include Home Economics 3, 15, 70, 150, and six upper division units of electives in home economics.

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 for secondary teaching consists of 24 units to include, in the lower division, Home Economics 1, 15, 35, 70; and in the upper division, Home Economics 120, 171, 179, and three units of upper division electives in home economics.
Home Economics

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
   One lecture.
   Introduction to the opportunities and requirements in various professional fields for home economists.

3. Food and Nutrition (3) I, II
   One lecture and six hours of laboratory.
   Selection, purchase, and serving of meals with a consideration of nutritional needs of the family groups, food habits, and social customs; management problems.

4A. Fundamentals of Nutrition (2) I, II
   Prerequisite: Chemistry 2A.
   Normal nutrition as applied to the stages of the normal life cycle from infancy through old age.

4B. Nutrition Laboratory (1) II
   Three hours of laboratory.
   Prerequisite: Limited to students in the nursing program.
   Principles of nutrition applied to food preparation, meal planning, and special diets.

14-6. Workshop for School Lunch Personnel (1) Summer
   Open to school lunch personnel only.
   The following areas are included:
   A. Nutrition for School Lunches.
   B. Beginning Meal Planning.
   C. Food Purchasing.
   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 activity.
   Commercial patterns and their adaptation; fitting and construction, primarily with cotton material. Selection and care of textiles. Wardrobe planning and buying practices. Good grooming.

35. Courtship and Marriage (3) I, II
   (Same course as Social Welfare 35)
   Emphasis on preparation for successful marital adjustment; presentation of materials to help students understand and meet their own courtship, marriage, and family problems. Not open to students with credit in Social Welfare 35, Sociology 35, or other course in courtship and marriage or marriage and the family.

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.
   Choosing and furnishing a home, emphasizing economy, comfort, and beauty.

70. Principles of Child Development and Guidance (3) I, II
   Three lectures and one hour of observation.
   Prerequisite: Psychology 1 and Sociology 1. Recommended: Zoology 22.
   Growth and development of the child from conception through adolescence; his relationships with his family and peers; and implications for guidance.

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 Meals (3) I
   Six hours activity.
   Planning, preparing, and serving of attractive, well-balanced meals for different income levels and for various occasions. Not open to home economics majors.

102. Advanced Nutrition (3) I
   Prerequisites: Home Economics 3 and Chemistry 2B.
   Fundamental principles of human nutrition; planning, calculating, and preparing diets to meet human requirements; animal feeding experiments.

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.
   Study of 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; batteries, doughs and sugar cookery; emulsions, fats, and oils; and developments in food preservation.

106. Diet Therapy (3) II
   Two lectures and three hours of laboratory.
   Prerequisite: Home Economics 102.
   Planning and preparation of special diets and food requirements in pathological conditions.

115. Advanced Clothing (3) I, II
   Six hours activity.
   Prerequisite: Home Economics 15.
   Fitting and construction processes applied to wool, silk, and synthetic, 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
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.

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.

135. Family Study (3) I, II
Prerequisites: Psychology 1, Home Economics 35 and 70.
Dynamics of family living; attitudes, practices, social and psychological interaction, and family life patterns in different cultures, social classes and ethnic groups.
(Formerly numbered and entitled: Home Economics 179, Problems of Family Living.)

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.

150. Principles of Home Management (3) 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 171.

151. Home Management Theory and Analysis (3) I, II
Prerequisites: Home Economics 40 and 45.
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 45, 151, and written request made to department chairman at least one year prior to enrollment.
Application of theories and principles of all disciplines of 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
(Repeat course as Business Administration 160)
Three lectures.
Characteristics, merits, limitations, care, and selling points of the more important textile and nontextile products. Stress on manufacturing processes as they affect consumer demands. Not open to home economics majors.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Human Development: Infancy (3) Irregular
Two lectures and two hours of participation.
Prerequisite: Home Economics 70.
Physiological, psychological, social and cultural development and behavior of the human organism through age two. Infants are studied at home, laboratory, or in social agencies.

171. Human Development: Early Childhood (3)
Two lectures and two hours of participation.
Prerequisite: Home Economics 70.
Development, behavior, and guidance of the preschool child, with special emphasis upon psychodynamics of family and group interaction. (Formerly numbered and entitled: Home Economics 170, Child Study Laboratory.)

175. The Nursery School Program (3) I
Prerequisite: Home Economics 70.
An analysis of the types of programs for the Nursery School with consideration of methods and materials evaluated in terms of child development.

176. Creative Experiences for Young Children (3) Irregular
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) II
Prerequisites: Psychology 1 and Home Economics 70.
Readings and interpretations of scientific literature which contribute to an understanding of child behavior. An advanced analysis of physical, social, and psychological factors which determine the direction of human development. (Formerly numbered 171.)

180. Food Demonstration Techniques (1) II
Two hours activity.
Prerequisite: Nine units in home economics courses.
Organizing materials and acquiring techniques for demonstrations; observation and evaluation of professional demonstrations.

181. Materials and Techniques for Teaching Home Economics (2) II
Two hours.
Prerequisite: Education 121C or concurrent registration.
Development and use of audio-visual and other instructional materials.
190. Advanced Studies in Home Economics (2-6) Irregular
Prerequisite: Twelve upper division units in home economics.
Advanced study of selected topics. Maximum credit six units.

199. Special Study (1-6) 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, 105, and Chemistry 3.
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.

215. Seminar: Clothing and Textiles (3)
Prerequisites: Home Economics 119 and consent of instructor.
Investigation and report of specific problems in textiles and clothing. Controlled
laboratory methods used. Individual research emphasized.

230. Seminar: Home Management and Family Economics (3)
Prerequisites: Home Economics 40, 151, and 152.
A study of recent research and findings in the area of home management and/or
family finance. Students develop extensive individual projects.

270. Seminar: Child Development and Guidance (3)
Prerequisite: Consent of instructor.
Emphasis on personality theories and on research and clinical findings relevant
(a systematic study of human development and the guidance of children.

274. Seminar: Marital Adjustment (3)
Prerequisite: Home Economics 179.
Individual study, seminar reports, and group discussions of selected topics in marri-
age adjustment.

281. Seminars: Home Economics Education (3)
Prerequisites: 18 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 im-
plications for secondary and post-high school programs.

299. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff, to be arranged with department chairman and
instructor.

HUMANITIES

IN THE DIVISION OF THE HUMANITIES

Faculty

Faculty assigned to teach courses in humanities are drawn from departments in
the Division of the Humanities.

Offered by the Division

Minor in Classics
For a description of the following curricula, refer to the section in this catalog
on Liberal Arts and Sciences.
Curriculum in American Studies.
Curriculum in Humanities.

These curricula are made available to students who wish to organize and correlate
their course work beyond the minimum requirements for the liberal arts
degree. The programs are made possible through a guided selection of courses
within the major and minor fields and additional courses in related fields.

CLASSICS MINOR

The minor in classics consists of 18 to 22 units, to include 12 units in Greek or
10 units in Latin. (Including high school equivalents), plus at least nine upper
division units chosen from the following: Greek 101, 104, 199; Latin 103, 104, 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.)

LOWER DIVISION COURSES

40. Mythology (5)
Major myths of the Western world in ancient and modern versions.

42. French Civilization (2) I
(Same course as French 40)
Conducted in English. No prerequisite.
The major currents and characteristics of French culture, as expressed through
the centuries in literature, art, and philosophy.

43. French Civilization (2) II
(Same course as French 41)
Conducted in English. No prerequisite.
Continuation of Humanities 42.

44. German Civilization (2) I
Conducted in English. No prerequisite. 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. No prerequisite. Not open to majors or minors in German.
Continuation of Humanities 44.

46. Spanish Civilization (2) I
(Same course as Spanish 40)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish culture, as expressed through
the centuries in literature, art, and philosophy.

47. Spanish-American Civilization (2) II
(Same course as Spanish 41)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish-American culture, as expressed
through the centuries in literature, art, and philosophy.

48-5. European Civilization (3) Summer
No prerequisite.
A study of the civilization of Europe through a conducted travel tour.
52. Russian Civilization (2) I
(Same course as Russian 40)
Conducted in English. No prerequisite.
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. No prerequisite.
Continuation of Humanities 52.

54. Italian Civilization (2) I
(Same course as Italian 40)
Conducted in English. No prerequisite.
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. No prerequisite.
Continuation of Humanities 54.

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

120A-120B. World Religions (3-3)
Prerequisite: Six units in humanities or the social sciences.
An introduction to the issues raised by myth, ritual, and dogma in their social
and cultural contexts. First semester: Western religions—especially Judaism, Chris-
tianity and Islam. Second semester: Eastern religions—especially Hinduism and
Buddhism.

138. Introduction to Aesthetic Appreciation (1) I
(Same course as Comparative Literature 138)
Conducted in English. No prerequisite.
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
(Same course as French 140)
Conducted in English. No prerequisite.
An advanced course in 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
(Same course as French 141)
Conducted in English. No prerequisite.
Continuation of Humanities 142.

146. Spanish Civilization (2) I
(Same course as Spanish 140)
Conducted in English. No prerequisite.
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.

147. Spanish-American Civilization (2) II
(Same course as Spanish 141)
Conducted in English. No prerequisite.
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.

148-5. European Civilization (3) Summer
A study of the civilization of Europe through a conducted travel tour.

150. The Cultural Heritage of Europe (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. Unity and Diversity in Modern European Civilization (3) II
Literary, intellectual, and artistic developments in Europe during the 19th and
20th centuries with particular emphasis on the efforts made towards European unity
against the background of trends which divided Europe.

152. Russian Civilization (2) I
(Same course as Russian 140)
Conducted in English. No prerequisite.
An advanced course in 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. No prerequisite.
Continuation of Humanities 172.

154. Italian Civilization (2) I
(Same course as Italian 140)
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.

155. Italian Civilization (2) II
(Same course as Italian 141)
Conducted in English. No prerequisite.
Continuation of Humanities 154.

166. Honors Course (Credit to be arranged) 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.

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 hu-
manities, and open to seniors with majors in English, foreign languages, history,
and philosophy.

199. Special Study (1-6) 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

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty
Emeritus Faculty: Ford
Professors: Anderson, W. C. (Chairman), Hargen, Luce, McLoney, Thiel
Associate Professor: McMullen
Assistant Professors: Aguine, Bailey, Hammer, Marsters
Lecturers: Bradley, J., Fukamizu

Offered by the Department
Master of Arts degree for teaching service with a concentration 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 74 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 21, 31, 35, 71, 73, 81, and 83, (17 units).

Major. A minimum of 24 upper division units to include nine units in each of two of the following fields: division drawing, general metalworking, general woodworking, general 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 21, 27, and one lower division and one upper division course in each of the following fields: drafting, general woodworking, general metalworking, general 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 major, five courses, selected from the same two areas Arts 202, 203, 205, 206, 207, 208.

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 Industrial Arts 11 and nine units selected from the following lower division courses: Industrial Arts 21, 31, 35, 71, 73, 81, and 83; and in the upper division, twelve units: Industrial Arts 121 and 123, 131 and 133, 151 and 153, 161 and 163, 171 and 173, 181 and 185. 186, 101 and 102, 111 and 112.

LOWER DIVISION COURSES

5. General Industrial Arts Laboratory (3) I, II
One lecture and six hours of laboratory.

6. General Industrial Arts Laboratory (3) I, II
One lecture and six hours of laboratory.

7. Orientation to Industrial Arts (2) I, II
Required of all industrial arts majors during their first semester. A general education elective course in the area of Personal, Social Development.

8. Practical utilization of tools and materials with emphasis on drafting, metalworking, and woodworking. Individual projects, field trips, and audio-visual materials.

9. Individual projects and field trips.

10. Orientation to Industrial Arts (2) I, II
One lecture and six hours of laboratory.

11. Industrial Drawing (3) I, II
One lecture and six hours of laboratory.

12. Metalworking (3) I, II
One lecture and six hours of laboratory.

13. Woodworking (3) I, II
One lecture and six hours of laboratory.

14. Electricity-Electronics (3) I, II
One lecture and six hours of laboratory.

15. Transportation (3) I, II
One lecture and six hours of laboratory.
### Industrial Arts

#### 81. General Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Introduction to the theory and practice in planning, designing, and processing in the various graphic reproduction activities involving type, stencils, paper, and other allied materials.

#### 85. Introduction to Photography (3) I, II
(Same course as Speech Arts 85)
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.

#### Upper Division Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Industrial Arts Crafts (3) I, II</td>
<td></td>
<td>Prerequisite: Previous industrial arts experience.</td>
</tr>
<tr>
<td>102</td>
<td>Advanced Industrial Arts Crafts (3) I, II</td>
<td></td>
<td>Prerequisite: Industrial Arts 101.</td>
</tr>
<tr>
<td>105</td>
<td>Workshop in Instructional Materials (3) Summer</td>
<td></td>
<td>One lecture and six hours of laboratory.</td>
</tr>
<tr>
<td>111</td>
<td>Comprehensive Industrial Arts (3) I, II</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>121</td>
<td>Intermediate Industrial Drawing (3) I, II</td>
<td></td>
<td>One lecture and six hours of laboratory.</td>
</tr>
<tr>
<td>122</td>
<td>Advanced Industrial Drawing (3) I, II</td>
<td></td>
<td>One lecture and six hours of laboratory.</td>
</tr>
</tbody>
</table>

#### 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.

#### 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 Electricity-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 advanced principles of electricity and electronics and their applications to the uses of power transmission, communication, radio, and television.

#### 162. Advanced Electricity-Electronics (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 161.
Development of advanced skills with application to industrial electronics. Advanced techniques for using modern test equipment; analysis of electronic devices for instructional uses.
163. **Industrial Arts Electricity-Electronics (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 162.
Advanced problems in circuit development and analysis, organization, and management.

166. **Honors Course (Credit to be arranged) 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.

185. **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.

186. **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.

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.
Study of 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.
Survey of 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 (1-6) 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. Maximum credit six units applicable on a master's degree.

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.
Detailed study of the theories and procedures of industrial drafting, including monographs, descriptive geometry, and graphic solutions. Emphasis on special applications to industrial arts.

203. **Industrial Arts Problems in Metalworking (3)**
Prerequisite: Industrial Arts 133.
Advanced study of problems involved in industrial arts metalworking. Individual research project dealing with instructional materials or processes.

205. **Industrial Arts Problems in Woodworking (3)**
Prerequisite: Industrial Arts 153.
Intensive study in selected areas of the woodworking industry as it relates to materials, production, and construction. Presentation of research findings.

206. **Industrial Arts Problems in Electricity-Electronics (3)**
Prerequisite: Industrial Arts 163.
Intensive study of contemporary developments in the electricity and electronics areas. Development of projects, aids, 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.
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 50-51 and 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.

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.
Italian

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.

JAPANESE

IN THE DIVISION OF THE HUMANITIES

Faculty
Assistant Professor: Tamaka

Offered by the Division of Humanities
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, mini-
   mum 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.

JOURNALISM

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty
Professors: Julian (Chairman), Wimer
Assistant Professors: Holoveck, Odelahl

Offered by the Department
Major in journalism with the A.B. degree in applied arts and sciences.
Minor in journalism.

JOURNALISM MAJOR

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

All candidates for a degree in applied arts and sciences must complete the gradu-
ation requirements listed on page 74 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 manage-
mant, 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 advisors a pattern of courses from other departments to supplement require-
ments 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, 121, 151, and one year's enrollment in 192 (or 92) or in 124, or the equiva-
 lent in professional experience.
JOURNALISM MINOR
The minor in journalism consists of from 15 to 22 units in journalism to include Journalism 49, 51A, 51B, 102, and 151.

LOWER DIVISION COURSES

49. Introduction to Mass Communications (3) I
A survey of 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
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) 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.
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 Bel Sudoeste and campus magazines.

UPPER DIVISION COURSES

101. Magazine Article Writing (3) II
Prerequisite: Consent of instructor.
Practice in 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) II
Study of 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
Study of 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 Speech Arts 187)
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
Training in the principles and policies of editorial composition for mass communications.

107. Technical Writing (3) II
Reporting technical developments in nontechnical language. A course in 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.

121. Current Problems in Mass Communications (3) 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 (2) 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 four units.

125. Television News Production (2) I, II
Prerequisite: Journalism 104 or Speech Arts 187.
Television news production with experience in photographing news events, producing 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 four units.

132. Propaganda and Public Opinion (3) I, II
(Same course as Political Science 122)
A study of the forces which mold the American public mind, the practice of propaganda, a description and analysis of public relations, pressure groups and their effects in American public life.

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 additional 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 copywriting, 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 (1-2) I, II
Prerequisite: Journalism 153.
- Practical work in servicing accounts in advertising department of The Daily Aztec. Supervised work in preparation of newspaper copy and layout. Copy-testing methods emphasized. May be repeated for a total of four units.

166. Honors Course (Credit to be arranged) I, II
- Special study open to members of the Honors Program in journalism. Refer to the Honors Program.

180. Public Relations (3) I, II
(Same course as Business Administration 155)
- Principles, methods, and objectives in the field of public relations, evaluation of the "publics" of institutions and industry; case studies of public relations problems.

183. Problems in Public Relations (3) II
Prerequisite: Journalism 180 or Business Administration 155.
- Current public relations problems of industry, public agencies, and other institutions.

191. Internship in Journalism (1-6) 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, 191, 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.
- Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on Del Sudeste and campus magazines.

199. Special Study (1-6) I, II
- Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

LATIN

IN THE DIVISION OF THE HUMANITIES

Faculty
Professor: Burnett
Lecturer: Norena

Offered by the Division of the Humanities
- Courses in Latin.
- Major or minor work in Latin is not offered. A minor in Classics, described in this section of the catalog under Humanities, is offered.

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.

UPPER DIVISION COURSES

103. Vergil (3)
Prerequisite: Latin 3.
- Selections from the works of Vergil.

104. The Augustan Age (3)
Prerequisite: Latin 103.
- Selections from the writers of the age of Augustus, such as Horace and Livy.

199. Special Study (1-6) I, II
- Individual Study. Six units maximum credit.
Prerequisite: Consent of instructor.
LIBRARY SCIENCE
IN THE SCHOOL OF EDUCATION

Faculty
Assistant Professors: Linn, McAllister

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.

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 (Credit to be arranged) 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 (1-6) I, II
   Individual study. Maximum credit six units.
   Prerequisite: Consent of instructor.

GRADUATE COURSES

223. 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 DIVISION OF THE PHYSICAL SCIENCES

Faculty
Emeritus Faculty: Emerson
Professors: Becker, Branseter, Burton, Eagle, Harris, V., Harvey, Holmes, Riggs, Shaw, Smith, N., Warren, L. (Chairman), Willerding
Associate Professors: Deaton, Fountain, Grindler, Killgove, Kvarda, Lopez, Moser, Saltz, Van de Wetering
Assistant Professors: Accamando, Biering, Bray, Bryant, Clark, H., Davies, Drobies, Elkins, Ho, Howard, Kopp, Lang, Marcus, Nower, Osborne, Oneyee, Romano
Lecturer: Kennedy, E.

Offered by the Department
Master of Arts or Master of Science degree in mathematics; and a 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 secondary teaching.
Teaching minor in mathematics with specialization in both elementary and secondary teaching.
Mathematics

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 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. (13-18 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 74 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. (11-16 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 from 15 to 22 units in mathematics, six units of which must be in upper division courses. Courses should be selected in consultation with the adviser in mathematics.

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 Secondary Teaching
Preparation for the major. Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (15-16 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. The major may include six units of acceptable related area courses approved by the departmental adviser.
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; and in the upper division, nine units 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. 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 the examinations to be taken by the entering freshman or the transfer student prior to registration. Refer to the calendar.

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.

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 (1) I, II
Three hours of laboratory.
Prerequisite: Mathematics 3.
The use of problem-oriented language and peripheral equipment. Programming of problems and operation of 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 (3-5)
Open only to students working toward a teaching credential in elementary education.
Prerequisites: High school algebra and geometry, Mathematics 10A 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)
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.
Mathematics

20. Mathematics for Business Analysis (3)
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
Prerequisite: 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) 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.

37. Intermediate Computer Programming (3) I, II
Prerequisite: Mathematics 7.

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.

50. Analytic Geometry and Calculus (5) I, II
Prerequisite: Analysis and calculus. 60 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.
Applications of 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.

UPPER DIVISION COURSES

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)
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) II
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, hyperboloids, and paraboloids by means of projections.

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. 110A is prerequisite to 110B.
Integers, rational numbers, 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. Advanced Mathematics for Engineering Students (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 three hours of laboratory.
Prerequisites: Mathematics 12 and Mathematics 22 or 40.
Sampling and sampling distributions; normal distributions; F, T, Chi-square tests; confidence limits; analysis of variations.

130B. Statistical Methods (3) II
Prerequisite: Mathematics 110A.
Correlation, regression, analysis of covariance, nonparametric techniques, sensitivity experiments, design of experiments.

134. Probability (3)
Prerequisite: Mathematics 52.
Definitions, computation of probability by enumeration of cases, discrete and continuous chance variables, density functions, moments, limit theorems, selected distributions.
135A. Numerical Analysis and Computation (3) I
Prerequisite: Mathematics 52.
Newton, Lagrange and Chebyshev approximation of functions. Inverse interpolation, numerical evaluation of roots and definite integrals.

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.

137. Combinatorial Principles for Digital Computers (3)
Prerequisite: Mathematics 52.
Boolean algebra, logical design, and applied combinatorial analysis.

140A. Mathematical Statistics (3) I
Prerequisite: Mathematics 52.
Graphical and arithmetical characterization of observed frequency distributions, moments; use of normal curve, curve fitting, correlation, etc.

140B. Mathematical Statistics (3) II
Prerequisite: Mathematics 140A.
Theoretical discrete and continuous distributions, multiple and partial correlation, large and small sample theory including student's T, chi-square, and the F distributions with applications.

149. Linear Algebra (3) I, II
Prerequisite: Mathematics 52.
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.

160. Introduction to Topology (3)
Prerequisite: Mathematics 121A.

166. Honors Course (Credit to be arranged) 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.

199. Special Study (1-6) 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.

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 121B.
Mathematics

224A-224B. Functions of a Complex Variable (3-3)
Prerequisite: 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.

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.

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.

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 (1-6)
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 (1-6)
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. Guidance in the 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

1805. Recent Trends in Secondary School Mathematics (1)
Recent trends in high school mathematics and in application of mathematics.

Microbiology

181A. 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.

1835. 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.

1855. 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.

Probability, measures of central tendency and dispersion, characteristics of frequency functions of discrete and continuous variables; applications.

MICROBIOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty
Professors: Myers, Walsh
Associate Professor: Moore, H. (Chairman)
Assistant Professors: Baxter, W., Phelps

Offered by the Department
Major 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.

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 78 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 12; Mathematics 21 or 40; and Physics 2A-2B. (34 units) Recommended; Chemistry 13; Mathematics 22 or 50; Physics 3A-3B.

Major. A minimum of 24 upper division units in microbiology and approved related fields, to include Microbiology 101, 102, 104, 107; Chemistry 115A-115B. Remaining units to be selected from: Microbiology 103, 105, 106 or Biology 101, Microbiology 108, Biology 103, 110, 151, 155; Chemistry 109A, 109B.

