SAN DIEGO STATE COLLEGE

General Catalog
and
Announcement
Of Courses

FOR THE YEAR 1960-1961
To aid students in the realization of their individual goals there is an excellent program of student personnel services. This program provides counseling service and co-ordination of student loans, student organizations, campus health services, intercollegiate athletics, maintenance of student records, job placement, and many other vital beyond-the-classroom services.

A major change in campus life took place during 1959 with the opening of the first student residence halls. There are five of these comfortable buildings, each housing 200 students. Two are for women, three for men. Scene above is in the main lounge of Maya Hall, Women's residence hall on Montezuma Road.

Shown above is a laboratory in the Microbiology Department of the Division of Life Sciences. Plans are now being drawn for a giant, new Life Sciences Building that will contain more than 100,000 square feet of classroom and laboratory space.

San Diego State's Forensics squad is one of the country's finest. Two of its members are shown here returning after a clean-sweep triumph during a tournament at the University of Hawaii. Aztec teams have consistently won national acclaim in the Pi Kappa Delta, the West Point and other championship invitational tournaments.
Institutes of national scope are frequently held on campus. Shown above are some of the students in the current Institute for High School Mathematics Teachers. Sponsored by a quarter-million dollar National Science Foundation grant, this institute has attracted students from as far away as Maine and New Hampshire.

San Diego State’s Division for Graduate Study is one of the fastest growing divisions on the campus. Master of arts degrees are now available in 25 fields and master of science degrees in eight. Most recent addition to the program was a master’s degree in mechanical engineering.

SAN DIEGO STATE COLLEGE
SAN DIEGO, CALIFORNIA
DEPARTMENT OF EDUCATION OF THE STATE OF CALIFORNIA

ROY E. SIMPSON
Superintendent of Public Instruction
and Director of Education

J. BURTON VASCHE
Associate Superintendent; Chief, Division of
State Colleges and Teacher Education

DON R. YOUNGREEN
Assistant Chief, Division of State Colleges
and Teacher Education

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President Emeritus ........................................ Walter R. Hopkins
President ....................................................... Malcolm A. Lee
Assistant to the President ................................ Arvid T. Johnson
Vice President ................................................ Ernest B. Ogren
College Librarian ............................................. John Paul Shaw
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Executive Dean .............................................. Darrell Holen
Building Program Assistant ............................... Clarence B. Ott
Administrative Analyst ..................................... Marion L. Parks
Dean of the College ......................................... Donald R. Waese
Assistant to Dean of the College ......................... Alfred E. White
Curriculum Evaluator ....................................... John L. Schmidt
Dean of Arts and Science ................................... Sidney L. Gilbert
Dean of Graduate and Professional Studies .......... Maurice M. Lenz
Coordinator of Graduate Studies ........................ Clayton M. Glets
Dean of Education and Extended Services ............... Manfred H. Schmug
Coordinator of Extended Services ......................... Manville R. Perry
Coordinator of the Evening Program .................... Glenn L. Hog
Coordinator of Audio-Visual Services .................... James S. Kindel
Secretary to the Faculty .................................... Maurice L. Crawford

Dean of Students ............................................
Administrative Assistant ................................. Herbert C. Peiffer, Jr.
Dean of Admissions and Records ......................... Melvyn A. Anderson
Admissions Counselor ...................................... June Warren
Registrar ...................................................... Margaret L. Gilbert
Dean of Counseling and Testing ......................... Robert T. Gray
Test Officer .................................................... Herman Rosensmich
Dean of Activities .......................................... Margery Ann Warmull
Activities Adviser .......................................... Jack V. Daugherty
Activities Adviser .......................................... Marjorie Wallar
Director of Health Services ............................... Frank O. Robertson, M.D.
Housing Director ............................................ John M. Yarborough
Placement Officer .......................................... William M. Kidwell
Graduate Manager ........................................... Richard H. Thomas

Business Manager ..........................................
Accounting Officer .......................................... Selwyn C. Hartigan
Chief of Maintenance ....................................... Donald G. Parker
Personnel Officer ............................................ Timothy V. Hallahan
Administrative Assistant .................................. Carey D. Fulpie
Equipment and Materials Coordinator ..................... Carolyn E. Kendall


DIVISIONAL ORGANIZATION
(Including Chairmen of Divisions and Departments)

DIVISION OF AIR SCIENCE ................................ Lt. Col. Thomas H. Stringer
DIVISION OF BUSINESS ADMINISTRATION ............ Charles W. Lamden
Accounting Department .................................... William H. Wright
Business Education Department ......................... Maurice L. Crawford
Business Law, Real Estate, and Insurance Department Robert K. Castetter
Management Department ................................ David W. Belcher
Marketing Department ..................................... Gerald R. Sharkey

DIVISION OF EDUCATION ................................ Manfred H. Schrupp
Education Department ..................................... George A. Koester
Elementary Education ...................................... John Jarolimek
Secondary Education ....................................... E. Glen Fullkerson
Principal of Campus Laboratory School .................. Robert R. Nardelli

DIVISION OF ENGINEERING ................................ Martin P. Cap

DIVISION OF THE FINE ARTS ............................ George N. Sorensen
Art Department ............................................. Everett Gee Jackson
Home Economics Department ............................. Helen L. Dorris
Music Department .......................................... J. Dayton Smith
Speech Arts Department ................................. Sue W. Earnest

DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION ............................. William L. Terry
Health Education Department ............................ William H. Lauritsen
Men's Physical Education Department .................. Carl W. Benton
Women's Physical Education Department ............... Florence S. Shannon
Recreation Department .................................... Frank L. Scott

DIVISION OF THE HUMANITIES .............................
English Department ......................................... John R. Adams
Foreign Languages Department ........................... Ernest L. Marchand
History Department ........................................ Elizabeth M. Brown
Philosophy Department .................................... Lionel U. Ridout

DIVISION OF THE LIFE SCIENCES ..........................
Botany Department ......................................... Robert D. Harwood
Microbiology Department ................................. Averey H. Gallup
Chemistry Department ...................................... Henry A. Walsh, Jr.
Geology Department ....................................... Neva E. Nye
Psychology Department .................................... Merle B. Turner
Zoology Department ....................................... Ronald W. Crawford

DIVISION OF THE PHYSICAL SCIENCES ..................
Astronomy-Physical Science Department ............... Dudley H. Robinson
Clifford E. Smith
Chemistry Department ...................................... Robert W. Isensee
Geology Department ....................................... Baylor Brooks
Industrial Arts Department ............................... Kenneth Phillips
Mathematics Department ................................... Lester G. Riggs
Physics Department ........................................ John G. Teasdale

DIVISION OF THE SOCIAL SCIENCES ......................
Economics Department ...................................... David S. Milne
Graydon K. Anderson
Geography Department ..................................... James W. Taylor
Journalism Department .................................... James L. Julian
Political Science Department ............................ Robert F. Wilcox
Sociology-Anthropology Department ..................... Bernard C. Kirby
Coordinator of Public Administration ................... W. Richard Bigger
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ANNOUNCEMENT OF COURSES AND PROGRAMS OF STUDY

Programs Offered by the College
- Air Science
- Anthropology
- Art
- Astronomy
- Biology
- Botany
- Business Administration
- Chemistry
- Comparative Literature
- Economics
- Education
- Engineering
- Mechanical Engineering
- Engineering Mechanics
- English
- French
- General Language
- General Science
- Geography
- Geology
- German
- Health Education
- History
- Home Economics
- Humanities
- Industrial Arts
- Journalism
- Language Arts
- Latin
- Latin-American Studies
- Library Science
- Mathematics
- Microbiology
- Music
- Nursing
- Oceangraphy
- Personnel Management Curricula
- Philosophy
- Physical Education
- Physical Science
- Physics
- Political Science
- Psychology
- Public Administration
- Recreation
- Romance Languages
- Russian
- Social Science
- Social Welfare
- Sociology
- Spanish
- Speech Arts
- Zoology

SCHOLARSHIPS AND AWARDS

DIRECTORY

INDEX

FEES

FEES PAYABLE AT TIME OF REGISTRATION

Regular students (carrying more than six units):

- Materials and service: $33.00
- Student activity fee: 8.00

Auditors pay same fees as students carrying courses for credit.