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 74 of this catalog.
A minor is not required with this major.
Microbiology

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B, 4 or 5, and 12; Mathematics 21 or 40; and Physics 2A-2B. (34 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, 103, 104, 105, 107, 109; Zoology 128; Chemistry 115A-115B; and electives selected with approval of the adviser. Recommended: Biology 103, 110, 151, 153; Chemistry 105A-105B; Microbiology 106 or Biology 101 and Microbiology 108.

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 Technician 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, the student should follow the major in microbiology described for the B.S. degree, but, should include from the following courses sufficient units to complete his major: Biology 155, 110, 157; Microbiology 106, 108, 126, B; Zoology 108, 126, B.

Clinical Technologist or Bioanalyst. To fulfill the academic requirements to qualify for the licensing examination given by the State for Clinical Technologist or Bioanalyst, the student should include Microbiology 106 and Biology 101, if he should subscribe to Chemistry 114A-114B for Chemistry 115A-115B, and he may choose from the following courses sufficient units to complete the major: Biology 103, 110, 151, 153; Microbiology 108; and Zoology 108, 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 74 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 12; Physics 2A-2B, 3A-3B, 11, 21 and 22, or 40 and 50; Biology 15, Geology 2, Health Education 65, and Sociology 1. (46-52 units.)

Major. A minimum of 16 units to include Microbiology 101, 102, 111A-111B, 112, 113; Zoology 128 or Biology 150; Health Education 168; Political Science 160; Engineering 123, 125.

MICROBIOLOGY MINOR

All students majoring in microbiology consist of from 15 to 22 units in microbiology to include Microbiology 1 (or 101), 102, 103, and the remainder of the units to be supplemented by Zoology 8, Biology 9 or 101, Chemistry 115A, 115B, or Microbiology 106.

LOWER DIVISION COURSES

1. General Microbiology (Bacteriology) (4) I, II

Two lectures and six hours of laboratory. Recommended: Chemistry 2A. Students with credit for Microbiology 110 may enroll but will receive only one additional unit of credit.

2. Advanced Bacteriology (4) I, II

Two lectures and six hours of laboratory. Recommended: Chemistry 1A. Students with credit in Microbiology 110 may enroll but will receive only one additional unit of credit.

3. Fundamentals of microbial genetics (3) I, II

Two lectures and six hours of laboratory. Recommended: Chemistry 105. Students with credit in Microbiology 110 may enroll but will receive only one additional unit of credit.

4. Microbiological physiology (3) I, II

Two lectures and six hours of laboratory. Recommended: Chemistry 105.
110. Microbiology and Man (3) I, II
   Two lectures and three hours of laboratory.
   Prerequisite: Biology 1.
   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)
   (Offered in 1968-69)
   Two lectures.
   Prerequisite: Microbiology 102.
   Study of the transmission, distribution, and control of infectious and non-infectious diseases in the community.

112. Survey of Environmental Health (4) I
   (Offered in 1968-69)
   Three lectures and three hours of laboratory and field work.
   Prerequisites: Biology 1, 2, and 15; Chemistry 1A-1B, 4 or 5, and 12; Physics 2A-2B, 3A-3B; Geology 2; Health Education 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. Laboratory and Field Work In Environmental Health (4) II
   (Offered in 1968-69)
   Twelve hours of laboratory and field work.
   Prerequisites: Microbiology 102, Health Education 100, and credit or concurrent registration in Engineering 125.
   Procedures for evaluating the microbiological standards of the environment of a community, in such factors as water, food, air, sewage, rodents and flies.

166. Honors Course I, II (Credit to be arranged)
   Refer to the Honors Program.

180. Electron Microscopy (4) I, II
   Two lectures and six hours of laboratory.
   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.

195. 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 195 or a combination of this course with Biology 198 or Zoology 198.

199. Special Study (1-6) I, II
   Individual study. Six units maximum credit.
   Prerequisites: 15 upper division units in the major with an average of B (3.0) or better.

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.

210. Seminar in Medical Bacteriology (2)
   Prerequisite: Microbiology 102 or consent of instructor.
   May be repeated with new content to a maximum of four units.

220. Seminar in Industrial and Agricultural Microbiology (2)
   Prerequisite: Microbiology 101 or consent of instructor.
   May be repeated with new content to a maximum of four units.

230. Seminar in Medical Mycology (2)
   Prerequisite: Microbiology 104 or consent of instructor.
   May be repeated with new content to a maximum of four units.

240. Seminar in General Microbiology (2)
   Prerequisites: Microbiology 101 and 105, or consent of instructor.
   May be repeated with new content to a maximum of four units.

250. Seminar in Virology (2)
   Prerequisites: Microbiology 101, 107 or consent of instructor.
   May be repeated with new content to a maximum of four units.

260. Seminar in Immunology and Serology (2)
   Prerequisite: Microbiology 103 or consent of instructor.
   May be repeated with new content to a maximum of four units.

291. Research Techniques (3)
   Prerequisites: Major in a biological science and two upper division courses in the area of microibiology or consent of instructor.
   Analysis of research procedures in microbiology.

298. Special Study (1-6)
   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.
   Guidance in the preparation of a project or thesis for the master's degree.

MUSIC

IN THE DIVISION OF THE FINE ARTS
(The Department of Music is a member of National Association of Schools of Music)

Faculty
Emeritus Faculty: Smith, L. D., Springfield
Professors: Anderson, P. V., Blyth, Rost, Smith, J. D. (Chairman), Snider
Associate Professors: Back, Ganzinger, Hogg, Hurd, Lambert, Savage, Ward-Steinman
Assistant Professors: Braderer, Brunson, Estes, Flye, Forman, Loomis, D., Mitchell, D., Macek, Sheldon
Lecturer: Rohlfiesch

Offered by the Department
Master of Arts degree with a major in music; and a Master of Arts degree for teaching service with a concentration 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 applied arts and sciences.
Minor in music
Teaching major in music with specialization in both elementary and secondary teaching.
Teaching minor in music with specialization in both elementary and secondary teaching.

MUSIC MAJOR
WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

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 A.B. degree with a major in music in applied arts and sciences or in teacher education are as follows:

1. Upon entering the department, each student is required to take an examination in piano for classification, and to commence on no less than four consecutive semesters of class 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 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 in the teaching credential program, one of which must be a major group (choir, orchestra, or band) in which the major instrument or voice is regularly used.

Course Requirements

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 74 of this catalog.

A minor is not required with this major.

Preparation for the major. Music 9A-9B, 10ABC (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, 151C, 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.

(b) Music History and Literature. Seven units from Music 154ABCDE, 197, 199, 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 103, 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.

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, equivalent knowledge demonstrated in a test of reading knowledge administered by the foreign languages department concerned. (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

<table>
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<tr>
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<td>Music 10A-10B</td>
<td>Music 106</td>
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<td>Music organization courses numbered 70-88</td>
<td>Music organization courses numbered 70-88</td>
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<td>Major instrument</td>
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<td>Health Education 21</td>
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<td>Psychology 2</td>
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<td>English 1A</td>
<td>American institutions</td>
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<td>Speech Arts 3 (or 4)</td>
<td>Foreign language</td>
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<td>P.E. activities</td>
<td>Natural science</td>
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<td>P.E. activities</td>
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First Year: 30-32 units

Third Year: 30-32 units

Fourth Year: 154ABCD, 146B, 152A, 152B, eight units selected from courses numbered 170-188.

Units from one of the fields of emphasis listed below 5-7

(a) Performance: Five units from Music 153, 154ABCDE, 167, 197, 199.

(b) Music History and Literature: Seven units from Music 154ABCDE, 197, 199.

(c) Composition: Seven units from Music 103, 109B, 197, 199.

Electives 14-16 units

20-28 units

20-28 units

20-28 units

20-28 units

20-28 units

20-28 units

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20-28 units

20-28 units

20-28 units

20-28 units

20-28 units
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 111, 112, 116, 117, 121, 122, 126, 127, 131, 132, 135.

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.

Students in Teacher Education may use this major, with specialization in either elementary or 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 Elementary Teaching


Teaching Major. A minimum of 28 upper division units to include Music 146A, 146B, 152A, 152B, 108, 109A; three units selected from Music 120A, 120B, 125A, 125B, 130A, 130B, and 135; six units selected from courses numbered Music 170 through 188; three units of Music 150; and four units of upper division music electives.

Specialization in Secondary Teaching

Preparation for the major. Music 9A, 9B, 9A, 9B, 10A, A-B-C-D, 15A, 15B, 32; eight units selected from courses numbered 70 through 88; four units selected from courses numbered 20 through 35; and four units of 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; four units of upper division music electives; and Ed 125.

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. Consult 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-10C, 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 21 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-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 are selected on an individual basis from options that include the following:

1. Music courses numbered 70 to 88.
2. Electives from the music courses numbered 170 to 188.
3. Electives selected from the music courses numbered 120A, 120B, 125A, 125B, 130A, 130B, and 135.
4. Music 10A-C may be waived in part or in full by examination.

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 either be a regularly enrolled student in the Music Department of the college (that is, a music major or minor), or he must have taken private music instruction during his private study, three units of music selected from these specific courses, Music 10A, 10B, 51, or 151.
2. The instructor giving such private instruction must be approved by the Music Department, and the programs 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. Students who have taken private instruction in San Diego State College, the student is required to take a placement examination conducted by the Music Department at the beginning of the semester, which will show the status of the student faculty 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 assumption of that instruction for credit must be taken as a part of his program of study.
6. Evidence that the standards of the Music Department have been met will be determined by an examination conducted by the Music Department, at the end of the semester.
7. All students must take a composition examination at the end of the semester and be prepared for the Applied Music examination.

LOWER DIVISION COURSES

2. Basic Musicianship for Non-Music Majors (I, II)

Four hours. No prerequisite.

Rudimentary music theory involving the elements of music: melody, rhythm, harmony, and keyboard techniques. Developing the understanding of the elements of all musics, including the use of melody and harmony in composition and performance. (Formerly Music 1A, Musicianship for Elementary Teachers.)

7. Composition Laboratory (I, II)

Three hours. Lecture. Prerequisite: Consent of instructor.

Preparation: Consent of instructor.

Original writing in different homophonic and polyphonic forms for various media. Media may be required to a maximum of two units.
8A-8B. Comprehensive Musicianship (6-9) 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-9B. Elementary Harmony (3-6) I, II
Four hours.
Prerequisite: Music 9A is prerequisite to 9B.
Sight-singing, dictation, and keyboard harmony. Traditional diatonic harmony; four-voice writing, analysis.

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.

11. Piano—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. May be repeated to a maximum of four units.

15A. Voice—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
A class for beginners in the vocal field including the problems of breath control, tone placement, articulation and intonation. Frequent performance of simple songs.

15B. Class Voice—Elementary Class Instruction (1) I, II
Two hours.
Prerequisite: Music 15A.
Study of more advanced songs with attention being given to interpretation, as well as continued work on tone, articulation and placement. Frequent performance before class required.

16. Voice—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. May be repeated to a maximum of four units of credit.

20A. Strings—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Primarily for students preparing for a teaching credential in music. Not open to students with credit in Music 130A.

20B. Strings—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 20A or 120A.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A as well as string class methods. Not open to students with credit in Music 120B.

21. Strings—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are offered in violin, viola, cello, bass, may be repeated to a maximum of four units of credit.

25A. Clarinet and Flute—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching the clarinet and flute by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 125A.

25B. Oboe and Bassoon—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching oboe and bassoon by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 125B.

26. Woodwinds—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

30A. Brass—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching the trumpet and French horn by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. 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 teaching the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 130B.

31. Brass—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

32. Percussion—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching 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. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 135.
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 A.B. degree with a major in music. For conditions under which credit may be given for music study under private instructors, see explanation in the outline of requirements for the Music major in the section on Applied Arts and Sciences. May be repeated for a total of four units.

Piano  Oboe  Trumpet  Violin
Organ  Clarinet  Trombone  Viola
Voice  Saxophone  Baritone Horn  Cello
Flute  Bassoon  Tuba  Contrabass
French Horn  Percussion  Composition

51. Introduction to Music (3) I
Three lectures. No prerequisite.
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 (3) I, II
Two lectures. No prerequisite.
An introductory course in 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 per week. No prerequisite.
Training in the interpretation and characterization of light and grand opera. Specific work in coordination of operatic ensemble.

58A-S8B. 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. Intermediate Harmony and Two-part Counterpoint (3) I, II
Four hours.
Prerequisite: Music 9B.
Continuation of Music 9B. Harmonic alteration and modulation. Two-voice counterpoint with compositional exercise in appropriate forms.

59B. Advanced Harmony and Three-part Counterpoint (3) I, II
Four hours.
Prerequisite: Music 59A.
Continuation of Music 59A. Chromatic harmony and remote modulation. Analysis and writing in the smaller homophonic forms. Three-voice counterpoint with 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. May be repeated to a maximum of four units.

75. Marching Band (1) I
Concurrent registration in Music 75 and 76 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of 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.
May be repeated to a maximum of four units.

80. Symphony Orchestra (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

85. Concert Choir (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

86. Treble Clef (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

87. Men's Glee Club (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

88. College Chorus (1) I, II
Three hours. No prerequisite.
Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. May be repeated to a maximum of four units of credit.

89. Jazz Ensemble (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

UPPER DIVISION COURSES
105. Modern Harmonic Practice and Four-part Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 59A.
Analysis and composition in modern idioms. Continuation of contrapuntal technique into four-voice technique, writing of canon and fugue.

106. Sixteenth Century Counterpoint (3) I, II
Three lectures.
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.

107. Composition Laboratory (1) II
Three hours of laboratory.
Prerequisites: Music 7 and consent of instructor.
Continuation of Music 7. May be repeated to a maximum of two units.
108. Form and Analysis (2) I, II
Two lectures.
Prerequisite: Music 59A.
Structure and design as found in the traditional musical forms. Development of
detailed analytical technique.

109A-109B. Instrumentation and Arranging (3-2) I, II
Two lectures.
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.

111. Piano—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. May be re-
peated to a maximum of four units of credit.

112. Piano—Advanced Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of the advanced level are studied in detail. May be re-
peated to a maximum of four units of credit.

116. Voice—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of the intermediate level are studied in detail. May be re-
peated to a maximum of four units of credit.

117. Voice—Advanced Voice Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of the advanced level are studied in detail. May be re-
peated to a maximum of four units of credit.

120A. Strings—Elementary Class Instruction (1) I
Two hours. No prerequisite:
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisi-
tion of elementary skills. Primarily for students preparing for a teaching credential
in music. 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 teaching violin, viola, cello, and string bass by lecture and acqui-
sition of elementary skills emphasizing those instruments not previously studied in
Music 20A or 120A as well as string class methods. Not open to students with
credit in Music 20B.

121. Strings—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are of-
fereed in violin, viola, cello, and bass. May be repeated to a maximum of four units
of credit.

122. Strings—Advanced Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Repertoire includes study of standard orchestral parts, solos, sonatas, suites and
concerti. Sections are offered in violin, viola, cello, and bass. May be repeated to a
maximum of four units of credit.

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 per-
formance 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. No prerequisite.
Fundamentals of teaching the clarinet and flute by lecture and acquisition of ele-
mentary skills. Open to all students, but primarily for those preparing for a teaching
credential in music. Not open to students with credit in Music 21A.

125B. Oboe and Bassoon—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching oboe and bassoon by lecture and acquisition of ele-
mentary skills. Open to all students, but primarily for those preparing for a teaching
credential in music. Not open to students with credit in Music 21B.

126. Woodwinds—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are of-
fereed in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four
units of credit.

127. Woodwinds—Advanced Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Repertoire includes study of standard orchestral parts, solos, sonatas, suites and
concerti. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to
a maximum of four units of credit.

130A. Brass—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching the trumpet and French horn by lecture and acqui-
sition of elementary skills. Open to all students, but primarily for those preparing
for a teaching credential in music. 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 teaching the bass clef instruments (trumpet, baritone, and
tuba), by lecture and acquisition of elementary skills. Open to all students, but
primarily for those preparing for a teaching credential in music. Not open to stu-
dents with credit in Music 30B.

131. Brass—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are of-
fereed in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maxi-
imum of four units of credit.

132. Brass—Advanced Class Instruction (1) I, II
Two hours.
Prerequisite: Junior standing.
Repertoire includes study of standard orchestral parts, solos, sonatas, suites and
concerti. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be
repeated to a maximum of four units of credit.
135. Percussion—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching 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. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 35.

140. Planning and Development of Marching Band Shows (2) I
Two hours.
Prerequisite: Two semesters of Music 75 or 177.
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. Piano Pedagogy (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Consent of instructor.
Teaching beginning and intermediate piano. Survey and evaluation of teaching materials. Observation of individual and group piano lessons.

142. Piano Pedagogy Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Music 141.
Practical experience in the teaching of individual and group piano lessons.

143. Music Literature for Elementary Teachers (3) I, II
Three lectures.
Prerequisites: Music 2 or 9A.
Study of 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
Three hours.
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
Three hours.
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 choral 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) I, II
Three hours.
Prerequisite: Music 146A.
Study of orchestra and band scores of graduated levels of advancement. The class will prepare and conduct instrumental works in public performances.

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 A.B. degree with a major in music.
For conditions under which credit may be given for music study under private instructors, see explanation in the outline of requirements for the Music major in the section on Applied Arts and Sciences. May be repeated for a total of four units.

       Piano   Oboe   Trumpet   Viola
       Organ   Clarinet   Trombone   Violin
       Voice   Saxophone   Baritone horn   Cello
       Flute   Bassoon   Tuba
       French horn   Percussion

151. Great Music (3) I, II
Three lectures.
Significant music literature of the various historical periods with emphasis on the stylistic characteristics through directed listening.
A. Musical Masterpieces of the 18th and 19th Centuries.
B. Musical Masterpieces of the 20th Century.
C. Masterpieces of Grand Opera.
D. Twentieth Century American Jazz.

152A-152B. History of Music (3-3) I, II
Three lectures.
Prerequisites: Music 52 and 59A; Music 152A is prerequisite to 152B.
Detailed study of the chronological development of musical art forms from the Middle Ages to the present. Analytical score study and assigned recordings.
Familiarity with musicalological resources through individual assignments.

153. Opera Technique (2) I, II
Four hours. No prerequisite.
Training in interpretation and characterization of light and grand opera. Specific work in coordination of opera ensemble.

154. Music Literature (2) I, II
Two lectures.
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.
   A. Chamber Music Literature—Strings
   B. Small Wind and Percussion Ensemble Literature
   C. Symphonic Literature
   D. Keyboard Literature
   E. Song Literature

166. Honors Course I, II (Credit to be arranged)
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; presentation of literature and historical study of scores chosen; preparation for public 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; selection of literature and historical study of scores chosen; preparation for public theoretical analysis and historical study of scores chosen; preparation for public performance; and examination before committee of music department faculty.
PERFORMANCE ORGANIZATION COURSES

The performance group courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques.

170. Chamber Music (1) I, II
Three hours.
Prerequisite: Consent of instructor.
Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. May be repeated to a maximum of four units.

175. Marching Band (1) I
Concurrent registration in Music 175 and 176 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four 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.
May be repeated to a maximum of four units.

180. Symphony Orchestra (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

185. Concert Choir (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

186. Treble Clef (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

187. Men's Glee Club (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

188. College Chorus (1) I, II
Three hours. No prerequisite.
Open to all persons interested in performing oratorio, cantatas, opera, and extended choral works. No entrance auditions are required. May be repeated to a maximum of four units of credit.

189. Jazz Ensemble (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

GRADUATE COURSES

200. Seminar in Music Education (3)
Prerequisite: Consent of instructor.
Seminars in music education are offered to provide an opportunity for concentrated study in the several areas listed.
A. Supervision of music education
B. Junior high school music
C. Marching band technique
D. Instrumental methods
E. Choral methods
F. Problems in Elementary School Classroom Music

203. Musicology (3)
Prerequisites: Music 152A and 152B.
Problems and methods of research in aesthetics, acoustics, music history and related fields. Source materials, bibliography. Completion of written project.

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. Seminar: Music Theory (3)
Prerequisite: Music 108.
A survey of 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.

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 as related to band and orchestra literature, score analysis and experience in conducting.

250. Applied Music-Advanced Individual Study (1)
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 music study under private instructors, see explanation in the outline of requirements for the Music major in the section on Applied Arts and Sciences. May be repeated to a maximum of two units.

Piano  Oboe  French Horn  Violin
Organ  Clarinet  Trumpet  Viola
Voice  Saxophone  Trombone  Cello
Flute  Bassoon  Baritone Horn  Contrabass
Tuba  Percussion  Composition

310 311
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

255. Seminar: A Major Composer (3) I, II
Prerequisites: 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. May be repeated.

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 Francofian Notation.
D. Notation of Ensemble Music: French, Italian, Mixed and Mannered Notation.

290. Research Procedures in Music (3)
Three lectures.
Reference materials, bibliography, investigation of current research in music, procedures of thesis topic selection, and techniques of scholarly writing.

298. Special Study (1-6)
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.
Guidance in the preparation of a project or thesis for the master's degree.

NURSING
IN THE DIVISION OF THE LIFE SCIENCES
(Agency Member of the National League for Nursing)

Faculty
Professors: Coveny, Nye (Chairman)
Associate Professors: Atkinson, B., Cooksey, Johnson, E., Lee, P., Moses
Assistant Professors: Goodrich, Hunt, Laiho, Laws, LaMonica, Lindenthal, Salerno, Schmidt, P.
Lecturer: Stanley

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 74 of this catalog.
A minor is not required with this major.

Course Requirements
Preparation for the major: Nursing 1, 31A-33B, 34A-34B, and 36 (23 units); Chemistry 2A-2B, 3; Microbiology 1; Physics 5; Zoology 8; Biology 9; Sociology 1 (28 units.)

Further credit in general education will be allowed in Health Education 21 for completion of the entire nursing curriculum; and the lower division zoology may be counted in place of biology for general education purposes. Other general education credit will be allowed as appropriate courses are completed; the remaining three units to be selected from electives in social sciences or in communication.

Major: Forty-five units to include Nursing 112, 114, 116, 118, 120, 124, 125, 126 (33 units); and the following related courses: Anthropology 100B, Psychology 106, 131; and Sociology 136. (12 units.)

LOWER DIVISION COURSES
1. Orientation to Nursing (1)
One lecture. No prerequisite.
An introduction and orientation to the profession of nursing. Considers ethical principles, the nurse's code, and professional problems which will face the student nurse.

33A. Medical Nursing (5)
Three lectures and six hours of laboratory.
Prerequisites: Zoology 9; concurrent registration in Nursing 34A and in Microbiology 1 or Chemistry 3.
Fundamental principles and application in meeting needs of adults with medical health problems.

33B. Medical Nursing (5) II
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 33A, 34A, and concurrent registration in Microbiology 1 or Chemistry 3.
Continuation of Nursing 33A.
34A. Surgical Nursing (5) I
Two lectures and nine hours of laboratory.
Prerequisites: Zoology 9, concurrent registration in Nursing 33A and in Microbiology 1 or Chemistry 3.
Fundamental principles and application in meeting needs of adults requiring surgical intervention.

34B. Surgical Nursing (5) II
Three lectures and six hours of laboratory.
Prerequisites: Nursing 33A, 34A, and concurrent registration in Nursing 33B and in Microbiology 1 or Chemistry 3.
Continuation of Nursing 334A.

36. Community Nursing (2) I, II
Prerequisite: Concurrent registration in Nursing 33A and 34A, or in 33B and 34B.
A study of social and health agencies and how they meet the nursing needs of individuals and families in the hospital, home, and community.