Total required fees: $41.00

Limited students (carrying six units or less):

- Materials and service: 17.00
- Auditors pay same fees as students carrying courses for credit.

Nonresident Tuition (in addition to fees required of resident students):

- Nonresident student enrolled for 15 units or more: 127.50
- Nonresident student enrolled for less than 15 units, or fraction thereof (per unit): 8.50

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

Parking fees:

- Nonreserved spaces:
  - Regular students: 13.00
  - Limited students: 6.00
- Each alternate car in addition to first vehicle: 1.00
- Two wheeled, self-propelled vehicle:
  - Regular student: 3.25
  - Limited student: 1.50

MISCELLANEOUS FEES

(Fees payable when service is rendered)

- Late registration: 5.00
- Change of program: 1.00
- Failure to meet administratively required appointment or time limit: 2.00
- Transcript of record (first copy free): 1.00
- R.O.T.C. deposit (unexpended portion is refundable): 10.00
- Check returned for any cause: 2.00
- Studio lesson, per lesson per student: 6.00
- Current fee per semester (15 40-minute lessons): $75.00
- Organ practice: 10.00
- Loss or damage of equipment and library books: Cost
- State teaching credentials (each credential): 4.00

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

<table>
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<th>Time limit</th>
<th>Amount of refund</th>
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<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>
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<td>(4) During the fourth week of the semester</td>
<td>50 percent of fee</td>
</tr>
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<td>(5) During the fifth week of the semester</td>
<td>30 percent of fee</td>
</tr>
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<td>(6) During the sixth week of the semester</td>
<td>20 percent of fee</td>
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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>
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<th>Period</th>
<th>Amount of refund</th>
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<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>
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<tr>
<td>91-end of term</td>
<td>None</td>
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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) $10.00 |
| Activity fee (required):    |                  |
| Term I                     | 2.00             |

Parking fees:
Nonreserved spaces:

| Six-week session           | 5.00             |
| Other sessions one week or more | 1.00           |

**EXTENSION COURSE FEES**

| Extension course fee        | (per unit) 8.50 |

**EXEMPTIONS**

Students under Public Law 16, 346, 894, California state veteran, or state rehabilitation programs will have fees paid for tuition and materials and service under provisions of these respective programs.

**VETERAN ALLOWANCES**

Allowances for subsistence begin on the date the Business Office clears for payment of fees, or effective date of VA authorization, whichever is later, except that veterans clearing the Business Office on the regular registration days will be certified for subsistence beginning with the first day of the registration schedule.

**FEES SUBJECT TO CHANGE**

Fees are subject to change by law without advance notice.

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**CALENDAR 1960-1961**

**SUMMER SESSIONS, 1960**

- Intersession (1 week) June 13-24
- Term I (6 weeks) June 27-August 5
- Term II (3 weeks) August 8-26

**FALL SEMESTER, 1960**

- August 1: Last day to file application for admission to fall semester.
- July 9: Admissions tests for fall semester for entering freshmen and transfer students. 8.15 a.m.-12 noon, or 1.15-5 p.m. College aptitude test for all students; reading comprehension test for entering freshmen; writing competency test for students transferring with 45 units or more.
- September 7: General Culture test, for transfer students entering secondary education, 8.30 a.m.-12 noon. Offered again October 1.
- September 8: Fundamentals test, for transfer students entering elementary or kindergarten-primary education, 8.30 a.m.-12 noon. Offered again September 22.
- September 12-16: Testing, advising, and registration week.
- September 13: Mathematics placement tests, 8.15-11.30 a.m. for students planning to enroll in Math 3, 4, 40, 50; or Economics 140.
- September 14-16: Registration, advising, and enrollment in classes.
- September 17: Evening Program registration. Consult the schedule in the Evening Program Bulletin for complete information.
- September 19: First day of classes.
- September 20: First application for admission to teacher education. Assembly, 11 a.m.
- September 22: Fundamentals test, 1.30-5 p.m.
- October 1: General Culture test, 8.30 a.m.-12 noon.
- October 3: Last day to apply for refunds.
- October 7: Last day of withdrawal from classes without penalty of class standing.
- October 7: Last day to file application for mid-year graduation.
- November 4: End of seventh week of classes. Deficiency notices due.
- November 11: Holiday—Veterans' Day.
- November 24: Thanksgiving recess.
- December 2: Last day of withdrawal from classes or changes of program.
- December 10 or January 7: Admissions tests for spring semester for entering freshmen and transfer students. 8.15 a.m.-12 noon, or 1.15-5 p.m. College aptitude test for all students; reading comprehension test for entering freshmen; writing competency test for students transferring with 45 units or more.
- December 16: Last day of classes before Christmas recess.
- December 19-January 2: Christmas recess.
- January 3: Classes resume.
- January 5: Last day for a complete withdrawal from college.
- January 17: Last day of classes before final examinations.
- January 18: First day of final examinations.
- January 27: Last day of the fall semester.
SPRING SEMESTER, 1961

January 3

Last day to file application for admission to spring semester.

January 10

Admission tests for spring semester for entering freshmen and transfer students. 8:15 a.m.-12 noon, or 1:15-5 p.m. College aptitude test for all students, reading comprehension test for entering freshmen; writing competency test for students transferring with 45 units or more.

January 28

Fundamentals test, for transfer students entering elementary or kindergarten-primary education, 8:30-12 noon. Offered again February 9.

January 30

Testing, advising, and registration week.

February 3

First day of classes.

February 7

File applications for admission to teacher education. Assembly, 11 a.m.

February 9

Fundamentals test, 1:30-5 p.m.

February 13

Holiday—Lincoln's birthday.

February 20

Last day to apply for refunds.

February 22

Holiday—Washington's birthday.

February 24

Last day to file application for June or summer graduation.

February 24

Last day of withdrawal from class without penalty of class standing.

March 11

General Culture test, for graduates and students entering secondary education, 8:30 a.m.-12 noon.

March 24

End of seventh week of classes. Deficiency notices due.

March 27-31

Spring recess.

April 3

Classes resume.

April 28

Last day of withdrawal from classes or changes of program.

April 29

Admission tests for fall semester. 8:15-10:45 a.m., college aptitude test for all students, 11 a.m.-12 noon, reading comprehension test for entering freshmen or writing competency test for students transferring with 45 units or more.