UPPER DIVISION COURSES

112. Obstetric Nursing (5) I, II
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 33B and 34B and Sociology 136. Study of care and treatment of the obstetric patient and newborn infant.

114. Pediatric Nursing (5) I, II
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 33B and 34B and credit or concurrent registration in Psychology 106. Nursing care of infants and children; prevention and control of disease; and instruction of parents.

116. Trends in Nursing (2) I
Prerequisite: Nursing 1.
Place of nursing in world history and the present social order.

118. Psychiatric Nursing (5) I, II
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 33B and 34B and 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.

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.

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.

125. Public Health Nursing (4) I, II
Prerequisite: Nursing 36, 112, 114, and credit or concurrent registration in Nursing 126.
Principles of Public Health Nursing and organization and administration of health services.

"126. Public Health Nursing Practice (5) I, II
Fifteen hours of laboratory.
Prerequisites: Concurrent registration in Nursing 125.
Guided public health nursing practice in community health agencies, out-patient clinics, schools and homes.

Individual Study

166. Honors Course (Credit to be arranged) 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 (1-6) 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 DIVISIONS OF THE LIFE SCIENCES AND THE PHYSICAL SCIENCES

Faculty
Associate Professor: McBlair
Assistant Professors: Darby, Ford, Howard, F.

UPPER DIVISION COURSES

100. The Oceans (2) I
Prerequisites: One introductory 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 119, Physical Oceanography

PHILOSOPHY

IN THE DIVISION OF THE HUMANITIES

Faculty
Emeritus Faculty: Mendenhall
Professors: Nelson, S., Ruja, Shields
Associate Professors: Anderson, A. W., Crawford, P., Howard, McChurg, Snyder (Chairman), Warren, E. W.
Assistant Professors: Jordan, Koppelman, Troxell, Weissman
Philosophy

Offered by the Department

Master of Arts degree with a major 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 78 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 to include Philosophy 101, 102, and 103. Six of the 24 units may be in related fields to be selected with approval of the departmental adviser.

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, to include Philosophy 101.

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 upon problems of value. In Philosophy 1A, emphasis is placed on 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.

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 or the equivalent in other areas.

Thales through Marcus Aurelius.

102. History of Philosophy II (3) I, II

Prerequisite: Philosophy 101.

Plato through William of Ockham.

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.

105. Contemporary Philosophy (3) II

Prerequisite: Philosophy 1B.

Major philosophical issues, movements, and figures in American and European philosophy of the twentieth century.

108. Recent Existentialism (3) I

Prerequisite: Six units of philosophy or the equivalent in other areas.

An examination of 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.

A systematic inquiry into the nature of law and the logic of legal reasoning. An exploration of certain key legal concepts such as causation, responsibility, personality, and property.

112. Political Philosophy (3) II

Prerequisite: Philosophy 1A.

A critical inquiry into 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.


123. Theory of Knowledge (3) I

Prerequisite: Philosophy 1B.

A critical study of the major theories of human knowledge: mysticism, rationalism, empiricism, pragmatism.

125. Metaphysics (3) II

Prerequisite: Philosophy 1B.

Explorations of 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 or the equivalent in other areas.

Analysis and discussion of the nature of values and value-judgments 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 or the equivalent in other areas.

A study of significant and typical value theories and systems and of the concrete problems such theories seek to explain. The emphasis will be placed on moral values. The student will be encouraged to examine critically his own system of 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.
132. Philosophy of History (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
A critical examination of 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.

134. Philosophy of Literature (3)
Prerequisite: Six units of philosophy or the equivalent in other areas.
Study of literature of philosophical significance, and of philosophical problems of literature. Representative works of realism, romanticism, existentialism, and modern directions of thought are considered with regard to both their intellectual and literary principles.

135. Philosophy of Religion (3) I, II
Prerequisite: Six units of philosophy or the equivalent in other areas.
The philosophical significance of major themes in religious thought. The role of myth and the nature of religious language.

136. Philosophy of Art (3) II
Prerequisite: Six units of philosophy or the equivalent in other areas.
The nature of esthetic experience. The principal theories of art, both traditional and contemporary, are studied at length, both in relation to actual artistic production and to the role of art in society.

137. Philosophy of Science (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
A critical examination of the basic concepts and methods underlying contemporary scientific thought. Contributions of the special sciences to a view of the universe as a whole.

150A-150B. Asian Thought (3-3)
Prerequisite: Six units of philosophy or the equivalent in other areas.

164. American Philosophy (3)
Prerequisite: Six units of philosophy or the equivalent in other areas.
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 (Credit to be arranged) I, II
Refer to the Honors Program.

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: 12 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: 12 upper division units in philosophy including Philosophy 102.
Directed research in a major author (e.g., Augustine or Aquinas), or a school (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: 12 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 British empiricists, or the nature of substance). Maximum credit six units applicable on a master's degree.

205. Seminar in Contemporary Philosophy (3)
Prerequisite: 12 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 analyzers), 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: 12 upper division units in philosophy.
Directed research in recurrent themes of philosophical significance in jurisprudential literature.

212. Deductive Logic (3)
Prerequisite: 12 upper division units in philosophy including Philosophy 121.
A comparison of deductive systems in logic. Problems of definitability, consistency, and completeness. The role of logic in the foundations of mathematics.

223. Seminar in Epistemology (3)
Prerequisite: 12 upper division units in philosophy.
An examination of some of the basic problems concerning meaning, perception, and knowledge. Readings in the works of leading contemporary philosophers, such as C. I. Lewis and Bertrand Russell.

225. Seminar in Metaphysics (3)
Prerequisite: 12 upper division units in philosophy.
An inquiry into the search for significant qualities of reality.

228. Seminar in Ethics (3)
Prerequisite: 12 upper division units in philosophy.
An analysis of the works of some major 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: 12 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: 12 upper division units in philosophy including Philosophy 135.
A philosophically informed study of religious, ethical, or metaphysical issues.

236. Seminar in Philosophy of Art (3)
Prerequisite: 12 upper division units in philosophy.
An analysis, criticism, and comparative study of selected philosophies of art. A philosophical investigation of the nature of religious thought: its structure, growth, and significance.

237. Seminar in Philosophy of Science (3)
Prerequisites: 12 upper division units in philosophy including Philosophy 122 and 137.
Studies in the methodology of the empirical sciences. The logical structure of science.
Physical Education

200. Seminar in East-West Philosophy (3)
Prerequisites: 12 upper division units in philosophy including Philosophy 150A.
Comparative study of mythological, ethical, and mystic themes in the literature
of East and West.

298. Special Study (1-6)
Individual study. Maximum credit six units.
Prerequisites: 12 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 can-
didacy.
Guidance in the preparation of a project or thesis for the master's degree.

PHYSICAL EDUCATION
IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL
EDUCATION, AND RECREATION

Faculty
Emeritus Faculty: Schwob, Shannon, Smith, C.

Men's Department
Professors: Benton, Coryell, Governali, Kasch, Scott, Terry, Ziegenfuss
H., Schutte (Chairman), Sportman
Assistant Professors: Franz, Friedman, Hall, Madden, J., Wells, R., Wells, R. W.

Women's Department
Professor: Murphy, M. M.
Associate Professors: Andrus, Cave (Chairman), Lockman, Tollefson
Assistant Professors: Barone, Cullen, Fox, Lewis, Sprunt, Wilhelm, Williamson

Offered by the Departments
Master of Arts degree for teaching service with a concentration in physical edu-
cation. (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 gradu-
ation requirements listed on page 24 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, 20B, 52, 70, 71,
73; Zoology 8 and 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 MINOR

FOR THE STANDARD TEACHING CREDENTIAL

**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 173, 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, 13A, 34A, 31B or 34B, 52, 56A, 56B, and one unit elective; and in the upper division 14 units to include Physical Education 151 or 154, 152, 156, 162, and Recreation 170.

**Specialization in Elementary 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, 20B, 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, 31B, 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 are required. All freshmen and sophomore students must enroll in an activity course each semester. Two units are needed for general education and graduation, but no more than one activity course 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.

**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 Dean of the College 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 and intramural programs.

**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 (1 ½-3 ½) I, II

2A-2B. Conditioning (1 ½-3 ½) I, II

6A-6B. Team Sports (1 ½-3 ½) I, II

7A-7B. Gymnastics (1 ½-3 ½) I, II

8A-8B. Basketball (1 ½-3 ½) I, II

9A-9B. Soccer (1 ½-3 ½) I, II

10A-10B. Volleyball (1 ½-3 ½) I, II

11A-11B. Track and Field (1 ½-3 ½) I, II

12A-12B. Wrestling (1 ½-3 ½) I, II

16A-16B. Golf (1 ½-3 ½) I, II

17A-17B. Archery (1 ½-3 ½) I, II

18A-18B. Tennis (1 ½-3 ½) I, II

19A-19B. Bowling (1 ½-3 ½) I, II

20A-20B. Badminton (1 ½-3 ½) I, II

21A-21B. Handball (1 ½-3 ½) I, II

22A-22B. Fencing (1 ½-3 ½) I, II

23A-23B. Boxing (1 ½-3 ½) I, II

24A-24B. Water Craft (1 ½-3 ½) I, II

29A-29B. Swimming (1 ½-3 ½) I, II

32A-32B. Ballroom Dancing (1 ½-3 ½) I, II

33A-33B. Folk and Square Dancing (1 ½-3 ½) I, II

34A-34B. Modern Dance (1 ½-3 ½) I, II

36A-36B. Selected Activities (1 ½-3 ½) I, II

May be repeated with new activity for additional credit. See class schedule for semester offerings.

38. Individual Adaptives (½) I, II

Prerequisites: 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.

**MEN AND WOMEN**

**PROFESSIONAL THEORY COURSES**

**LOWER DIVISION COURSES**

48A-48B. Advanced Modern Dance (1-1) I, II

Four hours.

Prerequisites: Physical Education 34A and 34B.


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*
Prerequisite: Consent of instructor.
Progressively difficult dance techniques using several creative approaches. Emphasis on motivation, body design, rhythm, and dynamics.

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. *Officializing 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.

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 laboratory.
Competency development in gymnastics. Emphasis on skills, movements, rules, officiating, facilities, and organizational procedures in gymnastics.

73. *Dance (Men) (2) I, II*
Six hours 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.

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.

151. *Professional Preparation in Folk and Social Dancing (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. *Professional Preparation in Gymnastics (Women) (3) I*
Two lectures and three hours of laboratory.
Prerequisite: 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) I, II*
Prerequisite: Physical Education 48A.
Problems in ethnic or modern dance: history, anthropological basis, stagecraft, accompaniment, costuming.

154. *Professional Preparation in Modern Dance (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.

155. *Professional Preparation in Individual Sports (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.
Review of 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. *Professional Preparation in Team Sports (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.
Analysis of skills, teaching techniques, officiating, and the organization of materials in team sports for women.

157A. *Choreography in Contemporary Dance (Men and Women) (3) I, II*
Two lectures and three hours of laboratory.
Prerequisite: Consent of instructor.
Experimentation in dance, relating contemporary theories to other art forms. The study of force and time-space relationships as factors of choreography. Production problems for large and small groups.

157B. *Choreography in Contemporary Dance (Men and Women) (3) I, II*
Two lectures and three hours of laboratory.
Prerequisite: Physical Education 157A.
Experimentation in dance, relating contemporary theories to other art forms. The study of focus and time-space relationships as factors of choreography. Production for groups, trio, 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.

162. *Measurement and Evaluation in Physical Education (3) I, II*
Intensive study of contemporary 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.
164. Athletic Injuries (Sports Medicine) (2) I, II
One lecture and three hours of laboratory.
Prerequisite: Physical Education 167.

166. Honors Course (Credit to be arranged) I, II
Refers to the Honors Program.

167. Applied Anatomy and Kinesiology (3) I, II
Prerequisites: Zoology 8 and 22.
Anatomy, physiology, and kinesiology, with special emphasis on movement analysis. Muscle groups and their functional relationships. Application of simple mechanical principles to movement analysis.

168. Physiology of Exercise (3) I, II
Prerequisite: 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 and 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.

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 sport. 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.

180. Theory and Practice of Sports (Men) (2-3)
Three units: 8 hours. Two units: 6 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
180A Basketball (3)
180B Cross Country (2)
180C Football (3)
180D Gymnastics (3)
180E Swimming (2)
180F Water Polo (2)
180G Wrestling (3)

Offered in the Spring
180H Baseball (3)
180I Golf (2)
180J Rowing (2)
180K Tennis (2)
180L Track (1)
180M Volleyball (2)

181. History and Philosophy of Dance (2) II
(Offered in alternate years)
Survey of 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 forms 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) I
Lecture-demonstration, recital, and concert forms of dance programs. Presentation and scoring of original solo and group compositions.

199. Special Study (1-4) 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 topics 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.
Analysis of current curricula in physical education. Special emphasis on curricular 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 and Philosophy of Physical Education (3)
Prerequisite: Major or minor in physical education.
The historical and philosophical forces guiding the development of physical education from ancient to modern times.

204. Problems in Recreation (3)
(Same course as Recreation 204)
A survey of 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. (Formerly Physical Education 201, Problems in Physical Education.)

206. Seminar in Competitive Athletics for Men (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.

208. Advanced Physiology of Exercise (3)
Prerequisites: Zoology 8 and 22, Physical Education 167 and 168.

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 Women's Physical Education (3)
Prerequisite: Major or minor in physical education.
An intensive study of selected areas of the women's 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.

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.

298. Special Study (1-6)
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.
Guidance in the preparation of a project or thesis for the master's degree.

PHYSICAL SCIENCE

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty
Professors: Nelson, B., Merzbacher (Chairman); Stewart, P.
Assistant Professors: Howard, F., Turner, G. D.
Lecturers: Lembeck, Marion, Shidler

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.)
Major in physical science with the A.B. degree in applied arts and sciences for students admitted to Teacher Education.
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 MAJOR
WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES
(For students in Teacher Education)

This major is open only to students admitted to Teacher Education.
All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 24 of this catalog.
A minor is not required for the degree; however, students planning to use this major for a credential in secondary teaching should include in the undergraduate program one of the teaching minors required for the credential.

Preparation for the major. Courses should include work in the areas of astronomy, chemistry, geology, mathematics, physics, and biology, and must include prerequisites for the upper division courses selected for the major.

Major. A minimum of 24 upper division units with at least 18 in the physical sciences. At least nine of these 18 units must be in either chemistry or physics. Upper division courses may be in industrial arts, life sciences, or mathematics. All courses for the major must be approved by the adviser in the physical sciences for teaching programs.

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.
PHYSICAL SCIENCE

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 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 1.
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 1.
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.

UPPER DIVISION COURSES

110. Physical Oceanography (3)
Prerequisite: Physical Science 1.
Physical aspects of tides, waves, and currents.

120. Physical Science for Elementary Teachers (3) II, Summer
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) II
Recent and current developments in the physical sciences. Discussions concerning such phenomena as radioactivity, cosmic rays, nuclear energy, tracer techniques, radio telescopes, supergalaxies. Not open for credit to physics majors.

1405. Contemporary Problems in Physical Science (1) Summer
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.

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
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 (1-6) I, II
Prerequisite: Consent of instructor.
Individual study or laboratory work on a special problem in physical science selected by the student.

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.

298. Special Study (1-6)
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.
Guidance in the preparation of a project or thesis in one of the physical sciences for the master's degree.

PHYSICS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty
Emeritus Faculty: Turhune
Professors: Garrison (Chairman), Moe, Morris, Skolll, Smith, L. E., Snodgrass, Teasdale
Associate Professors: Bolte, Clark, O., Diesel, Templin, Wolter
Assistant Professors: Craig, Delise, Nichols, P. F., Piserchio, Rehwus, Wolf, F. A.
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 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 78 of this catalog.

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; 73, and Chemistry 1A-1B, 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 departmental adviser.

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 74 of this catalog.

A minor is not required with this major for the B.S. degree.

Preparation for the major. Physics 4A-4B-4C; 73; Chemistry 1A-1B; 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's degree. The remaining courses are to be prescribed by the Department of Physics. Concentrations in the areas of applied physics, physical electronics, nuclear physics and teacher education are available in this degree.

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.

LOWER DIVISION COURSES

Note: A maximum of 15 units of lower division physics credit may be applied toward the A.B. or B.S. degree.

2A-2B. General Physics (3-3) I, II
Lectures, demonstrations and discussions.
Prequisites: Two years of high school mathematics. Physics 2A is prerequisite to 2B. Recommended Concurrent registration in Physics 2A and 3A, and in 2B and 3B.

This course is for liberal arts and certain preprofessional students who do not desire intensive physics preparation. 2A properties of matter, mechanics, heat, and sound; 2B, light, electricity, magnetism, and atomic physics.

3A-3B. Physical Measurements (1-1) I, II
Three hours of laboratory.
Prequisite for 3A: Credit or concurrent registration in Physics 2A.
Prequisite for 3B: Physics 1A 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.
Prequisite for 4A: Completion of high school physics or equivalent, and credit or concurrent registration in Mathematics 50.
Prequisite for 4B: Physics 4A with a grade of C or better and credit or concurrent registration in Mathematics 51.
Prequisite for 4C: Physics 4B with a grade of C or better and credit or concurrent registration in Mathematics 52.

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 2A, 2B, 4A, 4B, or 4C.

73. Introductory Electronics (3) I, II
Prerequisite: Physics 4B.
A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 103.

### UPPER DIVISION COURSES

101. Modern Physics (3) I, II
Prerequisite: Physics 4C.
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
Prerequisite: Physics 4C, 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
Prerequisite: Physics 4C 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
Prerequisite: Physics 4C, or Physics 2B and 3B.
A study of reflection, refraction, dispersion, interference, diffraction, and polarization, with applications to optical instruments. Also wave propagation, radiations, spectra and the nature of light.

110. Electricity and Magnetism (3) I, II
Prerequisite: Physics 4C, 73, and concurrent registration in Mathematics 119, or consent of instructor.
Analysis of direct and alternating current circuits using the operator "i" 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
Prerequisite: Physics 4C and Mathematics 52.
Thermal properties of matter, laws of thermodynamics, kinetic theory of gases, and an introduction to statistical mechanics.

114. Acoustics (3) I
Prerequisite: Physics 73, 105, and 110.

120A-120B. Advanced Physical Measurements (2-2) I, II
Six hours of laboratory.
Prerequisite: Physics 4C and either 73 or 103.
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 2A, 2B, 3A, and 3B.
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.

131. Astronautics (2)
Prerequisites: Mathematics 119 and Physics 105.
Applications of celestial mechanics to space flight with particular emphasis on the effect of velocity changes or other errors on the vehicle orbit. Analysis of slide and fast energy transfer with tangential or intersecting departure and arrival.

132. Concepts of Physics (4) I
Three lectures and three hours of laboratory.
Prerequisite: Mathematics 71 and Physics 2A-3B-1A-3B, with grades of C or better.
Uniting concepts of physics; conservation of momentum and energy, wave-particle duality, conservative fields, relativity, and statistical physics.

135A-135B-135C. PSSC Physics (2-2-2)
One lecture and three hours of laboratory.
Prerequisites: Physics 2A-2B and 2A-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) I
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
Prerequisite: 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
Prerequisite: 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.

153. Servo-System Design (3) II
Prerequisite: Physics 71 and 152.
Regulatory systems, including servomechanisms by the Laplace Transform. System performance and stability. Practical components and examples of typical designs.

155. Analog Computers (3) II
Prerequisites: Physics 71, 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) I
Prerequisites: Physics 73 and 110.
Filter design, transmission lines, and network analysis.

162. Electronics Laboratory (2) I, II
One lecture and three hours of laboratory.
Prerequisites: Physics 120B and concurrent registration in Physics 173A.
Dynamic tube and transistor characteristics, cathode ray oscillograph. One stage RC amplifier. One stage and multistage amplifiers including feedback. Equivalent circuits.

166. Honors Course (Credit to be arranged) 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
Prerequisites: Physics 101, 101 (or 73), 120A, 120B.
Semiconductor physics, diode and transistor mechanisms, equivalent circuits and applications, thermal stability, switching theory and applications.

167B. Semiconductor Devices (3) II
Prerequisite: 167A or consent of instructor.
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, 163, and 173A, each with a minimum grade of C.
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
Prerequisite: Physics 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 (3 or 3)
Prerequisite: Consent of instructor. May be repeated with the approval of the instructor for a total of six units.

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 master 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 (1-4) I, II
Individual study or laboratory work on a special problem in physics selected by the instructor. Each student will be assigned a member of the staff who will supervise the student. Credit, hours and topics to be arranged in each case. Six units maximum credit.

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 of six units applicable on a master's degree.

205. Theoretical Mechanics (3)
Prerequisite: Physics 175.

210A-210B. Mathematics of Physics (3-3)
Prerequisites: Mathematics 119 and 170 or equivalent. Physics 210A is prerequisite to Physics 210B.
Selected topics from matrix theory, vector and tensor analysis, orthogonal functions, selected topics in ordinary differential equations, partial differential equations, wave propagation, quantum mechanics, classical and quantum mechanics, kinetic theory, low pressure phenomena, Boltzmann transport equation, irreversible processes.

214. Advanced Acoustics (2)
Prerequisite: Physics 114.

219. Statistical Mechanics (3)
Prerequisites: Physics 112, 175, and 190.

231. Advanced Astronautics (2)
Prerequisite: Physics 131.
Special emphasis on perturbations due to inhomogeneity of the central force field.
Political Science

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.

248. Reactor Laboratory (2)
Prerequisites: Chemistry 141, 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)
Prerequisite: Physics 151, 157, and 190.
Applications of quantum theory to nuclear physics. 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.
Selected advanced topics in contemporary electronics.

270. Electromagnetic Theory (3)
Prerequisite: Physics 170.
Boundary value problems; time varying electric and magnetic fields; propagation of radiation; antennas, wave guides.

275. Quantum Mechanics (3)
Prerequisite: Physics 151, 157, and 190.
The physical basis of quantum mechanics. Schrödinger’s wave equation, and Heisenberg’s matrix mechanics. Quantum theory of radiation, molecular, and nuclear systems. Approximation methods.

280. Theory of the Solid State (3)
Prerequisite: Physics 175, 190, and 190.
The energy band theory of solids, with applications to the electrical and optical properties of dielectrics, semi-conductors, and metals.

297. Research (Credit to be arranged)
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 (1-6)
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.
Guidance in the preparation of a project or thesis in physics for the master’s degree.

POLITICAL SCIENCE

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty
Professors: Bigger, Generals, Grippo, Jansen, Joy (Chairman) Leisher, Padgett, Wilcox

Associate Professors: Crain, Feierabend, I., Haak, Kitchen
Assistant Professors: Andrain, Dreyer, Harman, Hobbs, Holman, Johns, Kahng, Miles, Wamley

Offered by the Department
Master of Arts degree with a major in political science. (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 political science with the A.B. degree in liberal arts and sciences.
Major in public administration with the A.B. degree in applied arts and sciences.
Major in public safety administration with the A.B. degree in applied arts and sciences.
Minor in political science or in public administration.
Certificate in public administration.
Teaching minor in political science with specialization in secondary teaching.

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 76 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, and 3. (9 units.)

Major. A minimum of 24 upper division units to include (a) three units in Political Science 128, 129, or 138 and (b) 21 upper division units in political science and related social science fields. At least 15 of these units shall be in Group I and Group II.