May 6 or 13

San Diego State College Founders' Day.

May 7

Last day for a complete withdrawal from college.

May 29

Last day of classes before final examinations.

May 31

First day of final examinations.

June 4

Baccalaureate services. Last day of spring semester.

SUMMER SESSIONS, 1961

Intersession (1 week) June 12-23

Term I (6 weeks) June 26-August 4

Term II (3 weeks) August 7-25
THE COLLEGE

FUNCTIONS OF SAN DIEGO STATE COLLEGE

San Diego State College has these major functions: (1) 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, (2) To inform the student of the political ideas and ideals that have built our Democracy and to stimulate in him an interest in participation in civic life, (3) To equip young men and women with the knowledge and skills necessary to meet the needs of California and the Nation for competence and leadership in a number of vocational and professional fields.

To achieve these purposes San Diego State College has developed and is improving offerings as follows:
1. Student personnel services to assist the individual student to plan his educational program and to make his college and life adjustments.
2. General and liberal education for students who take work which leads toward the bachelor's degree or to the higher professions through graduate work.
3. Undergraduate and graduate curricula in teacher education for those students who plan to teach, supervise or administer at all levels 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, governmental services, homemaking, and social service.
6. Extension courses in appropriate fields.
7. Courses at the graduate level designed to lead to the M.A. and M.S. degrees in a variety of fields.

LOCATION AND ENVIRONMENT

San Diego State is situated on a mesa some eight miles from beach resorts and within a short drive of mountain and desert recreational sites. Industrial plants in the vicinity are engaged in the development of some of the Nation's most advanced research projects. In the surrounding community, an active cultural program includes musical and theater work, a noted fine arts display and exhibits in anthropology, natural history and archaeology. Throughout the area is found evidence of San Diego's civic pride in its geography, cultural activity, and economic growth.

The location and environment of the college make San Diego State a stimulating place for collegiate work and career development.

During its recent years of explosive growth, San Diego State has enjoyed the support of a community alert to its educational needs. To serve a student population of more than 10,000, the institution now has classrooms, laboratories and other facilities covering 1,000,000 square feet. The facilities and equipment have been planned to serve a broad undergraduate and a constantly expanding graduate program. An additional 250,000 square feet of instructional space will be constructed within the next two years. Buildings under construction or ready for construction include the following: Engineering and Applied Science, Men's Gymnasium and Outdoor Physical Education, Cafeteria addition, and Life Science Building.

THE LIBRARY

The library facilities of the college are noteworthy, consisting of over 200,000 volumes and more than 1,400 different periodical subscriptions selected to meet the requirements of a modern educational institution. These are housed in a new building with more than 100,000 square feet of floor space capable of seating 2,500 readers. Professionally trained librarians render assistance to students and faculty in their reading and reference work.

The Campus Laboratory School library, a collection of over 18,000 volumes, with its equipment and building facilities, makes a valuable contribution to the teacher education program.
FACILITIES FOR THE EDUCATION OF TEACHERS

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

THE FACULTY

The college faculty numbers over 500 members who have received their advanced training in over 160 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. Each past and present contribution to publications and research is extensive and impressive. For listings and further details see the directory.

ACCREDITATION

San Diego State College is a member of the Western College Association and the American Association of Colleges for Teacher Education. It is fully accredited by the Western College Association, the National Council for Accreditation of Teacher Education, the California State Board of Education, and is approved by the Veterans Administration for the education and training of veterans.

DEGREES OFFERED

The following degrees are offered by the college: bachelor of arts, bachelor of science, bachelor of education, bachelor of vocational education, master of arts, and master of science.

LIBERAL ARTS DEGREE

The appointment of the Dean of Arts and Sciences, and the creation of a Council of Arts and Sciences, representing all divisions of the college, make possible the development of a unified four-year program in the liberal arts leading to the bachelor's degree. Work is in progress to formulate degree requirements, and it is anticipated that a formal statement will be made in the catalog for the year 1961-1962.

CERTIFICATES OFFERED

Certificate programs are offered in public administration, public welfare administration, and industrial management. Requirements for these certificates may normally be completed in the Campus Evening Session Program.

For a description of requirements for the Certificate in Public Administration or the Certificate in Public Welfare Administration, refer to the Public Administration section of this catalog. For the announcement of courses, a description of the Certificate in Industrial Management, refer to the Business Administration section of the catalog on Announcements of Courses and Programs of Study.

RESIDENCE HALLS

Available to single men and women students are five fireproof, brick, three-story residence halls. These buildings are constructed of heavy masonry inner walls, solid doors, acoustical tile ceilings; all factors which keep noise to a minimum. Air conditioning throughout the entire building and individual thermostats in student rooms, coupled with pleasant colors and comfortable furniture, provide a harmonious area conducive to a most efficient type of studying. Requests for rooms in double rooms, will be honored. To insure a reservation in the residence halls, applications should be sent to the office of the Director of Housing, San Diego State.

For all residence hall students are provided and required in the college cafeteria. Meals are not served, however, during the Christmas recess, the Easter recess, or the recess between semesters. Only two meals are served on Saturday and Sunday.

For 1960-1961 the total charge per student per semester for campus board and room will be approximately $390, payable in advance or on an installment plan that entails a $6 service charge, including hospitalization, are included in this total. A $20 breakage fee, refundable when the student leaves the college, is an additional charge.

A waiting list for students seeking residence hall assignments is maintained in the office of the Director of Housing. A deposit of $65 is required at the time of official application and is refundable to a period not later than 30 days before the first day of college registration for the following term.

The college reserves the right to require that unmarried men and women students under the age of 21 who are not living with a parent or guardian occupy campus residence halls or other approved off-campus housing facilities.

Information concerning other living opportunities in the area may be obtained from the office of the Director of Housing.

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. In connection with the Personnel Services Center, a veterans' office is maintained on the campus to facilitate registration, and in the establishment of benefits, afford special counseling services, and serve as an information center.

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, under the direction of a medical doctor and consisting of a full-time staff, assisted on a part-time basis by several medical specialists, are available to students for consultation. Although the student's physical difficulties and emergencies, and counsel as to additional steps. Full-time nurses are on duty. During the weeks the college is in session students may obtain appointments with specialists during the hours they are available at the Student Health Service. 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 each student prior to registration for the purpose of reporting the results of a physical examination done by his personal physician. Although the physical examination is not required as part of the admission procedure, it is strongly recommended as a means of compiling a complete health record of the prospective student. Careful attention is given to students undergoing private remedial treatment and to those for whom a modification of study load or amount of participation in physical activities seems advisable. A follow-up procedure is in effect for students who have been urged to consult their family physician for correction of defects found in the examination.

Physical examinations are required of and provided for all teacher education students at the time of admission to and graduation from the various educational programs. Physical examinations are furnished by the Health Service only to those credit candidates who are applying for a state credential through the college. Physical examinations are also required before the student is authorized to participate in the organized program of intramural recreation, or in intercollegiate athletics.

A student health insurance program for those individuals carrying more than the six units is currently in effect. This insurance coverage may be purchased at the
STUDENT ACTIVITIES

A rich field of extracurricular activities is made possible through the Associated Students. The Student Handbook, available at the time of registration, gives information concerning the nature and scope of these opportunities. During the last college year, 13 governmental organizations, six service organizations, six national honorary societies, seven national professional fraternities, 19 departmental organizations, five recreational organizations, 15 religious organizations, 17 national social fraternities, and 11 national sororities were officially recognized on the campus. Full programs of intramural and intercollegiate athletics are likewise maintained. Inquiries regarding fraternity or sorority rushing should be addressed to the Inter-Fraternity Council or to Panhellenic, San Diego State College. Students are urged to select extracurricular activities carefully in order to receive optimum benefit from group experiences and to maintain continuous records of good scholarship.

PERSONNEL SERVICES CENTER

The Personnel Services Center is made up of the Student Counseling Office, Testing Office, and Veterans Office. The function of the Center is to help students gain the greatest benefit from their college experience through counseling, testing, and related personnel services. A staff of counselors is available to students who wish help in the solution of problems of a personal, social, academic, or occupational nature.

The program of student advising is co-ordinated through the Center. Students wishing to set up general majors or to change from one major to another do so in the Student Counseling Office.

STATE VOCATIONAL REHABILITATION

Assistance to certain students having physical handicaps or limitations may be available through the Bureau of Vocational Rehabilitation, California State Department of Education. Services available include diagnosis, counseling and guidance, psychological testing, provision of fees, books, and supplies, subsistence and transportation allowances. Restoration services to reduce or remove disabilities may also be provided and can include medical and psychiatric treatment and physical appliances. Applicants must be residents of California for one year and have a significant disability which interferes with employment. Information is obtainable through the Dean of Counseling and Testing or at the agency offices, 520 E Street, San Diego.

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.

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-credit load therefore represents a 48-hour week. Students are strongly advised to take this into consideration before accepting any part-time job.

SPEECH CORRECTION CLINIC

A speech and hearing clinic in which college students are trained in the application of speech correction techniques, audiometry, and language development for school year. The clinic admits those with speech and hearing problems, ages three. Cost of materials not to exceed $1.00 must be met by parent or individual concerned. Parents who enroll a child in the clinic must also themselves enroll for one Problems of Speech Correction (4 units).

ALUMNI ASSOCIATION

The Alumni Association of San Diego State College maintains an office on the campus. Membership in the association is open to former students of the college who were in regular attendance for one or more semesters. Membership is also open to past or present members of the faculty. The association publishes the Alumni Quarterly.

SCHOLARSHIPS AND AWARDS

The scholarships and awards available at San Diego State College are listed in the back of this catalog. Applicants are urged to study the section on Announcement of Courses and Programs of Study. Refer to the Index for page numbers.

Each scholarship, which is listed by name, carries a description of qualifications required of the candidate. Need, academic achievement and satisfactory record of personal conduct are definite considerations in the granting of scholarships.

LOANS

Short-term loans are available to students who have attended San Diego State College for at least one semester and who have demonstrated the ability to do satisfactory college work. Applicants are considered on the basis of need and ability to repay money borrowed by the end of the college semester.

Long-term loans are available in limited amounts to students who are qualified scholastically and who show evidence they need loans to complete their college education. San Diego State is a participating institution in the student loan program under Title II of the National Defense Education Act of 1958.

Individuals and organizations have donated money to establish the following San Diego State College Foundation loan funds:

- Alumnae Athletic Loan Fund
- Colver Waller Loan Fund
- Will C. Crawford Memorial Loan Fund
- Anna L. Davis Memorial Loan Fund
- Dr. Wirt Biscue Williams Student Memorial Loan Fund
- Faculty Dames Loan Fund
- Martha Farnum Loan Fund
- Dr. Edward L. Hardy Student Memorial Loan Fund
- Hillcrest Lions Club Loan Fund
- Institute of Radio Engineers Loan Fund
- Joan Jennings Memorial Loan Fund
- Lew P. Leslie Emergency Loan Fund
- Dr. L. P. Leslie Memorial Loan Fund
- The Harvey J. Lewis, Jr., Memorial Loan Fund
- Lions Club of San Diego Loan Fund

Applications and additional information regarding financial assistance may be made through the Administrative Assistant to the Dean of Students in the office of the Dean of Students.
ADMISSION AND REGISTRATION

GENERAL ADMISSION REQUIREMENTS

Admission requirements at San Diego State College are stated in the California Administrative Code, Title 5, Education, which provides uniform admissions regulations for all California state colleges. These regulations are reprinted below.

APPLICATION FOR ADMISSION

FILING OF APPLICATIONS

File Application for Admission. Applications for admission to the college may be filed during the semester preceding the one in which the applicant expects to enroll. The following forms must be filed with the Admissions Office:

1. Application for admission (or readmission)
2. Health history record

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.

The applicant should consult the calendar in this catalog for deadlines on filing of applications. Applications received after the final date for filing of applications cannot be processed for admission to the semester immediately following.

FILING OF RECORDS

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

1. Transcript from high school of graduation or last in attendance (not required of the graduate student who holds a bachelor's degree from an accredited institution, but is required of the student who holds a bachelor's degree from a nonaccredited institution).
2. Transcripts from each college attended (including extension, correspondence, summer session, or evening courses). Graduate students must file transcripts IN DUPLICATE, if they plan to enter the master's degree program.
3. Photocopy 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 REQUISITE TESTS

Take Admissions Tests.

1. College Aptitude Test. This test is required before registration of all entering freshmen and transfer students. Freshmen must complete the test before a notice of admission will be sent. Applicants who have previously taken this test for admission to this college need not take the test again. Applicant may obtain a test reservation card at the Admissions Office and file the card at least one week before the date of the test. Refer to the calendar in this catalog for test dates.
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.

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ADMISSION AND REGISTRATION

ADMISSION OF HIGH SCHOOL GRADUATES

REQUIREMENTS

An applicant for admission as a freshman must qualify under one of the following provisions:

1. Be a high school graduate and have earned in the last three years of high school at least seven Carnegie units (14 semester credits) of A or B grade on a five-point scale (exclusive of physical education and military science).
2. Be a high school graduate and have earned in the last three years of high school at least five Carnegie units (10 semester credits) of A or B grade on a five-point scale (exclusive of physical education and military science) and attain a score at the 20th percentile or higher on the national norm of a college aptitude test given by the college.
ADMINISTRATIVE CODE

The California Administrative Code, Title 5, Education, provides as follows:

925. High School Graduates. For admission to a state college, a high school graduate, or other applicant who is judged by the appropriate college authorities to possess equivalent preparation, must, as a minimum, meet one of the following:

a. Have completed the equivalent of seventy semester periods (7 Carnegie units) of course work, in subjects other than physical education and military science, with grades of A or B on a five-point scale during the last three years in high school.

b. Have completed the equivalent of fifty semester periods (5 Carnegie units) of course work, in subjects other than physical education and military science, with grades of A or B on a five-point scale during the last three years in high school and attained the twentieth percentile on the national norm of a standard college aptitude test.

An applicant who fails to meet these standards may be admitted, if in the judgment of the appropriate college authorities, he gives promise of being able to succeed in college.

"Admission to a state college shall be limited to the number of students for whom facilities and competent instructors are available to provide opportunity for an adequate college education. The Director of Education after consultation with the president of a state college shall determine the number of students for whom there are available facilities and competent instructors at the college."

NOTE: A Carnegie unit represents course work covering a school-year (or two semesters).