Group I, Political Theory. Courses numbered 100 to 114.
Group II, Politics. Courses numbered 125 to 129.
Group III, Public Law. Courses numbered 130 to 139.
Group IV, Public Administration. Courses numbered 140 to 164.
Group V, International Relations. Courses numbered 165 to 179.
Group VI, Comparative Government.

Students majoring in political science are advised to become as familiar as possible with related social science fields.

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 76 of this catalog.

Minor is not required with this major.

Preparation for the major. Political Science 1 and 2 and Economics 1A-1B.

Major. A three-unit course in statistics must be taken either in lower division or as part of the upper division courses in the major.

Group I, Political Science 140 or 197 or 198. Economics 131, 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.

PUBLIC SAFETY 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 74 of this catalog.

A minor is not required with this major.
Political Science

Preparation for the major. Political Science 1, 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 political science at an institution offering work in this field.

Major. A minimum of 36 upper division units to include Political Science 105, 140, and 197 or 198; six units selected from Sociology 110, 113, 114, 116, 123, 125, 140, 157; and 21 additional units selected from these sociology courses, or from Political Science 122, 143, 144, 147, X141, 152; Social Welfare 180; Psychology 106, 150.

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.

PUBLIC ADMINISTRATION MINOR

The minor in public administration is offered by the Political Science Department. The minor is available to students majoring in fields other than political science or public administration. The minor consists of from 15 to 22 units to include Political Science 1 and 2, 140, and six units of upper division courses selected from Political Science 197, 198, or other upper division political science courses approved by the adviser in public administration.

CERTIFICATE IN PUBLIC ADMINISTRATION

A Certificate in Public Administration (a nondegree program) is also offered by the Political Science Department. 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 Public Administration. 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 of Public Administration, San Diego State College.

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 142 or 143 or 148.

(3) Political Science 127A and 127B plus approved tests or courses on United States history, institutions and ideals.

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. Not open to students with credit in Political Science 90.

Completion of both Political Science 1 and 2 will meet all requirements in American Institutions. Students with credit in Political Science 71A or 71B may take Political Science 1 to complete the 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. Not open to students with credit in Political Science 71A or 71B.

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. Not open to students with credit in Political Science 91.

UPPER DIVISION COURSES

Political Theory (Group I)

105. American Political Thought (3) I, II

A survey of 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.

Politics (Group II)

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. Students with credit in Political Science 115 who have taken the course will not receive credit in Political Science 115 and 116.

116. American National Government (3) I, II

Prerequisite: Political Science 71A or 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.

340
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. Special emphasis will be placed upon the function of the two-party system in American government.

122. Propaganda and Public Opinion (3) I, II
(Same course as Journalism 132)
A study of the forces which mold the American public mind, the practice of propaganda, a description and analysis of public relations, pressure groups and their effect in American public life.

123-5. Contemporary American Politics (3) Summer
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.

124. Political Behavior (3)
Selected social and cultural factors affecting political behavior; role of groups in formation of political preference, participation, attitudes; voting behavior; emphasis on quantitative research data.

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. This year course meets the graduation requirement in the United States Constitution. The second semester course, 127B, also meets the graduation requirement in California state and local government.

128. Internship in Politics (2-6) I, II, Summer
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. Administrative Law (3) II
The law of public office and public officials, powers of administrative authorities, scope and limits of administrative powers, remedies against administrative action.

132. Introduction to Jurisprudence (3) I
The development of legal systems and theories of the function of law.

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.

140. Introduction to Public Administration (3)
Administration of public services; organization and procedure in theory and practice; dynamics of public management; politics and administration; responsible bureaucracy.

142. State Government (3) I, II
A study of the political structure and its operation used in the carrying on of the functions exercised by the state; state-federal relations; state-local government relations; particular emphasis on California government. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, this course meets requirements in American History, institutions, and ideals, and in the U.S. Constitution.

143. Municipal and County Government (3) I, II
A study of the organization and its operation used to carry into effect the functions assigned to local governmental units; particular emphasis upon local government in California. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, this course meets 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.

145. Administrative Behavior (3)
Prerequisite: Political Science 140.
Social, psychological, and behavioral theories of organization; concepts of administrative leadership; organization and the individual; emphasis on governmental organizations.

147. Government and Public Policy (3)
Prerequisites: Political Science 116 or 140 or 142 or 143.
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.

148. Government of Metropolitan Areas (3) I, II
Prerequisites: Political Science 142 or 143.
Study of the governmental problems of metropolitanism; overlapping of governments, services, planning and finance. The use of intergovernmental contracts for public service, proper public service areas, and special authorities. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, this course will also meet requirements in American history, institutions, and ideals, and in the U.S. Constitution.

149. Comparative Public Administration (3)
Prerequisite: Political Science 140.
Administrative organization and process in selected foreign and American governments. Analysis of the cultural basis of administrative systems.

150. Community Political Behavior (3)
Prerequisites: Political Science 122 or 124 or 143 or 148.
Political problems and issues of urban and rural communities. Structure of political influence and decision-making. Political organization.

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.

154. Intergovernmental Relations in the United States (3)
Prerequisite: Political Science 2.
Constitution, political and administrative characteristics of American federalism, including regionalism, interstate compacts, and grants-in-aid.
157. Public Relations of Public Agencies (3)
Prerequisite: Political Science 140.

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.

161. Field Studies in Government (3) II, Summer
Prerequisite: Consent of instructor.
Study of organization, policies and functions of selected government agencies. Discussion by responsible officers and inspection of work operations and facilities in governmental, public safety, public works and utilities, and other major governmental operations.

162. Fiscal and Budgetary Policy (3)
Prerequisite: Political Science 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.

Honors Course

165. Dynamics of Modern International Crises (3) I
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.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

International Relations (Group V)

168. Institute on World Affairs (3) Summer
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—economic, ideological, and strategic—which underlie and condition the modern con

171. The Conduct of American Foreign Relations (3) II
An examination of the legal, administrative, and political organizations by which American foreign policies are formulated and implemented.

172. International Organization (3) I
A critical analysis of 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; administrative; the League of Nations-United Nations experiment.

173. Principles of International Law (3) I
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) II
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 nations.

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) I
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.

182. Political Systems of South America (3)
Government and politics of selected South American countries. Values, governmental institutions and patterns of political activity which condition domestic and foreign policy.

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)
Principal factors in Mexican governmental decision-making. Ideology, political groups, tactics of leaders and governmental structure.

185. Governments of Continental Europe (3) I, II
An analysis of the political systems of the countries of western continental Europe.

186. Comparative Communist Governments (3) I, II
A survey of 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) II
Domestic and international politics of specific African states.

189. Government and Politics of the Middle East (3) I, II
Survey of 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
Internal political systems, governmental structures, and the foreign policies of developing nations.
Political Science

192. Political Change in Contemporary Africa (G) I
   General pattern of nationalism in Africa south of the Sahara. Theories of social change and general features of contemporary African political development.

196.5. Institute of Public Affairs (1-3) Summer
   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.

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 (1-6) I, II
   Individual study. Six units maximum credit.
   Prerequisite: Consent of instructor.

EXTENSION COURSES

X-141. Studies in Public Administration (1 to 3)
   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)
   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 relations by and against, powers and duties; rights and liabilities of local governments.

GRADUATE COURSES

200. 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.

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.

210. Seminar in Political Theory (3)
   Maximum credit six units applicable to a master's degree.

215. Seminar in American National Government (3)
   Maximum credit six units applicable to a master's degree.

220. Seminar in Politics (3)
   Maximum credit six units applicable to a master's degree.

230. Seminar in Public Law (3)
   Maximum credit six units applicable to a master's degree.

240. Seminar in Public Administration (3)
   Maximum credit six units applicable to a master's degree.

241. Seminar in Public Personnel Administration (3)
   Prerequisite: Political Science 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: Political Science 140.
   Selected problems in administration of economic and technical assistance programs; problems of administration in developing areas.

249. Seminar in Comparative Administration (3)
   Prerequisite: Political Science 140.
   Selected problems in administration, organization, and processes of foreign and international governments. Maximum credit six units applicable to 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 to a master's degree.

255. Seminar in Metropolitan Government and Politics (3)
   Prerequisite: Political Science 145 or 148 or 150.
   Government and politics in the world's major metropolitan areas. Maximum credit six units applicable to a master's degree.

260. Planning and Public Policy (3)
   Prerequisites: Appropriate undergraduate courses in planning, political science, or related fields.
   Relationship of the planning process to governmental policies and administration. Examination of social, political, and administrative problems involved in planning governmental programs and community facilities.

270. Seminar in International Relations (3)
   Maximum credit six units applicable to 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 to a master's degree.

280. Seminar in General Comparative Political Systems (3)
   Prerequisites: Six 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)
   Prerequisite: 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: Six 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)

296. Internship in Public Administration (1-6)
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences. Admission by consent of instructor.

298. Special Study (1-6)
Individual study. Six units maximum credit. Prerequisite: Consent of staff; to be arranged with the department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy. Guidance in the preparation of a project or thesis for the master's degree.

PORTUGUESE
IN THE DIVISION OF THE HUMANITIES

Faculty
Assistant Professor: Head

Offered by the Department of Spanish and Portuguese
Courses in Portuguese.
Major or minor work is not offered.

UPPER DIVISION COURSES

121. Portuguese (3) I
Prerequisites: 27 units of college Spanish, including Spanish 101A and 101B.
An accelerated course covering various aspects of the language and literature of the Portuguese world.

122. Portuguese (3) II
Prerequisite: Portuguese 131.
Continuation of Portuguese 131.

Psychology
IN THE DIVISION OF THE LIFE SCIENCES

Faculty
Emeritus Faculty: Treat
Professors: Carlson, H., Daniel, Eason, Harrison, Kaplan, Kinnon, Luekel, McCollom, O'Day, Rumbaugh, Sadowski, Stevens (Chairman), Turner, M. B., Voeks
Associate Professors: Alf, Dicken, Dorfman, Grossberg, Hillix, Hunrichs, Kass, Penn, Psonas, Smith, J. R., Segal
Assistant Professors: Feterabend, R., Gallo, Gunderson, Harari, Izawa, Karen, Kopman, Levine, Linton, Lynn, McDonald, Parker, Rensiek, Rodin, Sand, Sattler, Schulte

Offered by the Department
Master of Arts degree with a major 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 78 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 his expanding group relations leading to happy and effective family and community living. The recommended pattern of courses for this program is not designed to facilitate graduate and professional study in psychology.
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 105, 110, 111, 112, 113, 114, 115, 116, 117, 118; and ten additional units selected from courses in consultation with the departmental adviser.

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 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, 117, and one of the following: 111, 112, 113, 114, 115, or 116; and ten additional units selected from courses in consultation with the departmental adviser.

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. Candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 74 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, 111, 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, except Psychology 201.

PSYCHOLOGY MINOR

FOR THE STANDARD TEACHING CREDENTIAL

The minor in psychology for elementary teaching consists of 21 units to include the lower division, Psychology 1 and one other three-unit course in psychology, and in the upper division, Psychology 105, 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 the lower division, Psychology 1 and one other three-unit course in psychology, and in the upper division, Psychology 105, 131, 145, and six units of electives from upper division psychology courses.

LOWER DIVISION COURSES

1. General (3) I, II

An introduction to some of the facts, principles, and concepts which are basic to understanding human behavior. A required general education course in psychology.

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.

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.

A survey of 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. Advanced General Psychology (3) I, II

Prerequisite: Psychology 1.

Principles of psychology as illustrated in the areas of learning, perception, motivation, personality, and social psychology.

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

Prerequisite: Psychology 1 and Mathematics 3 or 18 or a higher numbered mathematics course.

An introduction to the use of quantitative methods in psychology, with emphasis on measures of central tendency and variability, graphic methods and percentiles, upon measures of central tendency and variability, graphic methods and percentiles, upon measures of central tendency and variability, graphic methods and percentiles.
UPPER DIVISION COURSES

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.
A study of 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.

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.
Prerequisite: Psychology 40, 50, and 70.
Lectures and experiments emphasizing 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)
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.
Prerequisite: Psychology 110.
Experimental literature, assigned and original laboratory projects in the field of physiological psychology.

114. Experimental Psychology: Comparative (4)
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 (4)
Two lectures and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental literature, assigned and original laboratory projects in the field of personality.

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.

121. Personnel and Industrial Psychology (3) I, II
Prerequisite: Psychology 70 or statistics in another field.
Psychological principles applied to problems of selection and assignment of industrial personnel, employee training, and fatigue.

122. Public Opinion Measurement (3) I
(Same course as Journalism 122)
The factors, 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 and consent of instructor.
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 (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Psychology 1.
Psychological problems of man-machine systems. Visual, auditory, and other sensory factors involved in the interrelations between man and machines. Motion-sensory factors, fatigue and environmental influences in relation to productivity.

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.

132. Principles of Interviewing (3) I, II
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 (3) I
Two lectures and two hours of activity periods.
Prerequisites: Psychology 40 and 50, or nine units in biological sciences.
Prerequisites: Psychology 40 and 50, or nine units in biological sciences. Elements of neurology, with particular attention to the psycho-physiology of sensory mechanisms and motor systems.

142. Physiological Psychology (3) II
Two lectures and two hours of activity periods.
Prerequisites: Psychology 40 and 50 and three hours of biology, or nine hours of psychology.
The neurophysiology of emotion, sleep, bodily needs, instinctive patterns of behavior, and of learning; nutrition influences and behavior disorders.

145. Social Psychology (3) I, II
Prerequisite: Psychology 1.
The major problems and findings concerning group behavior and group membership. The major problems and findings concerning group behavior and group membership. Not open to students with credit in Sociology 140.

150. Abnormal Psychology (3) I, II
Prerequisite: Six units of psychology.
The psychology of behavior disorders, with emphasis on the aphasias, neuroses, and psychoses.
151. Introduction to Clinical Appraisal (3) I, II
Prerequisites: Psychology 105 and 150, or Education 170 plus Education 151 or 152 or 150; and one additional course in psychology selected from the following: Psychology 105, 106, 131, 142, or 150.
A study of diagnostic devices in psychology, tests of clinical significance, ratings, and interviewing. Projective and case study, analyses; problems of insight, rapport, empathy, and prediction of individual behavior.

152. Introduction to Methods of Counseling (3) I, II
Two lectures and two hours of activity periods.
Prerequisites: Senior standing in psychology or pre-social 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 (Credit to be arranged) I, II
Refer to the Honors Program.

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.

175. Theories of Learning (3) II
Prerequisites: Psychology 1, 40, 50, and 70.
A critical study of the facts, principles, and major theories of learning.

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, designing required terminal behavior, devising a training technique, writing and validating a training aid.

177. History of Psychology (3) II
Limited to psychology majors with senior standing and to graduate students.
A survey of the historical background of modern psychology.

178. Theories of Personality (3) I, II
Prerequisite: Twelve units in psychology.
Integration of the findings from perception, learning, motivation, and from physiological and social psychology through a systematic treatment of personality theories and of related experimental data.

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) Summer
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 (1-6) I, II
Prerequisites: Twelve units in psychology and consent of instructor.
An individual investigation and report on a research project. May be repeated to a maximum of six units.

199. Special Study (1-6) 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, psychotherapy, personality and psychodynamics, social behavior, and experimental inference.

204. Individual Psychological Testing (4)
Two lectures and six hours of laboratory.
Prerequisites: Psychology 70 and 105.
Principles of individual testing. Instruction and practice in the administration and scoring of the Stanford-Binet, Wechsler scales, and some similar tests.

205. Advanced Mental Testing (4)
Two hours of lecture and six hours of laboratory.
Prerequisites: Psychology 151 and 204.
The theory of mental testing and a comprehensive survey of various verbal and nonverbal individual mental tests. Supervised administration, scoring and interpretation of some individual psychological tests. Tests other than the Wechsler scales and the Stanford-Binet are stressed.

211. Advanced Clinical Psychology (3)
Two hours of lecture and three hours of laboratory.
Prerequisites: Psychology 151, 152, and 204.
Seminar integrating psychological testing, counseling, and clinical research. Includes supervised laboratory experience in counseling and in integrating data involved in clinical cases.

220. Seminar in Human Relations in Industry (3)
Prerequisite: Psychology 121 or Business Administration 145.
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 work-management relationships and leadership.

221. Seminar in Problems in Social Psychology (3)
Prerequisites: Psychology 145, 110 and 175; or consent of instructor.
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 and 178.
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 170 and 110.
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.
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 170 and 165.
Detailed consideration of adequate sampling techniques, item construction, item analysis, determination and enhancement of reliability and validity of tests.

231. Seminar in Ethology and Comparative Psychology (2)
(Same course as Biology 231)
Prerequisite: Psychology 113 or Biology 110, or consent of instructor.
A seminar in the types of species specific behavior patterns and their function in the living system of animals. May be repeated with new content to a total of four units.

233. Counseling and Psychotherapy Laboratory (4)
Two lectures and six hours of laboratory.
Prerequisites: Psychology 110, 151, 152, 175, and 178, or consent of instructor.
Supervised research and practice in interpersonal encounter, with emphasis on the attunement of personality change.

234. Projective Psychology (3)
Prerequisites: Psychology 151, 178, and 204.
Introduction to the theory and principles underlying use of projective techniques by clinical psychologists; a review of the structure and dynamics of personality as interpreted by projective devices.

235. The Rorschach Method (3)
Prerequisite: Psychology 234.
A seminar and practicum in basic administration and scoring of the Rorschach Test, with critical appraisal of the problems involved in estimations of reliability and validity of this technique.

236. Interpretation of Projective Materials (3)
Prerequisite: Psychology 235.
A seminar in the clinical interpretation of the Rorschach Test, the Thematic Apperception Test, and other projective devices, with critical emphasis on methods of research and validation. Not acceptable for credit toward the M.S. degree in Psychology.

296. Directed Field Experience (1-6)
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.

297. Research (1-6)
Research in one of the fields of psychology. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
Prerequisite: Consent of instructor.
Individual projects involving library research or laboratory research in physiological, industrial, learning, clinical, and other areas of experimental psychology. Maximum credit six units.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the 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.

RECREATION
IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty
Assistant Professors: Blass, Hanson, R. P. (Chairman)
Lectures: Atkinson, Lowery

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 74 of this catalog.
The major in recreation administration may be planned with an emphasis in one of the following three areas: (1) Leisure Agency Leadership, (2) Park and Recreation Management, or (3) 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, 31B, 53; Music 2, and Sociology 1. (18½ units.)

Major. 37 units to include Recreation 140, 165, 184 (two semesters); Psychology 105; Industrial Arts 101; Health Education 146; Social Welfare 180; Physical Education 131, 175 (or Speech Arts 110), 176 (or Art 110); Sociology 114, 125.

EMPHASIS IN PARK AND RECREATION MANAGEMENT

Preparation for the major. Recreation 40, 60, 70, 80; Physical Education 32A, 33A, 31B, 53; Music 2, and Sociology 1. (18½ units.)
Recreation

Major. 38 units to include Recreation 140, 165, 184 (two semesters); Journalism 180; Industrial Arts 101; Psychology 106; Political Science 140, 143, 144; Botany 112 and six units to be selected from Sociology 114, 121, 157 or Social Welfare 180.

EMPHASIS IN RECREATION REHABILITATION

Preparation for the major. Recreation 40, 60, 70, 80; Physical Education 32A, 33A, 33B, 55; Music 2; Sociology 1; and Zoology 22. (21½ units.)

Major. 38 units to include Recreation 130, 165, 184 (two semesters); Industrial Arts 101; Psychology 106, 107 or 109, 145, 150, 152, Physical Education 151; Speech Arts 110 or 142, and three units to be chosen from Sociology 113, 121, or 123.

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 (men), or Speech Arts 110, Recreation 165 and 184. Recommended: Physical Education 151, 173, 175, 176, Industrial Arts 101, Psychology 106, Political Science 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 (2) I, II
One lecture and three hours of laboratory. Principles and practices of recreational leadership. Practice in planning and conducting programs in social recreation, dramatics, music, and simple handicrafts.

80. Camp Leadership (3) I, II, Summer
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.

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
Recreational activities as a means of rehabilitation. Modification of activities to meet the needs of the mentally retarded, physically and emotionally ill, and the handicapped. Designed for social workers, nurses, therapists and special education teachers.

155. Administration of Community Recreation (3) I, II
Prerequisite: Recreation 60.
Principles of organization and administration of leisure time agencies. Executive functions and problems; financing and budgets; administration of areas and facilities; inter-agency relationships; recruitment, training, supervision, and evaluation of part-time and volunteer staff.

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

184. Field Work in Recreation (3) I, II
Prerequisite: 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. May be repeated for a maximum of six units credit.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of special study advisor.

GRADUATE COURSES

204. Problems in Recreation (3) (Alternate years)
(Same course as Physical Education 204)
A survey of current problems facing the recreation profession. A review of literature, discussion of trends and observation of school situations together with the analysis and evaluation of actual problems. Written reports are required.

205. Park Management (3) (Alternate years)
Prerequisite: Recreation 165.
Fundamentals of general park maintenance. Principles of planning and development. Coordination of personnel and budget problems unique to park management. Coordination of activities with other public agencies.

RUSSIAN

IN THE DIVISION OF THE HUMANITIES

Faculty
Associate Professor: Dukas
Assistant Professors: Feter, Kozlik

Offered by the Department of German and Russian
Major in Russian with the A.B. degree in liberal arts and sciences.
Minor in Russian.
Teaching major in Russian with specializations in secondary teaching.
Teaching minor in Russian with specializations 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 78 of this catalog.

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

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 must 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 for permission to take 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 24 upper division units in Russian to include Russian 101A, 101B, 102A, 102B, 122, 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 must 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 for permission to take 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, and 122.

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.

Elementary (4) I, II

Four lectures and one hour of laboratory. Prerequisite: Russian 1.

Continuation of Russian 1.

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.

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 for 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.

Continuation of Russian 10.

11. Conversation (2) II

Prerequisite: Russian 10 or Russian 3, or four years of high school Russian.

Continuation of Russian 11.

4A. Russian Civilization (2) I

(Same course as Humanities 52)

Conducted in English. No prerequisite.

The major currents and characteristics of Russian culture, as expressed through centuries in literature, art, philosophy, and music.

4A. Russian Civilization (2) II

(Same course as Humanities 53)

Conducted in English. No prerequisite.

Continuation of Russian 40.

UPPER DIVISION COURSES

41A-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.

42A-102B. Survey of Russian Literature (3-3)

Prerequisite: Russian 4.

A study of 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.

25A-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.
Social Welfare

110A-110B. The Russian Novel of the 19th Century (3-3)
Prerequisite: Russian 4.
Development of the Russian novel of the 19th Century.

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 materials. Discussion and demonstration of related techniques. Not open to students with credit in French, German, Italian, or Spanish 122. To be taken concurrently with Education 121E.

130. Russian Syntax and Stylistics (2)
Prerequisite: Russian 101A-101B.
The structure of contemporary Russian.

131. Russian Phonology and Morphology (2)
Prerequisite: Russian 4 and 11.
The sounds and forms of contemporary Russian.

140. Russian Civilization (2) I
(Same course as Humanities 122)
Conducted in English. No prerequisite.
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 133)
Conducted in English. No prerequisite.
Continuation of Russian 140.

186. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) 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 with source readings from Old Church Slavonic.

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.

SOCIAL WELFARE IN THE SCHOOL OF SOCIAL WORK

Faculty
Professors: Tebor, Witte
Assistant Professors: Baily, Harper
Lecturers: Gotkowitz, Haworth, Pilcher

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 78 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 in social welfare provides preparation for: (1) more effective participation in courtship programs; (2) immediate employment in those social welfare and correctional 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 various federal, state, or local social welfare and correctional agencies.