HIGH SCHOOL PREPARATION

Students planning to enter college are urged to consult with their high school counselors in arranging a program that will adequately prepare for more advanced work at the college level in the field of major interest. The following general outline is suggested as a guide to students in selecting courses in preparation for college.

RECOMMENDED HIGH SCHOOL PROGRAM

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<th>Subjects</th>
<th>Freshman Year</th>
<th>Sophomore Year</th>
<th>Junior Year</th>
<th>Senior Year</th>
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<td>ENGLISH</td>
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<td>SOCIAL STUDIES</td>
<td>U. S. History</td>
<td>Civics</td>
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<td>MATHEMATICS</td>
<td>Advanced Algebra</td>
<td>Advanced Math</td>
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<tr>
<td>SCIENCE</td>
<td>Life science (Botany, Biology, or Physiology)</td>
<td>Physics (with laboratory)</td>
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<td>FOREIGN LANGUAGE</td>
<td>Continue the same language</td>
<td>(a) Continue the same language</td>
<td>(b) Continue the second language</td>
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<td>PHYSICAL EDUCATION</td>
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<td>ELECTIVES</td>
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Students should enrich the high school program by selecting freely from courses in the fine arts, practical arts, and the humanities. Many students are availing themselves of the opportunity afforded in high school summer sessions to take courses which otherwise could not be included within the regular semesters.

ADVANCED PLACEMENT EXAMINATIONS

Students may be granted advanced placement and advanced credit in up to a maximum of nine semester units, with no more than three units in any one field, providing (a) they have completed high school honors courses and have attained a satisfactory score on the advanced placement examinations, (b) complete their first semester at San Diego State with academic standing in the upper half of their class, and (c) obtain the recommendation of the department in which credit and placement will be granted.

Application forms may be obtained in the office of the Dean of the College and must be filed during the student's first registration. Those interested in this program should indicate at the time they take the advanced placement examinations that the results be sent to the college.

ADMISSION OF NON-HIGH SCHOOL GRADUATES

Any person 21 years of age or older who is not a high school graduate may be admitted as a freshman with adult special status, provided that he demonstrates to the appropriate college authorities his ability to profit from college work.

ADMINISTRATIVE CODE

The California Administrative Code, Title 5, Education, provides as follows:

926. Adult Special Students. An applicant who has attained the age of 21 years, or has not a high school graduate may be admitted to the state college as an adult special student provided that he demonstrates to the proper college authorities, ability to profit from college work. If such a student completes with a grade point average of 1.0 (grade of C on a five-point scale) or better a program of 24 semester or 36 quarter units of residence work in basic courses leading to a degree, he shall not be required to remove entrance deficiencies.

NOTE: A revision of the grade point system at San Diego State College beginning with the school-year, 1956-57, changed the C grade average from 1.0 to 2.0 (For further information, refer to the section of this catalog on General Regulations).

ADMISSION WITH ADVANCED UNDERGRADUATE STANDING

REQUIREMENTS

An applicant for transfer to this college with advanced standing credit from other colleges must meet all the following requirements:

1. Must have a grade average of C or better (2.0 on the four grade-point scale used at this college) on all college work attempted, including extension and correspondence courses and must be eligible to return to the last college in which enrolled as a regular student.

2. Must have earned at least 24 semester units in an accredited junior college, or if transferring with less than 24 units, must also have qualified at the time of leaving high school to meet current standards for freshman admission.

3. Must report all college work attempted, no portion of which may be disregarded in transferring. An applicant disregarding this regulation would be subject to dismissal from the college.

A student applying for transfer from a nonaccredited college who meets the requirements stated above may be admitted by special action of the Board of Admissions. Transfer units will be provisionally accepted, subject to completion of a minimum of 24 units at this college with a grade average of C or better.

ADMINISTRATIVE CODE

The California Administrative Code, Title 5, Education, provides as follows: 928. Students Who Transfer From Accredited Degree Granting Colleges and Universities. An applicant who has earned credit in accredited degree granting colleges and universities may be admitted to a state college if he meets standards as follows:

(a) He must have a grade-point average of 1.0 (grade of C on a five-point scale) or better on the total program attempted, or

(b) He may receive special consideration if he attains the twentieth percentile on the national norm of a standard college aptitude test provided that he must have or must be such that it would not disqualify him in the college to which he seeks
(c) A student who does not meet the above requirements may be admitted on probation, if in the opinion of the proper college authorities he can succeed in college.

929. Students Who Transfer From Unaccredited Colleges and Universities. An applicant who has attended a nonaccredited college or university may be admitted to a state college if he meets the standards listed above for transfers from degree granting colleges and universities, but credit earned in nonaccredited colleges and universities may be counted toward graduation requirements only after he has earned 24 semester or 36 quarter units of approved college work with a grade-point average of 2.5 or better, after which his classification may be changed to that of unclassified graduate student. Regular graduate standing may then be attained if the student meets requirements for admission to the Graduate Division.

ADMINISTRATIVE CODE

The California Administrative Code, Title 5, Education, provides as follows:

932. Admission to Graduate Standing. For admission to graduate standing in a state college, a student shall have completed a four-year college course with an acceptable baccalaureate degree from an accredited institution or must have completed equivalent training as determined by the appropriate state college authorities.

REGISTRATION REQUIREMENTS

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, completion of prescribed tests and examinations, payments 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.

ADMISSION OF GRADUATE STUDENTS

FILING OF APPLICATIONS

All graduate students anticipating enrollment at this college must follow the procedures outlined above for admission to the college. Those students planning to take a program leading to a master's degree must, in addition, file an application for admission to the Graduate Division. These application forms may be obtained at the Office of the Graduate Division.

FILING OF RECORDS

The student must file official transcripts from EACH college or university attended (including extension, correspondence, summer session, or evening courses). If a student plans to enter a master's degree program or a graduate credential program, he must file all transcripts IN DUPLICATE. An official transcript is one sent directly between registrars of schools. The student should request the college or university attended to send the transcript to the Admissions Office, San Diego State 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 leaving college. He must, however, file an application for admission to the college and, if he plans to enter a master's degree program, an application for admission to the Graduate Division and must comply with all other admission procedures outlined above.

BULLETIN OF THE GRADUATE DIVISION

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

CLASSIFICATION OF GRADUATES

Unclassified Graduate. A student holding an acceptable bachelor's degree from an accredited college or university may be admitted as an unclassified graduate student. Students in this category are not eligible to enroll in graduate level (200-numbered) courses, except with permission of the instructor and concurrence of the Dean of Graduate Studies, and all work taken as an unclassified graduate student is subject to evaluation as to its acceptance in the master's degree program.
REGISTRATION AND PAYMENT OF FEES

Schedule of Registration

Registration Priority. Each student is assigned a registration 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 issued prior to the beginning of each semester.

Student Program

The Student's Program. Provision is made for each student to obtain assistance from a faculty adviser in arranging a program. Opportunity is given at the time of registration for the reservation of classes. A complete description of this procedure is available prior to the beginning of each semester. Fees are charged on a semester basis.

Assignment of Advisers

Students are assigned to a faculty adviser at the time of registration. Each student should thereafter schedule a conference with his adviser at least once during each semester.

AUDITORS

Enrollment as an Auditor. A student who wishes to enroll in a class for audit instead of "credit" must meet all admission requirements and comply with all regulations. He will be found in the Class Schedule and Instructions for Registration for administrative services, such as failure of student to meet administrative deadlines, changes of program, and similar services.

Changes in Registration

A student is responsible for any change in his program after the official study list has been filed. Forms for changes in program must be secured at the Registrar's Office. A fee of $1 is charged for a change in program.

SUMMER SESSION PROGRAM

San Diego State College conducts two summer sessions both of which offer credit applicable to graduation and residence requirements. During the six-week Term I session, six units of academic credit may be earned; and during the three-week Term II session, three units may be earned. The tuition fee for Summer of $2 is charged for Term I. Information concerning course offerings and special work is obtained by communicating with the Summer Sessions Office. A Summer Sessions Bulletin is available during the month of May and will be mailed free of charge upon request.

CAMPUS EVENING PROGRAM

In order to meet the needs of adults in the community for work on the college level, the Campus Evening Program offers some courses in the late afternoon and evening. These include both undergraduate and graduate courses and carry regular college offerings and are taught by faculty of the college, but moved to a non-college location. Students holding in-service teachers, public service personnel, and others to attend.

Students enrolling under this program must be fully matriculated students who have met all admission requirements of the college, including the filing of an official application, required tests for admission, the completion of the current offerings, eligibility for admission, and procedures for registration in the college.

Applications of new undergraduate students for admission to the college must be filed with the Office of Admissions at least four weeks prior to the beginning of a semester.

EXTENSION PROGRAM

In order to serve more adequately the needs of the community, the college cooperates with off-campus organizations and groups in arranging extension classes in response to expressed needs when the group is sufficiently large to finance the instruction. Offers 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 and Imperial Counties. A minimum of 15 to 20 students is usually required in order to establish a class. The usual class carries one unit of credit and meets once a week, either in the late afternoon or on evenings. These courses are listed in a special Extension Bulletin published each semester. The basic fee is $8.50 per unit.

For limitations on extension credit, see the section of this catalog on Credit for Extension Courses. Refer to the index for page number.

Interested persons desiring detailed information regarding organization of classes or current offerings should communicate with the Extended Services Office.

IMPERIAL VALLEY OFF-CAMPUS CENTER

El Centro, California

In July 1959 legislative authorization directed San Diego State College to extend its campus 120 miles across the Laguna mountains to El Centro. The purpose of this off-campus center has been outlined in the Report of the Needs of California for Higher Education, 1955, as follows: "... for improving the preparation of teachers in rural areas where there is a high proportion of teachers now serving on substandard credentials and where there is the greatest need for upgrading present personnel and training additional staff." All courses, therefore, are offered by the Off-Campus Center are upper division and carry full college resident credit leading to A.B. or B.Ed. degrees and/or the general elementary or kindergarten-primary credentials. The center also assists in the administration of extension courses for the Imperial Valley area when courses are offered in areas other than elementary education. Counseling, advising, and testing of students have been provided by the director and his one full-time and five part-time instructional staff.

This Imperial Valley Off-Campus Center is one of six such off-campus centers authorized by the California State Department of Education.

The Off-Campus Center is temporarily housed on the campus of Central Junior College, 1001 Brighton Avenue, El Centro. Information on admission, registration, and classes may be obtained by writing to the Director, Imperial Valley Off-Campus Center, P.O. Box 1049, El Centro, California.
GENERAL REGULATIONS

INFORMATION

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

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.

CLASS RANK IN COLLEGE

Students who have completed 0 to 29 units of work are classified as freshmen; 30 to 59 units as sophomores; 60 to 89 units as juniors; and 90 or more as seniors.

LOWER DIVISION AND UPPER DIVISION COURSES

A student is considered to have lower division standing until he has earned 60 semester units, at which time he attains upper division standing.

Courses numbered 1-99 are lower division courses; courses numbered 100-199 are upper division courses.

ELIGIBILITY FOR UPPER DIVISION CREDIT

A student with lower division standing is not eligible to take upper division courses, with the following exceptions: A student in the last semester of his sophomore year who is approaching upper division standing 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 student with sophomore standing may carry upper division courses for upper division credit provided that he has the written approval of the chairman of the department and the Dean of the College, or his authorized representative. This written approval must be filed at the Evaluations Office, Administration Building, on the Adjustment of Academic Record form, which may be obtained at the Evaluations Office.

UNITS OF WORK

A unit of credit represents 50 minutes of lecture or recitation combined with two hours of preparation per week through one semester, or three hours of laboratory or fieldwork in the case of laboratory credit.

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>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
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<tr>
<td>C</td>
<td>2</td>
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<tr>
<td>D</td>
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<td>F</td>
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<tr>
<td>I</td>
<td>0</td>
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<tr>
<td>Cr</td>
<td></td>
</tr>
<tr>
<td>W (or WP)</td>
<td></td>
</tr>
<tr>
<td>WF</td>
<td></td>
</tr>
</tbody>
</table>

(Prior to Sept. 1956, 3 grade points)
(Prior to Sept. 1956, 2 grade points)
(Prior to Sept. 1956, 1 grade point)
(Prior to Sept. 1956, 0 grade points)
(Prior to Sept. 1949, minus 1 grade point)
(Prior to Sept. 1956, not counted in student's grade average)
(Not counted in grade average, but units allowed)
(Not counted in grade average, but units allowed)
(0 grade points for units attempted)
Obtaining the 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.

To qualify for a bachelor's degree or a transcript of record with recommendation for transfer to another collegiate institution, a student must have earned at least twice as many grade points as units attempted, for a minimum grade point average of 2.0 (C).

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.

INCOMPLETE AT TIME OF GRADUATION

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

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

REPEATED COURSES

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

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. A student may carry up to 17 1/2 units with the permission of his adviser. Greater variations must be approved by the Dean of the College. Programs of less than 12 units (the minimum full-time load) are subject to approval of a dean or 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

The graduate student who is not taking any graduate level (200 numbered) courses may take the maximum load permitted for undergraduate students. The
maximum load is 15 units per semester for graduate students in full-time attendance with one or more graduate level (200 numbered) courses. An excess study load requires approval of the Dean of Graduate Studies. The maximum amount which will be approved by petition for any one semester for students carrying one or more 200-numbered courses is 17 units and for any one year, 33 units. For students employed full time, the recommended study load maximum is six units.

CHANGE OF MAJOR FIELD
At the time of admission to the college, each undergraduate student is assigned to a major field. Any student wishing to change his major field after registration must make application at the Personnel Services Center. Veterans using veteran benefits must obtain appropriate approval from the Veterans Administration for necessary changes in letters of eligibility.

PROBATION AND DISQUALIFICATION

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.

DISQUALIFICATION

Disqualification for Scholarship. 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 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 discontinuance of education.

Reinstatement After Disqualification. 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. Students petitioning for reinstatement are required to have personal interviews with members of the Board of Admissions.

WITHDRAWALS AND CHANGES OF PROGRAM

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

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

UNOFFICIAL WITHDRAWAL

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

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

**CHANGE OF PROGRAM**

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

A change of program may be made on or before the published dates for withdrawal. Forms for the change of program may be obtained at the Registrar's Office.