Preparation for the major.
Anthropology 1B; Economics 1A-1B; History 17A-17B or Political Science 1 and 2; and Sociology 1 and 10; Sociology 60 or Psychology 70, (24 units). Recommended: Biology 1 and 2 and courses from anthropology, literature, philosophy, and physiology.

Major.
Thirty-six upper division units distributed as follows: Social Welfare 100, 180, 182, 189, and three units selected from 185, 187, or 188; Sociology 140 or Psychology 145; three units selected from Economics 102, 105, 131, 151, 152, or 185; six units from Political Science 105, 122, 124, 143, or 147; six units from Psychology 105, 107, 109, 131, or 150; and six units selected from Sociology 113, 114, 121, 122, 125, 136, 138, 145, 177, or 164. Recommended: Biology 159 and courses from anthropology, literature, and philosophy. Students should consult an 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

35. Courtship and Marriage (3) I, II
(Same course as Home Economics 35)
Emphasis on preparation for successful marital adjustment; presentation of materials to help students understand and meet their own courtship, marriage, and family problems. Not open to students with credit in Home Economics 35, Sociology 35, or other course in courtship and marriage or marriage and the family.

UPPER DIVISION COURSES

100. History and Philosophy of Social Welfare (3) I, II
Prerequisite: Sociology 1 or 10.
Growth and development of social welfare programs in response to changing historical conditions. Developments from the time of the English Poor Laws to the current social security and voluntary programs.

186. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

189. Social Welfare Organization (3) I, II
Prerequisite: Social Welfare 100 and Sociology 1 or 10.
A survey of the nature of social work and the various settings in which social work is practiced in American society. The student is familiarized with the work of speakers from various social agencies and their operations by use of readings, lectures and various social agencies.
Social Welfare

182. Methods of Social Work (3) II
Prerequisite: Social Welfare 180.
Introduction to the basic concepts and methods used in casework, group work, and community organization agencies, with emphasis on discussion of case materials.

183. Social Group Work (3) I
Prerequisite: Social Welfare 180.
The role of the social worker with the group and its individuals; understanding group processes; use of program media for the development of interpersonal relations and group structure. Discussion includes process recording.

184. Community Welfare Organization (3) II
Prerequisite: Social Welfare 180.
The social structure of communities and processes of change as related to the community welfare programs; strategy of change; the role of the professional worker, public-private relationships.

185. Public Welfare (3) II
Prerequisite: Social Welfare 180.
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.

186. Social Work and the Law (3) I
Prerequisite: Social Welfare 180.
Trends and current developments in social legislation; laws regarding poor relief, child labor, and the family, including marriage and divorce laws, illegitimacy, adoption, guardianship.

187. Child Welfare (3) I
Prerequisite: Social Welfare 180.
Analysis of the development and current programs of child welfare on the local, state, national, and international levels; the relationship between private and public agencies in promoting the welfare of children.

188. Probation and Parole (3) I
Prerequisite: Sociology 113. Recommended: Social Welfare 180.
Basic concepts, history, legislation, and practices used in work with juveniles and adults who have been placed on probation or parole; criteria for selection, methods of supervision, and elements of case reporting.

189. Field Assignment in Social Work (3) I, II
Prerequisite: Credit or concurrent registration in Social Welfare 182.
Approximately 10 hours weekly spent in an approved local social agency in the supervision of an experienced agency worker and including periodic consultations with the faculty advisor.

190. Investigation and Report (3) I, II
Prerequisite: Consent of instructor.
Analysis of special topics in social welfare.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

Social Work

IN THE SCHOOL OF SOCIAL WORK

Faculty
Professors: Maxwell, Ostell, Stumpf, Tebor, Travis, Witte (Dean).
Associate Professors: Guzzetta, Kemp, Kulkoten, Lee, W. F.
Assistant Professors: Baily, Goldstein, Granger, Griffin, Harper, Haworth, Schlatter
Lecturers: Pichler, Shenko

Offered by the School of Social Work
Master of Social Work, a two-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 (3) I
Social welfare as part of the social structure; analysis of major issues, problems, approaches, and possible solutions from historical, philosophical, and comparative points of view, with special examination of deprivation from whatever cause.

201. Social Welfare Policy and Services II (3) II
Prerequisite: Social Work 200.
Public and voluntary programs related to income maintenance, with special emphasis on the philosophy, methods, issues, and problems. Consideration of the social insurance, public assistance, employment services, labor standards, and protective legislation.

202. Social Welfare Policy and Services III (3) I
Prerequisite: Social Work 201.
Public and voluntary programs related to other social welfare services and policy issues. Relationship between public and voluntary programs. Methods through which communities organize and maintain their social welfare services.

205. Social Work Administration I (2) II
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) I
Human beings as functioning organisms in society. Integration of knowledge of human behavior and social environment covering biological, psychological, and psycho-social process from birth to death for application in social work practice.

221. Human Behavior and Social Environment II (3) II
Prerequisite: Social Work 220.
Dynamic concepts of the interplay of the physiological as related to emotional, social, and cultural factors. Basic knowledge from medicine, sociology, psychology, cultural anthropology, and religion for use by the social worker in assisting people in their social functioning.

222. Human Behavior and Social Environment III (2) I
Prerequisite: Social Work 221.
Extension of Social Work 220 and 221. Understanding of the bio-social reasons people are unable to function up to self and societal expectations, and the role of social work in affecting change.
230. Social Work Practice I (3) I
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 (3) II
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 is given to interactional and small group processes in determination of goals and change.

232. Social Work Practice III (3) II
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 (1) II
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.

234. Social Work Practice V (2) I
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 (1) II
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.

250. Field Instruction I (4) I
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) II
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 to experience with interactional and small group processes.

252. Field Instruction III: Individuals, Families, and Groups (4-6) I
Prerequisites: Social Work 251 and concurrent registration in Social Work 232.
Field instruction in a public or voluntary social work setting emphasizing a combination of methods aimed at achieving change in or on behalf of individuals, families, and groups representative of the social problem model or models of special interest to the student. Practice under educational direction at an advanced level.

253. Field Instruction IV: Individuals, Families, and Groups (4-6) II
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 the array of problem-solving methods in social work.

255. Field Instruction V: Social Policies, Organizations, and Communities (4-6) I
Prerequisites: Social Work 231 and concurrent registration in Social Work 234.
Field instruction in a public or voluntary social work setting emphasizing a combination of methods aimed at achieving change in social policies, organizations, and communities. Attention is given to social problem model or models of special interest to the student. Practice under educational direction at an advanced level.

256. Field Instruction VI: Social Policies, Organizations, and Communities (4-6) II
Prerequisites: Social Work 255 and concurrent registration in Social Work 235.
Field instruction in a public or voluntary social work setting emphasizing a combination of methods aimed at achieving change in social policies, organizations, and communities. Attention is given to the implementation of change in social policies, organizations, and communities.

269. Supervision for Field Instructors I (2) I, II
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 administration and educational functions of the field instructor in the education of social workers.

270. Seminar: Social Work Analysis (1) I
Discussion of student experience in field instruction and its broader implications.

271. Seminar: Current Social Issues I (1) I, II
Prerequisite: Development to candidacy.
Current developments and issues in contemporary society and their meaning for social work practice.

272. Seminar: Corrections (2) I, II
Prerequisite: Development to candidacy or consent of the Dean.
Programs dealing with juvenile and adult offenders with consideration of problems of incidence and prevention. Programs analyzed in regard to historical trends, legal base, and current issues, in a variety of settings.

274. Seminar: Services for the Aging (2) I, II
Prerequisite: Development to candidacy or consent of the Dean.
Analysis of longevity and the aging in contemporary society. Includes nature of problems of aging, planning, and social welfare systems. Case material focusing on life changes in different life settings, retirement, family relationships, housing, income maintenance, progering process, education, and social welfare resources. Knowledge and skills needed to do work with older people.

275. Seminar: International Social Services (2) I, II
Prerequisite: Development to candidacy or consent of the Dean.
Analysis of social work practices in various countries and cultures. Current developments and issues, and significant developments; the role of international social work agencies; the role of the social worker.

276. Seminar: Social Services for Families and Children (2) I, II
Prerequisite: Development to candidacy or consent of the Dean.
Analysis of programs offering social work services for families and children. Focus is upon program development, administration, and the contribution of research.

277. Seminar: Community Development (2) I, II
Prerequisite: Development to candidacy or consent of the Dean.
Focus is upon program development, administration, and the contribution of research.
Social Work

278. Seminar: Group-Serving Agencies (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Development of group-serving agencies and evolution of methods used to achieve purposes. Types of programs and variety of professions and disciplines used to achieve purposes and programs. Comparison of structures, membership philosophies, and types of services.

279. Seminar: Medical Social Work (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Health and medical care programs concerned with prevention of illness, maintenance of health and/or treatment of illness and disability, governmental and non-governmental programs, institutions, and agencies. Collaboration of the social worker with other members of the medical care team.

280. Seminar: Psychiatric Social Work (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Examination of programs and services designed to alleviate mental illness and restore mental health. Review of types and range of public and private programs and facilities. Role and function of the psychiatric social worker.

281. Seminar: School Social Work (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Role of the social worker in collaboration with teachers and principals and other school staff in diagnosis and treatment of problems which interfere with children making maximum use of educational experience.

Prerequisite: Advancement to candidacy or consent of the Dean.
Basic concepts of jurisprudence and the function of the legal system as part of the community. Discussion of the common-law system and the case precedent; structure and jurisdiction of courts, domestic relations, and criminal law. Specific aspects of law pertinent to social work orientation.

283. Seminar: Supervision in Social Work (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
The purpose, content, and methods of supervision with emphasis on the administrative and educational components of the supervisory process. Trends and issues in the practice of supervision and consultation.

290. Methods of Social Research (2) I, II
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.

297A-297B, Research (1-3) I, II
Prerequisite: Social Work 290.
Research in the field of social work and preparation of written report. Individual effort or group project.

298. Special Study (1-6)
Prerequisite: Consent of staff; to be arranged with Dean and instructor.
Individual study. Six units maximum credit.

SOCIOLoGy
IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty
Emeritus Faculty: Barnhart
Professors: Daniels, Kirby, Klapp, Milne, Wendling
Associate Professors: DeLana (Chairman), Elliott, Johnson, C. D., Mouratides
Assistant Professors: Bower, Chandler, Dodge, Gandhi, Gillette, McJunkins, Werner, Winslow

Offered by the Department of Sociology
Master of Arts degree with a major in sociology. (See also Master of Arts degree for teaching service in social science. Described in Graduate Bulletin. Students 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 78 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.
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.

35. Marriage and the Family (3) I, II
Prerequisite: Sociology 1.
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 15, Social Welfare 35, or other course in marriage and the family, or in courship and marriage.

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60. Elementary Social Statistics (3) I, II
Prerequisite: Sociology I and Mathematics 1.
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.

**UPPER DIVISION COURSES**

100. History of Social Thought (3) I, II
Prerequisite: Sociology I or 102.
The origin and development of social theory in Europe and America; consideration of the fields and specialization and research in contemporary American sociology.

101. Modern Social Theory (3) I, II
Prerequisite: Sociology 1 or 102 and 100.
A study of theories basic to modern sociological research, including the viewpoints of European and American thinkers.

102. Principles of Sociology (3) I, II
Development and use of the concepts that are applied to sociological analysis. A more extensive introduction to sociology than given in Sociology I. 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.

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.

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.

116. Contemporary Correctional Administration (3) II
Prerequisite: Sociology 113 or 114.
A study of the problems encountered in administering modern correctional institutions, forestry and road camps, detention homes, and jails.

120. Industrial Sociology (3) I, II
Prerequisite: Sociology 1 or 102.
Analysis of the relationships within economic organizations. Problems of leadership, morale and conflict. Some attention to the sociology of occupations and professions.

121. 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, education 181.

122. Social Organization (3) I, II
Prerequisite: Sociology I 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 I 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 I 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 and minority groups. (Formerly entitled: Race Relations.)

125. Minority Group Relations (3) I, II
Prerequisite: Sociology 1 or 102.
Theories of ethnic prejudice. Analysis of racial and ethnic discrimination. Analysis of the history of families; how they form, function, and grow to maturity. Focus on the development and interaction of family members throughout the family life cycle from marriage to divorce and remarriage. (Not open to students with credit in another upper division course in marriage and family.)

130. Sociology of the Family (3) II
Prerequisite: Sociology I or 102. Recommended: Sociology 101 and 146.
A comparative study of family systems in different societies. Changing roles in marriage, divorce, remarriage, and remarriage. 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.

137. Political Sociology (3) I
Prerequisite: Sociology I and 122.
Social organization of political processes. Power and authority, social class, primary groups, collective behavior, social change, and other sociological factors influencing political processes. Their relationships to political processes.

138. Sociology of Religion (3) II
Prerequisite: Sociology I or 102. Recommended: Sociology 101 and 146.
The role of religion in society as an institution, including primitive religion, modern sects and churches, ritual, secularization, and religious movements.

140. Social-Psychological Foundations of Society (3) I, II
Prerequisite: Sociology I or 102 and Psychology 1.
An examination of the problems and findings of social-psychological studies with reference to group behavior and group membership, the socialization of the individual, and the processes of social interaction. Not open to students with credit in Psychology 145.
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.

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 factors 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.
A study of 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 (Credit to be arranged) 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. May be repeated for a maximum of six units credit.

199. Special Study (1-6) 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.
Advanced study of social theory, its modern formulations and historical development, with emphasis on individual research and report findings. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

210. Seminar in Social Disorganization (3)
Prerequisites: Sociology 110 and 164.
Advanced study of the processes which contribute to and maintain social and personal disorganization. The relationship of sociological factors, including urbanization, secularization and social change, to these processes, with emphasis on contemporary theory and research. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

219. Sociology (3)
Prerequisite: Sociology 164.
Analysis of the principal organizational forms of society and groups, in terms of their basic patterns, interrelations, organizational change, and the relation of the individual to social structure. Study of bureaucracy, consensus, formal and informal structure and function. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

220. Seminar in Social Institutions (3)
Prerequisite: Sociology 164.
Advanced study of institutional forms and processes, including the institutional bases of social mores. The effect of sociological factors, including cultural lag, on contemporary social institutions. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

240. Seminar in Social Interaction (3)
Prerequisites: Sociology 140 and 164.
Advanced study of social-psychological interaction, including sociological factors in personality development and analysis of morale, motivation, leadership and other elements of group behavior. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

250. Seminar in Human Ecology and Demography (3)
Prerequisites: Sociology 130 and 164.
Analysis of the sociological variables which influence distribution and composition of populations and social institutions, with special emphasis on urban social organization. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

260. Seminar in Research Methods (3)
Prerequisites: Sociology 101 and 164.
Analysis of methods used in current sociological research, including evaluation of research designs appropriate to particular types of subjects. 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.

299. Thesis (3)
Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.
Spanish

SPANISH

IN THE DIVISION OF THE HUMANITIES

Faculty
Emeritus Faculty: Brown, L. P., Phillips
Professor: Baker, C.
Associate Professors: Cee (Chairman, Spanish-Portuguese), Lemos, Walsh, J. L.
Assistant Professors: Bas, Dandiker, Ede, Head, Sender, Smith, J. D., Williams, F.
Lecturers: Crowell, Geiger, Ponce

Offered by the Department of Spanish and Portuguese
Master of Arts degree with a major 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 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 78 of this catalog.
Students majoring in Spanish must complete a minor in another field approved by the departmental advisor 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 127 units of courses in the period literature of the language.

SPANISH MINOR

The minor in Spanish consists of from 35 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. Twenty-four upper division units to include Spanish 101A, 101B, 102A, 102B, 122, 140, 141, 150, and three upper division units of electives in Spanish.
In addition to the major, credential candidates must complete Education 116.

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 Spanish and Portuguese. The candidate must consult with the chairman of the Department of Spanish and Portuguese for permission to take this examination.

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, 122, 140, 141, and six upper division units of Spanish in the period literature of the language.

Postgraduate Year. Six units of graduate courses in Spanish.

Proficiency Examination: Before taking a student teaching assignment in Spanish, the candidate for the credential must pass an oral and written proficiency examination in the language, administered by the Department of Spanish and Portuguese. The candidate must consult with the chairman of the Department of Spanish and Portuguese for permission to take this examination.

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.

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 Spanish and Portuguese. The candidate must consult with the chairman of the Department of Spanish and Portuguese for permission to take this examination.

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 101A, 101B, 102A, 102B, and 11 units (or equivalents), and in the upper division, Spanish 101A, 101B, 102A, 102B, and 122.

Proficiency Examination: Before taking a student teaching assignment in Spanish, the candidate for the credential must pass an oral and written proficiency examination in the language, administered by the Department of Spanish and Portuguese. The candidate must consult with the chairman of the Department of Spanish and Portuguese for permission to take this examination.

HIGH SCHOOL EQUIVALENTS

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Spanish may be counted as the equivalent of Spanish 2; and four years of high school Spanish 3. The last year of 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.
Prerequisites: Spanish 1 or two years of high school Spanish.
Continuation of Spanish 1.

2. Elementary (4) I, II
Four lectures and one hour of laboratory.
Prerequisites: Spanish 1 or two years of high school Spanish.
Spanish

3. Intermediate (4, 1) 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.

4. Intermediate (4) I, II
Prerequisite: Spanish 3 or four years of high school Spanish.
Continuation of Spanish 3.

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.

40. Spanish Civilization (2) I
(Same course as Humanities 46)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish culture, as expressed through
the centuries in literature, art, and philosophy.

41. Spanish-American Civilization (2) II
(Same course as Humanities 47)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish-American culture, as expressed
through the centuries in literature, art, and philosophy.

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.

102A-102B. Survey Course in Spanish Literature (3-3)
Prerequisite: Spanish 4 with a grade of C or better.
A study of important movements, authors, and works in Spanish literature from
the Middle Ages to the present.

102A-103B. The Literature of the Spanish Golden Age (3-3)
Prerequisites: Spanish 4 and 11, with a grade of C or better.
Readings from the major writers (all genres) of the Siglo de Oro, class discus-
sion and written reports.

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, revo-
olutionary and modern periods. Lectures, class reading, collateral reading and
reports. May be taken as Comparative Literature 104A-104B when work is done
in English translation.

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 litera-
ture from the colonial period to the twentieth century. The second semester, the
twentieth century, with emphasis on the contemporary Mexican novel and theater.

110A-110B. Novel and Short Story in Spain (3-3)
Prerequisites: Spanish 4 and 11 with grade of C or better.
The development of the novel and short story in Spain from 1830 to the present
time.

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 lan-
guages, including operation of equipment and preparation of material. Discussion
and demonstration of related techniques. Not open to students with credit in
French, German, Italian, or Russian 122. To be taken concurrently with Education
121E.

140. Spanish Civilization (2) I
(Same course as Humanities 146)
Conducted in English. No prerequisite.
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
(Same course as Humanities 147)
Conducted in English. No prerequisite.
An advanced course in Spanish-American culture. From the period of the
Spanish Conquest to the present, with emphasis on the arts, literature, and philo-
sophy. Lectures, class discussions, outside readings, written reports on individual
topics.

150. Phonetics and Phonemics (3) II
Prerequisites: Spanish 4 and 11 with a grade of C or better.
Detailed analysis of the sounds of Spanish and of the Spanish phonemic system,
with special attention to the problems involved in the teaching of Spanish pronun-
ciation to English-speaking students.

166. Honors Course (Credit to be arranged) I, II
Refer to Honors Program.

199. Special Study (146) I, II
Six units maximum credit. This course is intended only for
individual study. Six units maximum credit. This course is intended only for
division courses in Spanish available in any given semester.
Prerequisite: Consent of staff.

GRADUATE COURSES

201. History of the Spanish Language (3)
Prerequisite: 18 units of upper division Spanish, including credit or concurrent
enrollment in Spanish 150.
The development of the Spanish language in Spain and Spanish America, with
particular attention to the phonology, morphology, and syntax of medieval Spanish.
(Formerly entitled: Old Spanish.)

202. Cervantes (3)
Prerequisite: 18 units of upper division Spanish.
A study of the principal prose works of Cervantes: The Novelas ejemplares and
Don Quixote.
203. Lope de Vega (3)
Prerequisite: 18 units of upper division Spanish.
The development and importance of Lope de Vega and his school, concentrating on the historical plays and dramas of capa y espada.

204. The Spanish-American Novel (3)
Prerequisite: 18 units of upper division Spanish.
A study of some aspect of the Spanish-American novel.

205. The Gaucho Epic (3)
Prerequisite: 18 units of upper division Spanish.
The Poesia gauchesca, with particular emphasis on Martín Fierro, Fausto, and Santos Vega. (Formerly entitled: Spanish-American Poetry.)

206. Modernism (3)
Prerequisite: 18 units of upper division Spanish.
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)
Prerequisite: 18 units of upper division Spanish.
The thinkers, essayists, and philosophers of Spain from the generation of 1898 to the present.

209. The Spanish-American Essay (3)
Prerequisite: 18 units of upper division Spanish.
Principal Spanish-American essayists of the 19th and 20th centuries.

290. Research and Bibliography (3)
Prerequisite: 18 units of upper division Spanish.
Research 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)
Prerequisite: 18 units of upper division Spanish and consent of graduate adviser and department chairman.
A study of important movements, authors, and works in Spanish literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examinations in literature for candidates for the M.A. degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: 18 units of upper division Spanish 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. Guidance in the preparation of a project or thesis for the master's degree.

SPEECH ARTS
IN THE DIVISION OF THE FINE ARTS

Faculty
Professors: Ackley, Adams, W., Benjamin (Chairman), Earnest, Jones, K., Mills, Pfaff, Pownsett, Powell, Selman
Associate Professors: Ambler, Lee, R. L., Samovar
Assistant Professors: Anderson, H. L., Harris, R., Jameson, K. C., Johnson, E. B., Madsen, Mattox, Meador, Nichols, A. C., Riedman, Rogers, P., Stephenson, Wyle

Offered by the Department
Master of Arts degree with a major in speech arts; and a Master of Arts degree for teaching service with a concentration in speech arts. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)
Major in speech arts with the A.B. degree in applied arts and sciences.
Major in radio and television broadcasting with the B.S. degree in applied arts and sciences.
Minor in speech arts and minor in radio and television broadcasting.
Teaching major in speech and drama with specialization in secondary teaching.
Teaching minor in speech and drama with specialization in both elementary and secondary teaching.

SPEECH 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 74 of this catalog.
The major in speech arts is available in four areas of emphasis: Broadcasting, Public Address, Speech and HearingPathology, and Theatre, including Design for Theatre and Design for Television. Students planning to take the Standard Teaching Credential—Secondary may use the teaching major in speech and drama as a major in speech arts for the A.B. degree in lieu of one of the areas of emphasis.

MAJOR WITH EMPHASIS IN BROADCASTING
Students emphasizing broadcasting in the speech arts major must complete a minor of 15 units which brings to him a academic content field in another discipline.

Preparation for the major. Speech Arts 67, 80, 81, 82, 83, and 85. (18 units.) Students selecting this emphasis will substitute Speech Arts 1 for the general education requirement Speech Arts 5.

Major. Twenty-five units consisting of Speech Arts 100, 154A, 154B, 167, 181, 183, 186, and 188.