A fee of $1 is charged for each change of program made after the official study list card has been filed. The effective date of withdrawal or change of program is the date on which the completed and acceptable forms are filed by the student at the Registrar's Office.

**WITHDRAWAL TO ENTER MILITARY SERVICE**

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). One-third credit is allowed for completion of the first six weeks of the semester, or two-thirds credit for completion of the first 12 weeks of the semester, in courses for which the student is enrolled and in which he is passing at the time of withdrawal.

Entrance upon extended active military duty must be without unreasonable and unnecessary delay (normally 30 days) after the date of withdrawal from college to qualify the student for refund or partial credit. A student electing to receive a refund of materials and service fees or electing partial credit must file official verification of the date of entry upon extended active duty.

**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 reports 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.

**TRANSCRIPTS OF RECORD**

An official transcript of record may be obtained by filing an application for transcript at the Registrar's Office. A fee of $1 is charged (first copy free). One week should be allowed for the processing and mailing of the transcript. Transcripts sent from one college to another are considered as official. Transcripts presented by a student to a college are considered to be unofficial and are usually not accepted.

Once a student has matriculated in this college or has had an official evaluation made, transcripts from other schools or colleges become the property of this college and will not be released nor will copies be made.

**EVALUATIONS**

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 45 units of acceptable college work and be qualified for full matriculation. Transfer students with 45 units or more who enroll in the college will automatically receive an evaluation, which is available at the time of registration and advising. 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 45 semester units or more, who has not received an evaluation, should apply at the Evaluations Office for an official evaluation. The application is made on the regulations in effect at the time the student entered this college, subject to the following Education Code regulations:

913. Election of Regulations. A student remaining in continuous attendance in regular sessions and continuing on the same curriculum in a state college may, for
pursposes of meeting graduation requirements, elect to meet the graduation require-
ments in effect either at the time of his enering 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.
All evaluations are subject to changes imposed upon the college by the San
Board of Education. 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.

COLLEGE PROGRAM IN WRITING COMPETENCY

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

THE HONORS PROGRAM

Any interested student who by the end of his sophomore year has maintained a
high grade point average should consult his major adviser to learn the details of
the departmental honors program, including specific requirements for eligibility
to participate in the program and the special registration procedures required.
In the honors program, so far as the facilities of the department and
their individual needs and as their individual capacities warrant. They shall be
limited to six units per semester unless otherwise recommended by the major
department or departments and approved by the Honors Committee. In addition,
they shall not be held to regular attendance in the established courses of their
departments, if, in the opinion of the instructor, the objectives of such courses can be
achieved through special assignments and examinations. With the consent of
the major department or departments, requirements concerning minors and specific
courses or sequences in the major may be modified. Each honors student shall be
assigned to a member of his major department for advice and direction.

Students in the honors program who fail to take advantage of the opportunities
there offered may at the end of any semester be required to withdraw from the
honors program upon notification of the major department or departments. Students
not in the honors program who show unusual capacity, may request to be trans-
ferred to the honors program contingent upon recommendation of the department
and the Committee on Honors at the end of any semester.

DEGREE WITH HONORS

With the approval of the faculty, graduation with honors shall be granted to
those students in each graduating class who have done highly superior work as
shown by high grade point averages.

DEGREE 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.

GRADUATION

A candidate for graduation must file an application for graduation with the
Evaluations Office, Administration Building, not later than the end of the third week
of classes of the semester in which the student expects to graduate. Candidates for
summer session graduation will file applications at the same time as students expect-
ing to graduate at the end of the spring semester. Refer to the calendar for
dates for filing applications.

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.

The Education Code, Title 5, of the State of California requires approval of the
faculty of a state college before a degree can be awarded to a student.

FINA EXAMINATIONS

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

CREDIT BY EXAMINATION

Approval to receive credit by examination is granted only at the discretion of
the appropriate college authorities. Credit may be earned by examination under the following conditions: (1) the student must be a fully matriculated bona fide resident student enrolled in a regular semester at the college at the time the examination is administered; (2) approval to take the examination must be obtained from the Dean of the College and from the chairman of the department concerned, prior to the administration of the examination; and (3) the student must pay the additional fees, if needed, to qualify as a regular student.

Credit by examination is not acceptable on master's degree programs.

After the student has discussed his request to receive credit by examination with the chairman of the department concerned, he should obtain an applications form from the Registrar's office and follow the procedures outlined on the form. The student should bear in mind that approval of both the chairman of the department and the Dean of the College is required before the examination can be given and credit assigned.

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, of which no more than 12 of which may be transferred from another college or
university, except that courses taken through the United States Armed Forces
Institute, or other official military correspondence schools, shall not be included
within these limits. Extension and correspondence credit do not count in satis-
faction 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.

CREDIT GRANTED 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 and must file a photocopy of the military separation form
DD214, or equivalent official record. These records should be submitted at the
time of applying for admission to the college.

TRANSFER TO GRADUATE SCHOOLS

Attention of students who plan to transfer to the graduate school of the Uni-
versity of California is called to the fact that the university reserves the right to
evaluate and possibly reduce the credit in certain work in which this college has
credited the student with. Examples of such work would be credit for courses in junior colleges, credit for military service, and courses in this college of
GRADUATE DIVISION

DEGREES OFFERED

The master of arts and the master of science degrees are conferred by San Diego State College through the Graduate Division. These degrees are designed to accomplish one or more of the following objectives:

1. To improve the student's professional competence in educational service.
2. To develop the student's ability for continued self-directed study in his field of specialization.
3. To afford an opportunity for the student to broaden his cultural background, to develop his personal and social responsibility, and to prepare for community leadership.

MATRICULATION REQUIRED

All students beginning postgraduate work, including graduates from San Diego State, must make formal application for admission to the college and comply with all admission requirements. Applicants for the master of arts or master of science degree must in addition make formal application for admission to the Graduate Division.

ADMISSION TO THE COLLEGE FOR GRADUATE STUDY

APPLICATION

An applicant for admission to the college for postgraduate work must follow the procedure for filing applications as outlined in the section of this catalog on Admission and Registration.

UNCLASSIFIED GRADUATE STUDENT

A graduate student who is accepted for admission to the college will be initially admitted as an unclassified graduate student. This classification is considered temporary for the student who wishes to enter a program leading to a master's degree. Under this temporary classification, the student is not eligible to enroll in 200-numbered courses, except with permission of the instructor and concurrence of the Dean of Graduate Studies; and all work taken as an unclassified graduate, including 200-numbered courses, is subject to evaluation as to its acceptance in the master's degree program.

ADMISSION TO THE GRADUATE DIVISION

To become eligible for consideration for advancement to candidacy for a master's degree, the student must be admitted to the Graduate Division which occurs when a student attains regular graduate standing. Requirements for regular graduate standing are as follows:

1. Completion of a four-year college course with an acceptable bachelor's degree from an accredited college or university.
2. A minimum grade point average of 2.5 on all undergraduate work taken for the bachelor's degree.
3. Completion of a scholastic aptitude examination required by the Graduate Division.
4. Satisfactory completion of minimum requirements of the division or department in which the student desires to major, including an appropriate undergraduate major or its equivalent and such departmental qualifying examinations as may be required.

Admission to the Graduate Division with regular graduate standing does not necessarily imply the acceptance of the student as a candidate for a master's degree.