MAJOR WITH EMPHASIS IN PUBLIC ADDRESS
A minor is not required with the speech arts major with this emphasis for the degree.

Preparation for the major. Speech Arts 11A or 11B, 60A, 62, and one unit each of 61 and 64. (11 units.) Students selecting this emphasis may take Speech Arts 4 as part of the general education.

Major. Twenty-five upper division units to include Speech Arts 100, 101, 130, 162, 190, 191, 192A, 192B, and three units of electives.

MAJOR WITH EMPHASIS IN SPEECH AND HEARING PATHOLOGY
A minor is not required with the speech arts major with this emphasis for the degree.
Speech Arts

Preparation for the major. Speech Arts 1, 70, and 3 units selected from Speech Arts 4, 11A, 11B, 60A, 60B. (9 units.)

Major. A minimum of 24 units selected with the approval of the adviser from the following courses: Speech Arts 100, 109 (Speech Correction), 170, 171A, 171B, 172, 173, 174, 176, 177, 178, 179A, 179B, 180A, 180B.

MAJOR WITH EMPHASIS IN THEATRE
A minor is not required with the speech arts major with this emphasis for the degree.

Preparation for the major. Speech Arts 8, 55A, 56, and 55B or 11A, and one lower division course in broadcasting. (15 units.) Speech Arts 1 or 4 will be substituted for Speech Arts 3, and students electing this emphasis will take Speech Arts 5 as part of general education.

Major. Twenty-four upper division units in speech arts to include Speech Arts 100, 118A, 154A, 155, 159, and 9 units from Speech Arts 108, 116, 118B, 140A, 140B, 145, 152, 154B, 156, 160, and 163. In addition to course requirements, the student must participate in a minimum of five Major Theatre performances and three Studio Theatre activities.

MAJOR WITH EMPHASIS IN DESIGN FOR THEATRE
A minor is not required with the speech arts major with this emphasis for the degree.

Preparation for the major. Speech Arts 5, 8, 55A or 55B, 56, and 81. (15 units.)

Major. Twenty-four upper division units in speech arts to include Speech Arts 100, 140A, 140B, 145, 152, 154A, 154B, and 159. In addition to course requirements, the student must participate in a minimum of five Major Theatre performances and three Studio Theatre activities.

MAJOR WITH EMPHASIS IN DESIGN FOR TELEVISION
A minor is not required with this major.

Preparation for the major. Speech Arts 8, 56, 81, 83, and 86. (15 units.)

Major. Twenty-four upper division units in speech arts to include 140A, 140B, 145, 156, 159, 160, 182, and 184.

RADIO AND TELEVISION BROADCASTING 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 74 of this catalog.

This major in radio and television broadcasting is offered by the Speech Arts Department.

The purpose of the curriculum in broadcasting is three-fold: to provide the student with the theory and scholarly background for a thorough understanding of all aspects of the broadcasting profession and contributing fields; to encourage the student to develop a philosophy of broadcasting based upon the liberal arts, and a grasp of the role of mass media in today’s society; and to provide training and experience in all phases of radio, television and film performance, production, management, and general operations. This includes practical assignments in radio, through the college-operated KEBS-FM, productions for television stations, closed-circuit television programming, and practical film responsibilities.

A minor is not required with this major.

Preparation for the major. Speech Arts 56, 80, 81, 82, 83, and 85. (18 units.)

Students taking the B.S. degree with a major in Broadcasting will substitute Speech Arts 1 for the general education requirement Speech Arts 3. Demonstration of proficiency in typing is required.

Speech Arts

Major. A minimum of 36 upper division units distributed as follows: Speech Arts 139, 167, 181, 182, 183, 184, 186, 187, 188, and 6-7 units from one of the following: Communication, Public Relations, or Radio-TV Production. A minimum of 45 units from the following eleven allied professional sequences: (playwriting) Speech Arts 118A, 118B; (scriptwriting) Speech Arts 120A, 120B; (film) Speech Arts 122, 123; (news) Journalism 124A, 124B, 125; (mass media) Journalism 127A, 127; (education) Education 101, 101A, Speech Arts 185; (art) Art 107, 114A, 114B; (music) Music 51, 151; or (administration) Business Administration 150, 152.

SPEECH ARTS MINOR
The minor in speech arts consists of from 15 to 22 units in speech arts, nine units of which must be in upper division courses. The courses must be selected from the following fields of emphasis: theatre, design for theatre, design for television, broadcasting, public address, or speech and hearing pathology.

RADIO AND TELEVISION BROADCASTING MINOR
The minor in radio and television broadcasting is offered by the Speech Arts Department. The minor consists of a minimum of 15 to 22 units (to include Speech Arts 80 and 81), at least six of which must be in upper division courses.

SPEECH AND 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. The minor may be used by students in Teacher Education as an undergraduate major in speech arts for the A.B. degree in applied arts and sciences.

Specialization in Secondary Teaching
Students electing this teaching major will take Speech Arts 4 instead of Speech Arts 3 to meet the general education requirements.

Preparation for the major. Speech Arts 11A or 11B, 55A or 55B, 56, 60A or 60B, 63, 70, 86, and three units selected from Speech Arts 1, 5, 8, 11A or 11B, 51A or 51B, 60A or 60B. (23 units.)

Teaching Major (Undergraduate). Twenty-two upper division units in speech arts to include the following: Speech Arts 100, 101, 140A, 154A or 154B, 159, 160, 190, 191, 192A or 192B; and six units selected from Speech Arts 108, 110, 116, 118A, 130, 135, 140B, 141-S, 145, 152, 154A or 154B, 155, 162, 164, 170, 192A, 192B.

Postgraduate Year. In the postgraduate year the credential candidate must complete six upper division or graduate units (unless taken in the minor) selected from the following courses: Speech Arts 108, 110, 116, 118A, 118B, 110, 114, 152, 154A, 154B, 155, 156, 157, 164, 181, 192A, 192B, or any 200-numbered course in speech arts approved by the adviser.

SPEECH AND DRAMA MINOR
FOR THE STANDARD TEACHING CREDENTIAL
Students in Teacher Education using this teaching minor for the bachelor’s degree will be graduated with a minor in speech arts.

Specialization in Elementary Teaching
The minor in speech and drama for elementary teaching consists of 25 units to include 16 lower division units selected with approval of the departmental adviser in speech from the prescribed speech arts teaching major pattern; and nine upper division units selected with approval of the departmental adviser in speech from courses approved for the speech arts teaching major.
Speech Arts

Specialization in Secondary Teaching

The minor in speech and drama for secondary teaching consists of 25 units to include the following: 16 lower division units selected with approval of the departmental adviser from the prescribed speech and drama teaching major pattern; and nine upper division units selected with approval of the departmental adviser from courses approved for the speech and drama teaching major.

LOWER DIVISION COURSES

1. 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 public speaking and dramatic art.

2. Oral Communication Laboratory (1) I, II
   Two hours of laboratory. Those who fail the speaking test should take this course concurrently with Speech Arts 3. This course provides training in articulation, voice control, vocabulary, individual laboratory assistance on specific speech problems.

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 Arts 3 (or 4) required in general education.

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 Arts 4 (or 5) required in general education.

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.

6. Elementary Stage Costume and Makeup (3) I
   Two hours lecture-demonstration and three hours activity. Principles and application of makeup for stage and television. Pattern drafting, draping, color harmony and use of fabrics for stage costume. Practical training in the construction of stage costumes and application of makeup for departmental productions.

11A. Fundamentals of Interpretation (3) I
   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. Offered as demand requires.

11B. Intermediate Interpretation (3)
   Prerequisite: Speech Arts 11A or 55A.
   Oral reading of various types of material suitable for popular audiences: stories, humorous sketches, light and sentimental verse.

445. Workshop in Educational Radio Broadcasting (6) Summer (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 KFBS (FM). Offered jointly with Speech Arts 144S. Not open to students with credit for Speech Arts 144S.

55A. Elementary Acting (3) I, II
   Three lectures per week and an additional 32 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.

55B. Intermediate Acting (3) I, II
   Three lecture-demonstration per week and an additional 32 hours of laboratory per semester.
   Prerequisite: Speech Arts 55A. Emphasizing the application of fundamental skills to the problems of emotion, timing, characterization, and ensemble acting.

56. 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.

57. Sound in the Theatre (2) I
   One lecture and three hours of laboratory. Technical aspects, theory, and procedures necessary to develop sound, music, and effects integrated into theatre production.

60A-60B. Argumentation and Debate (3-3)
   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 study and discussion of current issues. Participation in intercollegiate debate optional.

61. Intercollegiate Debate (1) I, II
   Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. May be repeated to a total of four units, including lower division and upper division courses, 61 and 161.

62. Interpersonal Communication (3)
   Principles of interpersonal communication. Special emphasis on principles and application of interpersonal communication. Special emphasis on group dynamics, oral transmission, feedback and general semantics.

63. 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, ability in dramatic visualization of poetry. May be repeated to a total of four artistic function and history of the Verse Choir. May be repeated to a total of four artistic function and history. Offered as a major in lower division and upper division courses, 63 and 163.

64. Principles of Parliamentary Procedure (1) I
   A study of 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.

67. Film as Art and Communication (3) I
   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.
Speech Arts

70. Survey of Speech and Hearing Disorders (3) I
Introduction to concepts and principles basic to the fields of speech and hearing disorders. Twenty-five hours of observation or project required.

80. Backgrounds in Broadcasting (3) I, II
Theory and operation of the broadcasting industry to include the history and regulation of broadcasting in the U.S., the social and economic setting of American broadcasting and the organization of commercial and educational radio and television stations.

81. Technical Operations for Broadcasting (3) I, II
Two lectures and three hours of scheduled activity. Control room and studio technical necturies for radio and television operation. Includes camera operation, video control, television lighting, television recording, and operation of audio equipment.

82. Radio Programming and Production (3) I, II
Two lectures and three hours of scheduled activity. Prerequisite: Speech Arts 61.
Theory and practice in the skills and knowledge of radio programming. Includes development of basic radio program types and experience in announcing, writing, directing and production for radio.

83. Television Production and Directing (3) I, II
Two lectures and three hours of scheduled activity. Prerequisite: Speech Arts 81.
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.

85. Introduction to Photography (3) I, II
(Same course as Industrial Arts 85.)
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.

86. 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 Speech Arts 80.

100. Phonetics (3) I, II
Auditory and kinesthetic analysis of the sounds of the English language. Valuable as a corrective course in pronunciation and articulation. Required of speech majors and those seeking to teach exceptional children in the area of speech correction and lip reading.

101. Management of Speech Arts Activities (6) I, II
Planning, preparation, management and supervision of speech and drama tournaments, festivals and other interscholastic and intrascholastic activities under the supervision of the speech arts staff. May be repeated for a maximum of two units.

108. Advanced Interpretation (3) I, II
Prerequisite: Speech Arts 11A or 11B.
Analysis of techniques of literary composition as guides to oral interpretation. Achievements of the creative artist as they affect the interpretative artist.

109. Workshop in Speech (1 to 3)
Study of some problem in theater, public address, radio and television, or speech and hearing pathology. Maximum credit six units.

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.

116. Theatre Criticism (3)
Prerequisite: Speech Arts 1 and 118A.
A consideration of the problems and practices of dramatic criticism as applied to theatrical production in the past and present.

118A. Play Analysis (3) I, II
The structure and style of drama. Several short plays and one full-length play are read, discussed and analyzed.

118B. Playwriting (3) II
Lectures, discussion and reading of one-act plays written by the students.

130. Semantics (3) II
Recognition of various types of linguistic meaning; logical distinctions in discourse; distinction between real and verbal disagreement; recognition and correction of semantic fallacies.

135. Theories of Human Communication (3)
Prerequisite: Six units of speech arts.
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.

140A-140B. Scene Design for Stage and Television (3-3) I, II
Prerequisite: Speech Arts 56.
The application of the principles of design, color and perspective to the designing of various types of dramatic productions; the history of stage design. Students will learn to make sketches and models and paint scenery for departmental stage and television productions.

142. Theatre Workshop (3) I, II, Summer (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. May be repeated for a maximum of six units.

143-S. Workshop in Educational Television (3) Summer
(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.

144-S. Workshop in Educational Radio Broadcasting (6) Summer (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 Speech Arts 44-S. Not open to students with credit for Speech Arts 44-S.

145. Stage and Television Lighting (3) I, II
Two lectures and three hours of laboratory,
The principles and practice of light, color, lighting instruments, and control equipment, including the design and planning of lighting for plays and television.

152. History and Design of Costume (Stage) (3) II
Two hours lecture-demonstration and three hours of laboratory.
A study of costume from Egyptian period to the present. Emphasis on the use of historical costumes on the stage. Costume designs for one stage production. Drawing and painting experience desirable but not necessary.
153. Advanced Acting Theory (3) I
Prerequisite: Speech Arts 15A or 55B.
An advanced study of the theories and principles of acting.

154A-154B. History of the Theatre (3-3) I, II
A study of 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. (Speech Arts 154B may be taken without 154A.)

155. Advanced Acting (3) II
Prerequisites: Speech Arts 55A and 55B.
Problems in characterization: acting styles of the Elizabethan and Eighteenth Century period.

156. Advanced Dramatic Production (3)
Two lectures and three hours of laboratory.
Prerequisite: Speech Arts 56.
Further study of scenery drafting and construction, with attention to the multiple-set play. Planning of scenery construction and rigging for stage and television productions.

159. Stage Direction (3) I, II
Prerequisite: Speech Arts 55A and 55B.
Problems in characterization: acting styles of the Elizabethan and Eighteenth Century period.

160. Stage Direction Laboratory (1) I, II
Prerequisite: Speech Arts 159.
This will consist of experience in directing a one-act play before a departmental or public audience. May be repeated for a total of two units.

161. Intercolligate Debate (1) I, II
Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. May be repeated for a total of four units, including lower division and upper division courses, 61 and 161.

162. Advanced Argumentation (3) I
A study of the approaches to argument and the patterns and problems in argument. Consideration of implications for society. Written and oral reports.

163. Advanced Verse Choir (2) I, II
Prerequisite: Speech Arts 15A or 55B.
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. May be repeated for a total of four units, including lower division and upper division courses, 61 and 163.

164. 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.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

167. Motion Picture Techniques (3) I
Prerequisite: Speech Arts 85.
Principles of film theory, cinematography, film editing; use of motion picture equipment. Technique and theory as they apply to the several filmic forms. Preparation of filmed materials.

168. Film Production (4) II
Prerequisite: Speech Arts 85 and 167.
One lecture and nine hours of scheduled activity. Preparation in film production. Studio and location work in the preparation of filmed materials, and complete non-theatrical films.

169. Education of Hearing Impaired Children (3) I, II
Prerequisites: Speech Arts 171A and 178.
Educational programs, services and resources for hearing impaired; historical background, philosophy, sociological and psychological problems.

170. Speech Development (3)
Prerequisite: Speech Arts 70.
Development of normal speech in children; typical and common speech defects in preschool and school children; basic techniques for their prevention and correction. Twenty-five hours of observation or project required.

171A. Audiology (3) I
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 audiological techniques.

171B. Audiology (3) II
Prerequisite: Speech Arts 171B.
Practical application of audiology for rehabilitation of impaired hearing; methods for their evaluation, historical perspective and practical considerations.

172. Mechanics of Speech Production (3)
Prerequisite: Psychology 50.
Mechanics of speech production in normal hearing and pathological conditions.

173. Functional Problems of Speech and Hearing (3)
Prerequisites: Speech Arts 170.
Phenomena of human communication; relation between disorders of personality and difficulties in communication.

174. Principles and Methods of Speech Correction (3) I
Prerequisites: Speech Arts 100 and 170.
Principles and methods of speech correction; physiology of speech, voice disorders, articulation disorders, foreign dialect.

175. Hearing Amplification (3)
Prerequisites: Speech Arts 171A and 171B.
Specific application of amplification for rehabilitation of the impaired hearing mechanism; devices, methods for their evaluation, historical perspective and practical considerations.

176. Stuttering and Neurological Disorders (3) II
Prerequisites: Speech Arts 100 and 170.
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.

177. Audiology (3) I
Prerequisite: Speech Arts 171.
Diagnostic and predictive tests of auditory functioning; types and characteristics of hearing aids; clinical practice.
178. The Teaching of Lipreading (3) II
(Same course as Education 178)
Prerequisite: Speech Arts 171 or Education 177.
History, theory, and methods of lipreading and language development for the
deaf, including hearing conservation and education. Aids for the classroom teacher;
program and materials of instruction for the specialized teacher.

179A. Clinical Methods in Speech Correction (2) I
Lectures, discussions, demonstrations of case history taking, speech and auditory
discrimination tests, interviews, reporting, and parent and teacher counseling.

179B. Clinical Methods in Speech Correction (2) II
Practical experience in the above. Practicum 14 hours.

180A. Field Work in Clinical Practice in Speech Correction (1 or 2) 1, II, Summer
Prerequisite: Speech Arts 160, 170, 174, and 176.
Supervised work with representative speech problems; "staffing" of cases; speech
testing; record keeping. Maximum credit eight units for both 180A and 180B. Not
more than three units of 180A and 180B may be taken for graduate credit.

180B. Field Work in Clinical Practice in Hearing Problems (1 or 2) 1, II, Summer
Prerequisites: Speech Arts 171, 177, and 178.
Supervised work with pure tone and speech audiometric testing of all ages; hearing
therapy, "staffing" of cases, record keeping. Maximum credit eight units for
both 180A and 180B. Not more than three units of 180A and 180B may be taken
for graduate credit.

181. Broadcast Management (3) I, II
Two lectures and three hours of scheduled activity.
Prerequisites: Speech Arts 80, 81, 82, 83.
Administration and organization of radio and television, including radio and tele-
vision as advertising media, broadcasting research, station organization, promotion
and sales, and current developments in radio and television as mass media.

182. Advanced Lighting and Staging for Television (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 56, 81, 85.
Production elements of television and film, to include lighting and staging tech-
niques, art and graphics, scene design and set decoration. Experience in various
technical and production specialties of television and film.

183. Advanced Programming and Development for Broadcasting (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 80, 81, 82, 83, 167, 168, and permission of instructor.
The development of program ideas into production formats for radio and tele-
vision materials of all types, such as news, music, dramatic, instructional. Experience
in developing programs for KSYS-FM, CCTV, and ETV. Students serve as pro-
ducers of broadcast programs.

184. Advanced Broadcast Directing (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 56, 80, 81, 82, 83, 85, 159, 167, and permission of
instructor.
Development of directorial techniques and production procedures for radio and
television programs. Emphasis on presentation techniques and individual projects.
Intensive and creative broadcast experience for the radio and television director.

185. Educational Broadcasting (3) II
Prerequisites: Speech Arts 80 and Education 101.
The role of educational broadcasting in the United States: social and educational
impact of non-commercial radio and television; introduction to production tech-
niques for instructional television; and procedures for the utilization of television
in the classroom.

186. Writing and Producing for Broadcasting and Film (3) II
Prerequisite: Speech Arts 80, 81, 82, 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.

187. 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.

188. Senior Project in Broadcasting (3) I, II
Limited to students with the major in Radio and Television Broadcasting, leading
to the B.S. degree.
Student must demonstrate proficiency in a phase of broadcasting from develop-
ment 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.

190. Rhetorical Theory (3) I
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.

191. Organized Discussion (3) 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.

192A. Advanced Public Speaking (3) I
Prerequisite: Speech Arts 4.
Emphasis upon the preparation and delivery of longer speeches. Study of classic
models of public address.

192B. Oral Persuasion (3) II
Prerequisite: Speech Arts 4.
A study of 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.

193. Mass Persuasion (3) I, II
Prerequisite: Speech Arts 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.

198. Selected Topics in Speech Arts (1-3) I, II
Prerequisite: Twelve units in speech arts.
A specialized study of selected topics from the areas of speech arts. May be re-
peated for additional credit with new subject matter for a total of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.
EXTENSION COURSES

Lower Division

X-6. Speech Workshop for Stutterers (3)
Participation by stutterers in various techniques designed to alleviate stuttering blocks. May be repeated to a maximum of six units.

Upper Division

X-175. The Role of Parents in Problems of Speech Correction (2) (Extension)
Assistance to parents in understanding the speech-handicapped child. Open to parents of children with a speech problem. May be repeated for a total of four units.

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 speech. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.

208. Seminar in Oral Interpretation (3)
Prerequisite: Speech Arts 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 once with new content for maximum of six units.

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.

244. Seminar in Stage Direction (3)
Prerequisite: Speech Arts 159.
Projects in the aesthetic principles and the practices of stage direction with an emphasis on styles and historical periods.

245. Seminar in Lighting for Stage and Television (3)
Prerequisite: Speech Arts 145.
Projects concerned with the aesthetic and technical problems of lighting in stage and television.

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: Speech Arts 152.
   B. Scenery Design
      Prerequisites: Speech Arts 140A, 140B, and 156.

247. Seminar in History of Theatre and Drama (3)
Prerequisites: Speech Arts 154A, 154B, and 118A.
Each section may be taken once for credit.
   A. British and Continental Theatre
   B. American Theatre

262. Seminar in Argumentation (3)
Prerequisite: Speech Arts 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.
283. Seminar in Broadcast Management (3)
Prerequisite: The equivalent of an undergraduate major in broadcasting and Speech Arts 181.
Study of the legal and regulatory milieu of broadcasting from the perspective of station management.

284. Seminar in Programming and Production (3)
Prerequisite: The equivalent of an undergraduate major in broadcasting.
Theory and analysis of programming and production in broadcasting.

285. Seminar in Educational Broadcasting (3)
Prerequisite: The equivalent of an undergraduate major in broadcasting.
Study of educational, social, and economic role of noncommercial educational broadcasting in the U.S., primarily from the perspective of educational station management.

291. Seminar in Group Discussion Theory (3)
Prerequisite: Speech Arts 191.
A study of descriptive and experimental literature on group discussion covering such topics as interaction, leadership, and means of evaluation.

293. Seminar: Greek and Roman Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

294. Seminar: 10th Century British Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

295. Seminars American Public Address—1700-1900 (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

297. Seminar: Contemporary American Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

298. Special Study (1-6)
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.
Guidance in the preparation of a project or thesis for the master's degree.

ZOLOGY
IN THE DIVISION OF THE LIFE SCIENCES

Faculty
Professors: Bohsack, Crawford, R., Crouch, J. E., Harwood, Huffman (Chairman), Olson, A. Associate Professors: Etheridge, Hunsaker, Norland, Wilson Assistant Professors: Carpenter, Catlett, Colan, Collier, McLean, Plymale
Lecturer: Kasten

Offered by the Department
Master of Arts degree with a major 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.

ZOLOGY 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 78 of this catalog. To satisfy the requirements 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 105; Chemistry 1A-1B and 12; Physics 2A-2B; and Mathematics 21 or 40. (38-40 units.)

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 104 or 105 or Zoology 102.

ZOLOGY 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 74 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 12; Physics 2A-2B; and Mathematics 21 or 40. (38-40 units.) Recommended: Mathematics 22 or 50.

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 104 or 105 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.

ZOLOGY MINOR
The minor in zoology consists of from 15 to 22 units in zoology, six units of which must be in upper division courses.

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.

UPPER DIVISION COURSES
102. Invertebrate Embryology (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Zoology 50.
Description and experimental analysis of the development of invertebrates.
Zoology

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) II
Two lectures and six hours of laboratory.
Prerequisites: Biology 1 and 2. Recommended: Biology 104.
A study of 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 (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 60 or 106.
Natural history, distribution, and classification of vertebrate animals; emphasis
on local forms.

115. Ichthyology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Zoology 60 or 106.
Evolution, interrelationships, structure, identification, habits, and ecology of
fishes.

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
One lecture 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-S. Field Zoology (4) Summer
Two lectures and six hours of laboratory.
Prerequisite: A course in college biological science.
Observational methods, collecting techniques, identification, ecology, and be-
havior of southern California animals. Primarily for students not majoring in the
Life Sciences Division.

121. General Entomology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50.
Structure, physiology, natural history, and classification of insects.

122. Advanced Entomology (3) I
Two lectures and three hours of laboratory.
Prerequisite: Zoology 121.
Advanced treatment of some phase of entomology such as physiology, morphol-
gy, 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, para-
sitology, and systematics.

125. Economic Entomology (4) II
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) I
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.
Prerequisites: 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 preser-
vation of local forms.

130. Protozoology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Consent of instructor.
Morphology, physiology, ecology and systematics of the protozoa; protozoolo-
gical techniques.

135. Scientific Illustration (3) I
Preparation of illustrative materials, inking drawings, charts, lettering, models, still
and movie photography, and photomicrography. (Formerly Biology 135.)

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) I
Two lectures and three hours of laboratory.
Prerequisites: Any one of the following: Zoology 50, 60, 106, Botany 101, 102, 103.
Basic for the classification of organisms. Modern concepts and their application
in zoology. Specific problems in laboratory and field.
160. Vertebrate Paleontology (3)  
Three lectures.  
Prerequisite: Zoology 106.  
Advanced studies in the evolution of vertebrates.

166. Honors Course (Credit to be arranged) I, II  
Refer to the Honors Program.

170. Animal Behavior (3) I, II  
Two lectures and three hours of laboratory.  
Prerequisites: Zoology 50 and 60.  
Physiological, morphological, and ecological bases of animal behavior, and of its  
adaptive significance.

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.

198. Methods of Investigation (2) I, II  
One discussion and three additional hours to be arranged.  
Prerequisites: 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 (1-6) I, II  
Individual study. Six units maximum credit.  
Prerequisites: Six units in zoology 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.

298. Special Study (1-6)  
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.  
Guidance in the preparation of a project or thesis for the master's degree.
**Faculty Directory**

**FOR 1966-1967**

<table>
<thead>
<tr>
<th>Name</th>
<th>Department/Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOVE, MALCOLM A. (1922)</td>
<td>President</td>
</tr>
<tr>
<td>A.B., Simpson College; M.A., Ph.D., University of Iowa; L.L.D., Simpson College; L.L.D., Concordia College; M.A., Ph.D., University of Nevada.</td>
<td></td>
</tr>
<tr>
<td>ACCOMANDO, ALLAN J. (1966)</td>
<td>Assistant Professor of Chemistry</td>
</tr>
<tr>
<td>B.A., M.S., New York University.</td>
<td></td>
</tr>
<tr>
<td>ACKERLY, ROBERT S., JR. (1943)</td>
<td>Assistant to Vice President for Academic Affairs</td>
</tr>
<tr>
<td>B.A., College of Wooster; A.M., Colgate University; Ed.D., Indiana University.</td>
<td></td>
</tr>
<tr>
<td>ACKLEY, JOHN W. (1947)</td>
<td>Professor of Speech Arts</td>
</tr>
<tr>
<td>A.B., University of Redlands; M.A., Ph.D., University of Southern California.</td>
<td></td>
</tr>
<tr>
<td>ADAMS, EILEEN (Mrs. Bert) (1949)</td>
<td>Campus Laboratory School Librarian</td>
</tr>
<tr>
<td>A.B., Williamette University; B.S. in L.S., University of Denver.</td>
<td></td>
</tr>
<tr>
<td>ADAMS, JOHN R. (1928)</td>
<td>Chairman, Division of Humanities; Professor of English</td>
</tr>
<tr>
<td>B.A., M.A., University of Michigan; Ph.D., University of Southern California.</td>
<td></td>
</tr>
<tr>
<td>ADAMS, WILLIAM J. (1935)</td>
<td>Professor of Speech Arts</td>
</tr>
<tr>
<td>B.S., McMurray College; M.A., University of Oregon; Ph.D., Stanford University.</td>
<td></td>
</tr>
<tr>
<td>AGUIRRE, EDWARD (1963)</td>
<td>Assistant Professor of Industrial Arts</td>
</tr>
<tr>
<td>AKERS, FRED C. (1966)</td>
<td>Assistant Professor of Marketing</td>
</tr>
<tr>
<td>B.S., University of Missouri; M.B.A. (Marketing), Northwestern University; M.B.A. (Economics), Ph.D., University of Chicago.</td>
<td></td>
</tr>
<tr>
<td>ALCORN, MARVIN D. (1941)</td>
<td>Professor of Education</td>
</tr>
<tr>
<td>A.B., Southwestern College; A.M., Teachers College, Columbia University; Ed.D., University of Southern California.</td>
<td></td>
</tr>
<tr>
<td>ALTE, EDWARD F. (1962)</td>
<td>Associate Professor of Psychology</td>
</tr>
<tr>
<td>B.A., University of California.</td>
<td></td>
</tr>
<tr>
<td>ALLISON, EDWIN C. (1960)</td>
<td>Associate Professor of Geology</td>
</tr>
<tr>
<td>B.S., M.A., Ph.D., University of California.</td>
<td></td>
</tr>
<tr>
<td>AMBLE, KJELL (1962)</td>
<td>Associate Professor of Speech Arts</td>
</tr>
<tr>
<td>B.A., Division University; M.A., Ph.D., Northwestern University.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, ALICE J. (Mrs.) (1965)</td>
<td>Assistant Professor of Education</td>
</tr>
<tr>
<td>B.A., Ball State Teachers College; M.A., State College of Iowa; additional graduate study, University of Southern California.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, ALLAN W. (1962)</td>
<td>Associate Professor of Philosophy</td>
</tr>
<tr>
<td>B.A., Washington State College; M.A. Trinity College; Ph.D., Columbia University.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, ARTHUR J. D. (1961)</td>
<td>Associate Professor of Anthropology</td>
</tr>
<tr>
<td>B.A., San Diego State College; M.A., Claremont College; Ph.D., University of Southern California.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, EVANS L. (1954)</td>
<td>Professor of Education</td>
</tr>
<tr>
<td>B.A., Gustavus Adolphus College; M.A., University of Minnesota; Ed.D., University of Denver.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, GRAYDON K. (1949)</td>
<td>Professor of Economics</td>
</tr>
<tr>
<td>B.A., Williamette University; Ph.D., University of Wisconsin.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, HAYES L. (1966)</td>
<td>Assistant Professor of Speech Arts</td>
</tr>
<tr>
<td>B.A., Oregon State University; M.A., and additional graduate study, University of California at Los Angeles.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, MELVIN A. (1956)</td>
<td>Assistant Professor of Speech Arts</td>
</tr>
<tr>
<td>A.B., Colorado State College; M.S., Ph.D., University of Wisconsin.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, PAUL V. (1945)</td>
<td>Professor of Music</td>
</tr>
<tr>
<td>R.M., North Texas State College; M.M., University of Wisconsin.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, W. CARLISLE (1955)</td>
<td>Professor of Industrial Arts</td>
</tr>
<tr>
<td>B.S., Nebraska State Teachers College; M.A., Ph.D., University of Minnesota.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, ZOE E. (1965)</td>
<td>Assistant Professor of Home Economics</td>
</tr>
<tr>
<td>B.S.A.S., Illinois Institute of Technology; M.S., Ph.D., University of Illinois.</td>
<td></td>
</tr>
</tbody>
</table>

† On leave, spring 1966-67.
BAXTER, ROBERT J. (1962)  Assistant Professor of Art
B.S., M.S., M.F.A., University of Wisconsin
BAXTER, WILLIAM L. (1966)  Assistant Professor of Microbiology
A.B., Ph.D., University of California, Los Angeles.
BECKER, GERALD A. (1968)  Professor of Mathematics
B.A., M.S., Ph.D., State University of Iowa.
BEDORE, ROBERT L. (1959)  Professor of Engineering
B.S.M.E., M.S.M.E., Purdue University. Registered Professional Mechanical Engineer.
BELCHER, DAVID W. (1957)  Professor of Management
B.B.A., M.A., Ph.D., University of Minnesota.
BENJAMIN, ROBERT L. (1953)  Professor of Speech Arts
A.B., University of California, M.S., Ph.D., University of Wisconsin.
BENSON, JACKSON J. (1966)  Assistant 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 at Los Angeles; M.S., Ed.D., University of Southern California.
BERG, ROBERT V. (1962)  Assistant Professor of Art
B.S., Moorhead State College, Minnesota; M.F.A., University of Minnesota.
BERGE, DENNIS E. (1963)  Assistant Professor of History
B.A., M.A., San Diego State College; Ph.D., University of California.
BERLY, RICHARD W. (1961)  Associate Professor of Geology
B.S., M.A., University of Alberta; M.A., University of Oregon.
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.
BLAIR, SAMUEL M. (1966)  Assistant Professor of Education
B.S., M.S., A.A. University, India; Ph.D., University of Manchester, England.
BLACK, NATHALIA C. (Mrs. V.) (1958)  Lecturer in English
Special study at Barnard College, University of Madrid, and Sorbonne.
BLANC, SAM S. (1966)  Assistant Professor of Education
A.B., California State College; M.A., Ed.D., University of Denver.
BLANS, MARYLIE I. (1965)  Assistant Professor of Recreation
B.A., Ohio Wesleyan University; M.A., University of North Carolina; additional graduate study.
BLOCH, JAMES D. (1966)  Assistant Professor of Music
A.B., M.A., Ph.D., University of California, Los Angeles.
BLOOM, BYRNETT W. Assistant Professor of Accounting
B.S., B.A., M.S., University of Illinois. Certified Public Accountant.
BLYTH, JOHN D. (1977)  Professor of Music
B.M., M.M.Illinois State University; Ed.D., Teachers College, Columbia University.
BLOHSACK, KURT K. (1956)  Professor of Zoology
B.S., Ohio State University; M.S., Ph.D., University of Michigan.
BOLTE, JOHN B. (1962)  Associate Professor of Physics
B.S., M.A., Iowa State Teachers College; M.S., Oregon State University; Ph.D., State University of Iowa.
BONEY, ELAINE E. (1962)  Assistant Professor of German
B.A., University of Kansas; M.A., University of Wisconsin; Ph.D., University of Texas.
BOSKIN, LAWRENCE (1965)  Associate Professor of Education
B.S., Brooklyn College; M.S., University of Illinois; Ed.D. candidate, West Virginia University.
BOWER, ROLAND C. (1964)  Assistant Professor of Sociology
A.B., San Diego State College; M.A., Ph.D. candidate, University of California, Los Angeles.
BOWERS, WILLIAM E.  Assistant Professor of Art
B.M.I., University of California at Los Angeles.
BRADLEY, WALLACE R. (1941)  Assistant Professor of Education
B.S., University of Maryland; M.A., San Diego State College.
CARTER, J. E. LINDSAY (1962). Associate 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). Associate Professor of Spanish. B.A., St. Thomas College; M.A., Ph.D., State University of Iowa.

CATTLE, ROBERT H. (1964). Assistant Professor of Zoology. A.B., M.A., Colorado College; Ph.D., University of California, Davis.

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). Assistant Professor of Economics. B.S. and additional study at the University of California.

CHAN, SHU-YUN (1965). Assistant Professor of Engineering. B.S., Sapporo University; B.S.E.E., Columbia University; M.S.E.E., Ph.D., University of Illinois.

CHANDLER, SHELBY E. (Mrs. D.) (1956). Assistant Professor of Sociology. A.B., M.A., Ph.D., University of California, Los Angeles.


CHARLES, CAROL M. (1961). Associate Professor of Education. B.A., M.A., Eastern California University; Ph.D., University of New Mexico.


CLARK, ORRIN H. (1960). Associate Professor of Physics. A.B., Columbia College; M.A., Columbia University; Ph.D., New York University.


COCKRELL, LLOYD (1960). Assistant Professor of Education. B.S., New Mexico State University; M.A., Eastern New Mexico University; Ed.D., University of New Mexico.

COHN, THEODORE J. (1964). Assistant Professor of Zoology. B.S., Cornell University; M.S., Ph.D., University of Michigan.

COLLINS, STEPHEN (1962). Assistant Professor of Education. B.S., College at Oneonta; M.A., Teachers College, Columbia University.

COWLER, BOYD J. (1966). Assistant Professor of Biology. B.S., University of Wisconsin; M.S.T., Ph.D., University of Wisconsin.


CONLEY, JOHN F. (1954). Associate Professor of Engineering. B.S.M.E., M.S.M.E., University of Pennsylvania; Ph.D., Columbia University.


COVENEY, CECELIA T. (1957). Professor of Nursing. B.S., University of Minnesota; M.P.H., University of North Carolina.


COWINGTON, DON P. (1965). Assistant Professor of Art. B.A., Southern Methodist University; M.A., University of California, Los Angeles.

COX, GEORGE W. (1962). Associate Professor of Biology. B.A., Ohio Wesleyan University; M.S., Ph.D., University of Illinois.

COX, MARJORIE S. (Mrs. M.) (1961). Assistant Professor of French. A.B., University of Kansas; M.A., University of Colorado; doctoral candidate, University of California.


CRAGG, ROBERT L. (1960). Assistant Professor of Physics. A.B., Duke College; M.S., University of Nebraska; additional graduate study at Universities of Minnesota and Idaho.

CRAY, MELVIN (1959). Associate Professor of Political Science. A.B., University of Redlands; M.A., Ph.D., University of Southern California.


Faculty

GRiffin, RONALD W. (1967) Assistant Professor of Social Work B.A., University of Arizona; M.S., Golden Gate Baptist Theological Seminary; M.S.S.W., University of Texas; Ph.D., Florida State University.

GRIFFITH, RICHARD C. (1958) Associate Professor of Political Science B.A., University of Washington; M.A., University of Southern California.

GROFF, PATRICK J. (1955) Assistant Professor of Education B.A., University of Oregon; Ed.D., University of California.


GROVER, GEORGE C. (1961) Associate Professor of English B.A., M.A., San Diego State College; Ph.D., University of Southern California.

GROSSBERG, JOHN M. (1962) Assistant Professor of Psychology B.A., M.A., Ph.D., Indiana University.

GRUBBS, EDWARD I. (1961) Associate Professor of Chemistry B.A., Occidental College; Ph.D., Massachusetts Institute of Technology.

GUSEK, SIDNEY L. (1945) Dean of Arts and Sciences; Professor of English B.A., M.A., Oberlin College; Ph.D., Tulane University.

HADLON, MAXINE M. (Miss E.) (1966) Assistant Professor of Management and Administration B.S., University of Chicago; M.A., Ph.D., University of California, Los Angeles.

GUZZETTA, CHARLES J. (1962) Associate Professor of Social Work B.S., M.A., University of the State of New York; M.S.S., University of Buffalo; Ed.D., N.Y., M.A., University of Southern California.

HAAK, HAROLD H. (1962) Associate Professor of Political Science B.A., M.A., University of Wisconsin; Ph.D., Princeton University.

HALE, ALE ALAN (1957) Professor of Marketing B.A., University of Illinois; M.A., Ball State Teachers College; Ed.D., Indiana University.

HALL, SIDNEY E. (1964) Assistant Professor of Physical Education B.A., M.A., College of the Pacific.

HALL, GEORGE K. (1963) Assistant Professor of Industrial Arts B.S., M.S., University of California, Los Angeles.

HAMPTON, DAVID E. (1964) Assistant Professor of Management and Administration B.A., M.A., California Baptist College; M.B.A., University of Michigan; M.B.A., University of Southern California; Ph.D., Columbia University.

HANSON, T. WILLIAM F., JR. (1956) Professor of History B.A., Southern Methodist University; M.A., Ph.D., University of California, Los Angeles.

HARROD, ROBERT F. (1962) Assistant Professor of Recreation Administration B.A., Washington State University; Rec.D., Indiana University.

HARSH, RICHARD M. (1963) Assistant Professor of Psychology B.S., M.S., Ph.D., University of Miami.


HARDER, DONALD F. (1966) Assistant Professor of Physical Education B.S., M.S., Ed.D., University of California, Los Angeles.

HARMAN, RYAN D. (1966) Assistant Professor of Education B.A., Nebraska Wesleyan University; M.A., Ph.D., candidate, The American University.

HARMON, JAMES E. (1964) Assistant Professor of Political Science B.A., M.A., San Diego State College.

HARENST, WALLACE (1962) Associate Professor of Accounting B.A., Accounting College; M.B.A., University of Kentucky; Ph.D., University of California, Los Angeles.

HARRISON, NEEL A. (1948) Professor of Chemistry B.A., Montana College; M.A., University of Southern California.

HARRINGTON, HARRIET (1949) Professor of Education Ph.D., Whittier College; Ed.D., University of Southern California; B.A. and M.A., University of Southern California; M.A., University of Michigan; M.S., University of Oregon; Ed.D., University of California.

HARRIS, JAMES A. (1959) Professor of Art Education B.A., M.A., University of Wisconsin; M.S.W., Smith College.

HARRIS, ENOY A. (1957) Professor of Education B.A., M.A., University of California; M.S.W., Smith College.

HARRISON, ROBERT J. (1963) Professor of Psychology B.S., M.S., Ph.D., University of Washington.


HAWGOOD, ROBERT D. (1928), A.B., Pomona College; Ph.D., Cornell University. Professor of Zoology.

HASKELL, HARRIET (1940, except 1943-45), A.B., Mills College; B.A., Bryn Mawr College; Ph.D., University of Wisconsin. Professor of English.

HAWORTH, GLEN A. (1966), A.B., San Diego State College; M.S.W., University of California. Assistant Professor of Social Work.

HAYDEN, WILLIAM E. (1962), A.B., M.A., St. Lawrence University; M.S. Ph.D. University of Michigan. Associate Professor of Biology.

HEADEL, JERALD L. (1964), A.B., Ph.D., University of California, Los Angeles. Assistant Professor of Spanish and Portuguese.

HILL, PATRICIA J. (Mrs. J.) (1965), A.B., M.A., San Diego State College. Assistant Professor of Education.


HINKE, WILLIAM A. (1963), B.A., M.A., Ph.D., University of Missouri. Associate Professor of Education.

HOOK, LOUIS E. (1966), B.S., North Central College; Ph.D., University of California at Los Angeles. Assistant Professor of Psychology.

HOPKA, WILLIAM H. (1957), B.S., University of Minnesota. Professor of Business Law and Real Estate.

HUNG-TAT (1966), B.S., Ordnance Engineering College, China; S.M., Virginia Polytechnic Institute; Ph.D., Brown University. Assistant Professor of Political Science.

HOBBS, JOHN A. (1964), B.A., M.A., University of Illinois; Ph.D., Princeton University. Assistant Professor of Political Science.

HOGG, GLENN L. (1964), B.S., Kansas State Teachers College; M.S., University of Denver; Ph.D., Louisiana State University. Professor of Management.

HODG, MERLE E. (1962), B.S.Ed. B.S.Mus. Kansas State Teachers College; B.A., M.F.A., Ph.D., State University of Iowa. Associate Professor of Music.

HOLMAN, DOROTHY J. (Mme.) (1966), B.S., Texas A&M University; Ed.D., North Texas State University. Assistant Professor of Education.

HOLMES, CALVIN V. (1954), B.S., University of Mississippi; M.S., University of Illinois; Ph.D., University of Kansas. Assistant Professor of Mathematics.

HOLLOCH, FRANK S. (1960), B.S., Franklin & Marshall College; M.Ed., University of Oregon. Assistant Professor of Journalism.

HOLT, HOWARD B. (1941), B.S., M.Ed., Oregon State College; D.Ed., Oregon University. Associate Professor of Education.

HUBBER, GRACE V. (1945), B.S., University of Nebraska; B.S. in I.S., University of Denver. Assistant Professor of Arts Education.

HOPEK, JACOB J. (1961), B.A., California College of Arts and Crafts; M.F.A., Claremont Graduate School. Assistant Professor of Art.

HOSTETTER, DAVID K. (1966), A.B., University of Tampa; M.Ed., Ed.D., University of Virginia. Counselor.

HOUSEMAN, RICHARD C. (1948), B.A., St. Lawrence University; M.A., Ph.D., Columbia University. Professor of Education.


HOWARD, EDWARD M. (1965), A.B., San Diego State College; Ph.D., New Mexico State University. Assistant Professor of Mathematics.

HOWARD, FRANCIS C. (1947), A.B., University of California; Los Angeles; M.S., Ph.D., University of California, Los Angeles. Assistant Professor of Physical Science.

HOWARD, ROY J. (1963), A.B., UC, Berkeley; M.S., University of California, Los Angeles. Associate Professor of Philosophy.

HUFFER, CHARLES M. (1961), A.B., Albion College; A.M., University of Illinois; Ph.D., University of Washington. Professor of Astronomy.


HULLS, EUGENE R. (1965), B.S., M.S., University of California; Ph.D., Ohio State University. Assistant Professor of Education.

HUNDRA, WILLIAM A. (1957), B.A., M.A., Ph.D., Stanford University. Associate Professor of Psychology.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LYMAN C. III (1955), A.B., M.A., Stanford University. Associate Professor of Education.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Education.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

HUNTER, LAWRENCE R. (1963), A.B., San Diego State College; M.A., University of California, Los Angeles. Associate Professor of Music.

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<td>MAIDEN, JOHN E. (1952)</td>
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**On leave, fall 1966-67**

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<td>MARSTERS, HAROLD L. (1962)</td>
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<td>TOZERO, LOWELL (1964)</td>
<td>Professor of English A.B., University of Chicago; M.A., De Paul University; Ph.D., University of Minnesota.</td>
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<tr>
<td>TRUMMER, RUSSELL L. (1959)</td>
<td>Professor of Education A.B., Stanford University; M.A., Ph.D., Claremont Graduate School.</td>
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<tr>
<td>TROXEL, EUGENE A. (1966)</td>
<td>Assistant Professor of Philosophy A.B., Vassar College; M.A., Ph.D., University of Chicago.</td>
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</tr>
<tr>
<td>TURNER, GEORGE D. (1963)</td>
<td>Assistant Professor of Physical Science A.B. and doctoral candidate, University of California.</td>
<td></td>
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</tr>
</tbody>
</table>

† On leave, spring 1966-67
‡ On leave, year 1966-67
WEDBERG, HALE L. (1959). Associate Professor of Botany
B.A., Los Angeles State College; Ph.D., University of California at Los Angeles.

WEBBER, RAYMOND D. (1959). Assistant Professor of Spanish
B.A., University of Utah; M.A., Universidad Nacional de Mexico doctoral candidate, University of California.

WEISSMAN, STANLEY N. (1962). Assistant Professor of Philosophy
A.B., Brooklyn College; Ph.D., Columbia University.

WEIL, DONALD C. (1964). Assistant Professor of Economics
B.Sc., McGill University; M.A., Ph.D., University of Pennsylvania.

WELLS, RICHARD W. (1961). Assistant Professor of Physical Education
A.B., Occidental College; M.A., San Diego State College.

WENDLING, AUDREY (1954). Professor of Sociology
B.A., San Francisco State College; M.A., Ph.D., University of Washington.

WEBER, IRVIN T. (1955). Assistant Professor of Sociology
B.S., State College, Pennsylvania; M.Ed., Penn State University; D.S.S., candidate, Syracuse University.

WESTERVELT, WILLIAM J. (1964). Assistant Professor of German
B.A., Colgate University; M.S., Elmira College; M.A., Ph.D., University of Southern California.

WEITHEILL, WILLIAM H. (1957). Professor of Education
B.Ed., University of Toledo; M.A., Stanford University; Ph.D., University of Michigan.

WHITNEY, DANIEL D. (1966). Assistant Professor of Anthropology
B.A., M.A., Ph.D., candidate, Michigan State University.

WICK, ARN N. (1958). Professor of Chemistry
B.S., M.S., Ph.D., University of Minnesota.

WIDMER, KINGSLEY (1956). Associate Professor of English
B.A., M.A., University of Minnesota; Ph.D., University of Washington.

WILCOX, ROBERT F. (1956). Professor of Political Science
A.B., M.A., Stanford University; Columbia University; Ph.D., Stanford University.

WILDING, JOHN H. (1960). Associate Professor of Education
B.A., Catholic University of America; M.A., Teachers College, Columbia University; Ed.D., University of Southern California.

WILLIAM, BETTY J. (1961). Assistant Professor of Physical Education
B.S., University of Wisconsin; M.A., University of Michigan.

WILLERING, MARGARET P. (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., Mercy College, Ohio; M.A., Ph.D., University of Cincinnati.

WILLIAMSON, GLORIA R. (M. C.) (1961). Assistant Professor of Physical Education
B.A., M.A., Los Angeles State College.

WILLIAMS, ROBERT C. (1962). Associate Professor of Zoology
A.B., M.A., Stanford University; Ph.D., University of California.

WIMMER, ARTHUR C. (1950). Professor of Journalism
B.B.A., Columbia University; M.A., University of Iowa.

WINOGRAD, FAITH G. (1966). Assistant Professor of Political Science
B.A., University of California; Los Angeles; M.A., The Pennsylvania State University.

WINSLOW, ROBERT W. (1963). Assistant Professor of Sociology
R.A., California State College, Long Beach; Ph.D., University of California, Los Angeles.

WITHERSPOON, JOHN P. (1967). Educational Televised Station Manager
R.A., University of the Pacific; M.A., and additional graduate study, Stanford University.

WITTE, ERNEST F. (1963). Dean, School of Social Work; Professor of Social Work
B.A., University of Nebraska; Ph.D., University of Chicago.

WOLF, ERNEST M. (1947). Professor of German
Study at the Universities of Berlin, Paris, Heidelberg, Cambridge, and Bonn.

WOLF, FRED A. (1964). Assistant Professor of Physics
B.S., University of Illinois; M.S., Ph.D., University of California, Los Angeles.

WOLTER, GERHARD H. (1957). Associate Professor of Physics
B.S., M.S. equivalent, Berlin.

WOODLE, GARY L. (1960). 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.

WOTTHIRA, THOMAS K. (1962). Assistant Professor of Marketing
B.B.A., M.B.A., Ph.D., University of Wisconsin.

WRIGHT, RICHARD D. (1964). Assistant Professor of Geography
A.B., A.M. Indiana University; Ph.D., University of Kansas.

WULBRIN, JULIAN H. (1966). Assistant Professor of German
A.B., University of California; M.A., University of Colorado; Ph.D. Northwestern University.

† On leave, spring 1966-67

‡ On leave, year 1966-67

WYLER, DONALD G. (1966). Assistant Professor of Speech Arts
B.A., University of Michigan; M.A., Ph.D. candidate, Michigan State University.

YACINTH, CHARLES C. (1959). Professor of Geography
B.S., M.S., University of North Carolina; Ph.D., University of Illinois.

YAMAMURA, KOZO (1963). Associate Professor of Economics
B.A., University of California; M.A., Ph.D., Northwestern University.

YANIZYN, JAMES E. (1962). News Bureau Coordinator
B.A., University of California, Berkeley; candidate, Public Relations.

YOUNG, JAMES J. (1959). Director of Housing
B.S., Texas Agricultural and Mechanical College; M.A., Ed.D., Stanford University.

ZEIDLER, GEORGE (1963). Assistant Professor of English
B.S., University of Washington; M.A., Washington University; candidate, Stanford University.

ZIEGENFUSS, GEORGE (1948). Professor of Physical Education

ZIMMERMAN, MARC J. (1965). Lecturer in English
B.A., M.A., San Francisco State College.

LECTURERS

ALIISON, GLENN (1965). Lecturer in Social Work
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ANDERSON, DONALD E. (1964). Lecturer in Business Education
B.S., University of North Dakota, Grand Forks College.

ANDERSON, VERENA C. (MRS.) (1964). Lecturer in English
B.A., San Diego State College.

ANDRESEN, GRACE E. (MRS.) (1964). Lecturer in Social Work
M.S.W., Tulane University, Department of Mental Hygiene.

ARSHOT, PHILIP E. (1963). Lecturer in Education
B.S., University of Southern California.

BARNWELL, JOHN E. (1966). Lecturer in Sociology
B.A., University of Southern California.

BAROLET, E. LOIS (MRS.) (1965). Lecturer in Vocational Social Work
B.S., School of Social Work.

BARRON, JOHN C. (1962). Lecturer in Business Education

BARTINGER, MARGERY B. (MRS. H. S.) (1966). Lecturer in Education

BEECKLEY, H. DEL (1960). Lecturer in Physical Education
Prudential Insurance Company of America.

BEIRN, ANNA JO (MRS. C.) (1963). Lecturer in Economics
B.A., University of Michigan.

BELKIN, DOROTHY HELEN (MRS. P.) (1966). Lecturer in Business Law/Finance
J.D., California Western University. State of California Division of Corporations.

BEITZ, GEORGE (1965). Lecturer in Business Law/Finance
J.D., Harvard Law School, Attorney.

BERLIN, LOIS H. (MRS. E. D.) (1962). Lecturer in Home Economics
B.S., Oregon State College.

BETHELL, ROBIN ALLAN (1966). Lecturer in Engineering
M.S., Oregon State University. General Dynamics/Convair.

BIRCHARD, ROBERT (1966). Lecturer in Music
M.A., University of Minnesota.

B.S., Kansas State University.

M.A., University of Chicago.

M.S.S., Boston University. San Diego United Community Services.

BOYER, JOHN L. (1967). Lecturer in Engineering
M.S., M.S. E., Engineering, University of Wisconsin.

BROADWOOD, JOHN H. (1961). Lecturer in Physical Education
B.S., M.S., Northwestern University.

BRADFORD, JAMES W. (1966). Lecturer in Marketing
B.S., Business Administration, University of South Carolina.

BROWN, ALAN H. (1966). Lecturer in Accounting
B.S., M.S., San Diego State College.

BROWN, CHILTON M. (1966). Lecturer in Engineering
B.S., University of California. Daniela, Brown, and Hall.

‡ On leave, year 1966-67

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<tr>
<th>Faculty</th>
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<tbody>
<tr>
<td>BRUNH, JOHN A. JR. (1966). M.S., San Diego State College, University of California. Lecturer in Management</td>
</tr>
<tr>
<td>BUER, HARRIET H. (Mrs.) (1966). M.A., Boston University. Lecturer in Music</td>
</tr>
<tr>
<td>BUTZIE, FREDERICK C. (1963). M.A., Stanford University, San Diego City Schools. Lecturer in Education</td>
</tr>
<tr>
<td>CAMERON, MILDRED M. (Mrs. M. B.). Teaching Credential, University of California. Lecturer in Education</td>
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<tr>
<td>CAMPBELL, GRAHAM F. (Mrs. J.). M.S., University of California at Berkeley. Lecturer in Engineering</td>
</tr>
<tr>
<td>CAMPBELL, LOUIS J. (1964). A.B., San Diego State College. Lecturer in History</td>
</tr>
<tr>
<td>CARNEGIE, JANE H. (Mrs.) (1966). M.S.W., University of Southern California. Lecturer in Social Work</td>
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<tr>
<td>CARMICHAEL, EUGENE F. Ph.D., University of California at Berkeley. San Diego City College. Lecturer in History</td>
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<td>CIAMPY, VIRGINIA L. (1965). M.S.W., University of Chicago. Lecturer in Sociology</td>
</tr>
<tr>
<td>CLOSSON, FREDERICK I. (1965). A.B., College of the Pacific. Lecturer in Physics</td>
</tr>
<tr>
<td>COMELS, JOSEPH F. (1962). Ph.D., Cornell University. Lecturer in Mathematics</td>
</tr>
<tr>
<td>COMBS, ELEANOR B. (Mrs. F. J.). A.B., San Diego State College. Lecturer in Education</td>
</tr>
<tr>
<td>CRAYELE, MARIE L. (Mrs.) (1966). Doctor of Education, University of Montreal. Lecturer in French</td>
</tr>
<tr>
<td>CUMMINS, PATTY C. (1966). M.A., Michigan State University. Lecturer in Education</td>
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<tr>
<td>DAVENPORT, BEVERLY F. (1966). Ph.D., University of Southern California. Lecturer in Speech Arts</td>
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<tr>
<td>DRENMAN, MARY E. (Mrs.) (1966). A.B., San Diego State College. Lecturer in English</td>
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<tr>
<td>DUNN, OLIVER S. (1965). M.A., University of Michigan. Lecturer in Sociology</td>
</tr>
<tr>
<td>EDER, MARIA I. (1964). M.A., University of San Diego. Lecturer in Spanish</td>
</tr>
<tr>
<td>EBERSOLE, BLAIR B. (Mrs.) (1966). A.B., Heidelberg College, Tiffin, Ohio. Lecturer in English</td>
</tr>
<tr>
<td>EMERY, WILLIAM A. (1965). M.A., University of Minnesota. Lecturer in Education</td>
</tr>
<tr>
<td>ESCAMILLA, AUGUSTINE (1960). M.A., San Diego State College, San Diego City Schools. Lecturer in Health Education</td>
</tr>
<tr>
<td>FIELDS, ARTHUR W. (1966). M.A., Harvard University, Department of State. Lecturer in Education</td>
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<th>Faculty</th>
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<tr>
<td>FERRANTE, SALVATORE J. (1964). A.B., San Diego State College, Church Music Director. Lecturer in Music</td>
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<tr>
<td>POOLE, LAWRENCE T. (1964). Ph.D., University of California at Los Angeles, Decision Science, Inc. Lecturer in Sociology</td>
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<td>FREED, MILTON (1966). M.A., University of California at Los Angeles, Decision Science, Inc. Lecturer in Health Education</td>
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<tr>
<td>GARMAN, DAVID E. (1966). M.A., University of Michigan, Veterans Administration. Lecturer in Psychology</td>
</tr>
<tr>
<td>GARRAN, FELICIA B. (Mrs.) (1966). Ph.D., Boston University, Clinical Psychologist. Lecturer in Psychology</td>
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<tr>
<td>GIBBONS, RICHARD D. (1966). M.A., Ohio State University, General Dynamics, Convair. Lecturer in Foreign Languages</td>
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<tr>
<td>GIFFORD, PATRICK M. (1966). M.S., University of Chicago, Columbia University. Lecturer in Engineering</td>
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<tr>
<td>GILBERT, ROBERT JOHN (1966). M.S.W., University of Michigan, Big Brothers of Orange County. Lecturer in Social Work</td>
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<tr>
<td>GOTTFRIED, HOWARD (1966). M.S.W., University of Pennsylvania. Lecturer in Education</td>
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<tr>
<td>GRANT, HAROLD B. (1965). M.A., Claremont Colleges, California. Lecturer in Education</td>
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<tr>
<td>GREENFLO, NORMAN A. (1966). M.A., Ohio State University, General Dynamics, Convair. Lecturer in Education</td>
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<tr>
<td>GROSS, IRMA H. (1966). Ph.D., University of Chicago, Michigan State University. Lecturer in Economics</td>
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<tr>
<td>GUESS, EVELYN M. (Mrs. R. S. L.). B.A., Pomona College, Claremont. Lecturer in Art</td>
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<td>HALE, GEORGETTE BERTHIER (Mrs.) (1966). M.S., University of Southern California, Pasadena. Lecturer in Foreign Languages</td>
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<td>HALLAHAN, MARGARET ELLEN (Mrs.) (1966). A.B., San Diego State College. Lecturer in Education</td>
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<td>HAMPTON, ROBERT STANLEY (1966). M.A., University of Southern California, San Diego Junior Colleges. Lecturer in Education</td>
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<tr>
<td>HANKIN, DUNCAN CLAIRE (1966). Ph.D., University of Chicago, American University Professor. Lecturer in Microbiology</td>
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<tr>
<td>HARRIS, BOYD H. (1966). M.D., University of Nebraska, College of Medicine, U.S. Naval Hospital. Lecturer in Counseling</td>
</tr>
<tr>
<td>HARRIS, NORMA L. (Mrs.) (1966). A.B., San Diego City College. Lecturer in English</td>
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<tr>
<td>HATCHER, CHARLES M. (1966). M.A., Harvard University, San Diego City College. Lecturer in Journalism</td>
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<tr>
<td>HAYES, CATHERINE S. (Mrs.) (1966). Ph.D., Pacific Oaks College, Pasadena. Lecturer in Education</td>
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<tr>
<td>HERMAN, ELSIE (Mrs.) (1966). A.B., Chicago University. Lecturer in Business Law/Finance</td>
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<td>Name</td>
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<td>HINSHAW, ALVADORE J. (1965)</td>
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<td>HOWARD, JAMES L. (1966)</td>
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<td>HUFF, GEORGE D. (1961)</td>
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<td>IVerson, Lucille E. (Mrs.)</td>
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<td>JACOBY, ALFRED W. (1965)</td>
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<td>JANCER, CAMILLA J. (Mrs. L.)</td>
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<td>JESSOP, MARY C. (Mrs. G.)</td>
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<td>JOHNSTON, LAVERNE C. (1961)</td>
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<td>JONES, BARRA, L. (Mrs. F.)</td>
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<td>JONES, CHARLES L. (1964)</td>
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<td>KAHN, EDWARD (1965)</td>
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<td>KELLOGG, EVELYN J. (Mrs. B.)</td>
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<td>KILMAN, BEVERLY ANN (Mrs.)</td>
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<td>KNOWLES, JONATHAN (1966)</td>
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<td>KOLK, H. (1962)</td>
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<td>KOLK, LOUIS RUTH (1966)</td>
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<td>KREISCH, EDWARD L. (1966)</td>
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<td>KRONOYER, ROBERT E. (1955)</td>
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<td>KUHASTY, HELEN (Mrs. H.)</td>
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<td>LEE, MARJORIE M. (Mrs. E. P.)</td>
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<td>LEOHARD, KARL E. (1964)</td>
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<td>LEWIS, PHILIP G. (Mrs. B.)</td>
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<td>LOCKWOOD, WALLACE V. (1966)</td>
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<td>LOOMIS, NOEL M. (1958)</td>
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<td>MADDEN, RICHARD (1959)</td>
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<td>MANN, THELMA D. (Mrs.)</td>
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<td>MAROZ, WANDA A. (Mrs. H. M.)</td>
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<td>MARSH, MARY VAL (Mrs. D. E.)</td>
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<td>MATTIHNSON, SUE F. (Mrs. J. H.)</td>
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<td>MEFFERT, ARTHUR C. (1964)</td>
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<td>MILNE, THAIR S. (Mrs. D.)</td>
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<td>MINAR, OLIVE B. (Mrs. R.)</td>
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<td>MOORE, M. (1961)</td>
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<td>MURPHY, VIRGINIA A. (Mrs.)</td>
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<tr>
<td>MUIR, PETER (1966)</td>
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<td>MUNOZ, DANIEL S. (1966)</td>
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<td>MURGIA, DAVID G. (1966)</td>
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<td>MURPHY, E. (1961)</td>
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<tr>
<td>MURPHY, HARRIET B. (Mrs. F.)</td>
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<tr>
<td>MURPHY, MARJORIE L. (Mrs.)</td>
</tr>
</tbody>
</table>
Faculty

McNARY, NANCY W. (Mrs. R.) (1966)            Lecturer in Education  
A.B., San Diego State College.

NEILL, JOHN M. (1966)                    Lecturer in Management  
Ph.D., Massachusetts Institute of Technology. General Atomic.

NELSON, GARY R. (1964)                    Lecturer in Management  
B.S., San Diego State College.

NEPTUNE, DAVID W. (1964)                  Counseling  
M.S., California Institute of Technology. Y.M.C.A.--Y.W.C.A.

NICHOLS, MYRON H. (1960)                   Lecturer in Physics  
Ph.D., Massachusetts Institute of Technology.

NOBRE, CARLOS G. (1966)                   Lecturer in Foreign Languages  
Th.Lic., St. Georges College, Wurzburg, Germany.

NOWEB, JOYCE (Mrs.) (1966)                  Lecturer in English  
A.M.T., Radcliffe College.

OKAZAKI, MICHELLE (Mrs.) (1966)           Lecturer in Foreign Languages  
M.A., San Diego State College.

PANOS, NICHOLAS (1966)                    Lecturer in Engineering  
M.S.E.E., San Diego State College. General Dynamics/Convair.

PATTISON, JOHN L. (1964)                   Lecturer in Social Work  
M.S.W., University of Southern California. Boys' and Girls' Aid Society of San Diego.

PAYNE, JEAN M. (Mrs.) (1966)               Lecturer in English  
M.A., San Diego State College.

PELLAND, PAUL L. (1965)                    Lecturer in Mathematics  
M.S.E., University of Michigan.

PENICHEL, C. DESMOND (1966)                Lecturer in Engineering  
S.M., Massachusetts Institute of Technology. General Dynamics/Convair.

PHANE, JACQ. E. (1966)                     Lecturer in Industrial Arts  

POURRNELE, GEORGE H. (1966)               Lecturer in Anthropology  
Ph.D., University of Florida. San Diego Zoo Curator of Mammals.

PRENN, JAMES L. (1960)                    Lecturer in English  
A.B., San Diego State College.

PRESCOTT, R. M. F. (1966)                 Lecturer in Journalism  
A.B., San Diego State College.

PRIOR, BARRY W. (1965)                    Lecturer in Engineering  
B.Sc., University of Toronto, Canada.

RAAF, HENRIETTA A. (1962)                Lecturer in Education  
A.B., San Diego State Teachers College. San Diego City Schools.

RANKIN, WILBUR D. (1966)                  Lecturer in Geography  
B.S., University of California at Berkeley. College of the Desert.

RAYMOND, RAYMOND R. (1964)                Lecturer in Marketing  
B.S., San Diego State College.

REZER, JAN C. (Mrs. C.) (1961)             Lecturer in Education  
M.A., Teachers College, Columbia University.

RIMLAND, BERNARD (1962)                   Lecturer in Psychology  
Ph.D., Pensa State University. USN Personnel Research Activity.

RIVERA, ENRIQUE A. (1966)                Lecturer in Foreign Languages  
A.B., San Diego State College.

ROBERTS, MIRIAM J. (Mrs.) (1966)          Lecturer in Psychology  
Ph.D., University of California at Los Angeles.

ROGERS, MARY L. (Mrs.) (1964)             Lecturer in Marketing  
M.S.W., University of Southern California. San Diego City Schools.

RUCCI, ROBERT J. (1964)                   Lecturer in Marketing  
M.B.A., Harvard Graduate School of Business Administration. Rohr Corp.

RYAN, MARY C. (1964)                      Lecturer in Social Work  
M.S.W., Catholic University, Washington, D.C. Child Guidance Clinic.

RYBERG, DEBBIE MANNY (Mrs. C.) (1965)     Lecturer in Education  
M.A., Harvard Graduate School of Business Administration. Rohr Corp.

SADDOCK, DORIS C. (Mrs. M.) (1963)        Lecturer in Physical Science  
B.A., Pomona College.

SARDINAS, MARIA A. (1966)                Lecturer in Social Work  
M.S.W., University of Southern California. State Dept. of Mental Hygiene.

SCHMIDT, FREDERICK H. (1966)              Lecturer in Anthropology  
M.A., University of Arizona.

SCHECH, OLE (1965)                        Lecturer in Mathematics  
M.A., University of Minnesota.

SCHIEFKE, MARK (1966)                     Lecturer in Social Work  
M.A., University of Southern California. State Dept. of Social Work.

SCHMIDT, JOYCE C. (Mrs. D.) (1961)       Lecturer in Education  
M.A., University of California at Los Angeles.

SCHWARTZ, ALBERT E. (1964)               Lecturer in Engineering  
M.S.E.E., Purdue University. General Dynamics/Astronautics.

SCHWARTZ, JUDEN (1964)                   Lecturer in Physics  
M.A., University of Michigan. General Dynamics.

SMALL, ROBERT E. (1964)                   Lecturer in Political Science  
M.S.P.A., University of Washington. City of San Diego.

SMITH, ERBET B. (1965)                    Lecturer in Business & Finance  
M.S., San Diego State College. General Dynamics/Convair.

SNODGRASS, HERSHEL F. (1954)             Lecturer in Physics  
Ph.D., University of California at Berkeley.

SPANGEH, C. PIEMONTE, III (1964)        Lecturer in Electrical Engineering  
Ph.D., Case Institute of Technology, Cleveland, Ohio. Computer Applications, Inc.

STANFORD, ROBERT O. (1964)               Lecturer in Business Law & Finance  
L.L.B., University of Southern California. Judge, Superior Court of San Diego County.

STARKEY, CARLENE J. (Mrs. R.) (1965)    Lecturer in Physical Education  
B.A., University of California, Santa Barbara.

STEINBACH, ROBERT C. (1966)              Lecturer in Mathematics  
M.S., Stanford University, Commen College.

STOCKER, ELIZABETH M. (Mrs. H.) (1962)    Lecturer in Education  
B.A., University of Redlands.

STOUT, ELIZABETH J. (Mrs. P.) (1963)      Lecturer in English  
B.A., University of New Hampshire.

STUBBS, JOHN F. (1955)                    Lecturer in Business Education  

SUMMALL, RAYMOND O. (1966)               Lecturer in Social Work  
M.S.W., Ohio State University School of Social Work. State Dept. of Social Work.

THOMPSON, CLAYTON O. (1964)              Lecturer in Political Science  
M.A., University of California, Los Angeles. County of San Diego.

SWIFT, CHARLES E. (M.S.E.E., U.S.N. Postgraduate School, Annapolis).  Lecturer in Physical Education  
B.S., San Diego State College.

TAYLOR, MARY M. (Mrs. H.) (1961)         Lecturer in Education  
B.A., University of Michigan.

TENNEY, LESTER IRWIN (1966)             Lecturer in Accounting  
B.S., University of Michigan.

TICKER, THOMAS R. (1965)                Lecturer in Psychology  
B.S., Trinity University. Certified Public Accountant. Ernst and Ernst.

THIELE, EDWARD L. (1958)                 Lecturer in Speech Arts  
M.A., University of California. Counseling and Lecturer in Speech Arts.

THOMAS, EDMUND DOYLE (1966)              Lecturer in Engineering  
B.S., University of Texas.

THOMPSON, CURTIS EUGENE (1966)         Lecturer in Speech Arts  
M.A., Claremont Graduate School.

THOMPSON, RUTH KATHLEEN (Mrs.) (1965)    Lecturer in Physical Education  
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TOWSEND, CLAUDE A. (1966)               Lecturer in Social Work  
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Supervising Custodian
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