ASSIGNMENT OF AN ADVISER

The Office of the Graduate Division advises all graduate students and assigns them to graduate advisers in the various departments of the college offering graduate work.

REMOVAL OF DEFICIENCIES

An applicant who does not have the last three qualifications named above for regular graduate standing may, with guidance from the Office of the Graduate Division and the appropriate department or division, continue postgraduate work as an unclassified graduate for the purpose of removing deficiencies and otherwise demonstrating ability to succeed in a master's degree program. If the student succeeds in removing the deficiencies and receives the recommendation of the department or division, he may reapply for regular graduate standing and admission to the Graduate Division.

WITHDRAWAL AND REINSTATEMENT IN GRADUATE PROGRAM

A graduate student who has begun work on a graduate program and has taken no courses on this program within the last calendar year is considered to have withdrawn from the program. Such students must file applications for readmission to the college and the Graduate Division if they wish to resume their graduate work. They will be required to comply with regulations and requirements in effect at the time their application for readmission is accepted.

THE MASTER OF ARTS DEGREE

GENERAL INFORMATION

San Diego State College is authorized by the State Board of Education to grant the master of arts degree with majors or concentrations in the following fields of study:

- Art
- Biology
- General biology
- Botany
- Microbiology
- Zoology
- Business education
- Chemistry
- Economics
- Education
- Audiovisual education
- Elementary curriculum
- and instruction
- Secondary curriculum
- and instruction
- Elementary administration
- Secondary administration
- School supervision
- Pupil personnel services
- Educational psychology
- Special education
- English
- French
- Geography
- Health education
- History
- Industrial arts
- Mathematics
- Music
- Personnel supervision
- and training
- Physical education
- Physical science
- Physics
- Political science
- Psychology
- Romance languages
- Social science
- Sociology
- Spanish
- Speech arts

The master of arts degree program of a student who has regular graduate standing in the Graduate Division is determined on the basis of his educational background, experience, and objectives. Students who plan to teach or to hold other public school positions may elect a master of arts degree for teaching service with a concentration in an academic field or in education. Students for whom the foregoing objective is inappropriate may elect a master of arts degree with a major in an academic field.

REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

Course and Unit Requirement

1. A minimum of 30 units of postgraduate work in approved courses numbered 100 or above. These units must be completed within the seven-year period incompletes.

The Office of the Graduate Division advises all graduate students and assigns them to graduate advisers in the various departments of the college offering graduate work.

Assignment of an Adviser

The Office of the Graduate Division advises all graduate students and assigns them to graduate advisers in the various departments of the college offering graduate work.

Removal of Deficiencies

An applicant who does not have the last three qualifications named above for regular graduate standing may, with guidance from the Office of the Graduate Division and the appropriate department or division, continue postgraduate work as an unclassified graduate for the purpose of removing deficiencies and otherwise demonstrating ability to succeed in a master's degree program. If the student succeeds in removing the deficiencies and receives the recommendation of the department or division, he may reapply for regular graduate standing and admission to the Graduate Division.

 Withdrawal and Reinstatement in Graduate Program

A graduate student who has begun work on a graduate program and has taken no courses on this program within the last calendar year is considered to have withdrawn from the program. Such students must file applications for readmission to the college and the Graduate Division if they wish to resume their graduate work. They will be required to comply with regulations and requirements in effect at the time their application for readmission is accepted.

The Master of Arts Degree

General Information

San Diego State College is authorized by the State Board of Education to grant the master of arts degree with majors or concentrations in the following fields of study:

- Art
- Biology
- General biology
- Botany
- Microbiology
- Zoology
- Business education
- Chemistry
- Economics
- Education
- Audiovisual education
- Elementary curriculum
- and instruction
- Secondary curriculum
- and instruction
- Elementary administration
- Secondary administration
- School supervision
- Pupil personnel services
- Educational psychology
- Special education
- English
- French
- Geography
- Health education
- History
- Industrial arts
- Mathematics
- Music
- Personnel supervision
- and training
- Physical education
- Physical science
- Physics
- Political science
- Psychology
- Romance languages
- Social science
- Sociology
- Spanish
- Speech arts

The master of arts degree program of a student who has regular graduate standing in the Graduate Division is determined on the basis of his educational background, experience, and objectives. Students who plan to teach or to hold other public school positions may elect a master of arts degree for teaching service with a concentration in an academic field or in education. Students for whom the foregoing objective is inappropriate may elect a master of arts degree with a major in an academic field.

Requirements for the Master of Arts Degree

Course and Unit Requirement

1. A minimum of 30 units of postgraduate work in approved courses numbered 100 or above. These units must be completed within the seven-year period incompletes.
2. A minimum of 12 units in 200-numbered courses.
3. A minimum grade point average of 3.0 (B) as follows:
   a. On all 100-numbered course work required to make up deficiencies.
   b. On all course work listed on the official master's degree program, including transfer courses and courses carried concurrently with or subsequently to the earliest course listed as part of the official master's degree program.
   c. On all 100-numbered and 200-numbered courses taken at San Diego State College concurrently with or subsequently to the earliest course listed as part of the official master's degree program.
Credit for courses in which a grade lower than "C" is received cannot be used to satisfy requirements for graduate degrees.
4. Twelve units earned after advancement to candidacy.
5. Not more than a total of six units may be in special study courses, 199 and 299.
(For required minimum units for each major or concentration, consult the appropriate section of the Bulletin of the Graduate Division.)

Residence
Applicants must complete at least 24 units of their programs in residence at San Diego State.

Advancement to Candidacy
In addition to being admitted to the Graduate Division with regular graduate standing, a student desiring the master of arts degree must file (at the Office of the Graduate Division) a complete program of study for the advanced degree as approved by his graduate advisor. Advancement will not be granted, however, until the student has earned at least 12 units in his graduate program at the college with a minimum grade point average of 3.0 (B). An exception to this rule applies to graduates of this college who may be advanced upon completion of at least six units, provided their undergraduate grade point average is at least 2.75. Advancement to candidacy is contingent upon the completion of all undergraduate deficiencies and departmental or divisional requirements; satisfactory scores on the scholastic aptitude examination, and, if required, the achievement examination given by the Test Officer for the Graduate Division; recommendation for advancement to candidacy by the department or division concerned; and final approval by the Graduate Council.

Examinations
Every student desiring the master's degree must take the graduate aptitude examination prior to or during his first semester in residence. Certain departments require additional examinations. See below for comprehensive examinations.

Thesis
Plan A
Plan A, requiring a thesis or project, is available to students majoring in most fields in which the master of arts degree is offered. Three units of credit are granted for the thesis or project, course 299, upon its acceptance by the student's thesis committee. Students will not be permitted to register for course 299 until they have received official notice of advancement to candidacy from the Graduate Office and have an officially appointed thesis or project committee. Theses or projects must be completed four weeks in advance of the date of the convocation at which the degree is to be conferred. Information as to specific requirements for typing, binding, number of copies, etc., may be obtained at the Graduate Office.

Plan B
Plan B, involving a comprehensive examination, is usually in lieu of a thesis, may be chosen by students majoring in biology (teaching), business education, French (teaching), mathematics, and Spanish (teaching). Date at which comprehensive examinations are given are determined by the department or division concerned. Results on comprehensive examinations are reported to the Graduate Office. Students majoring in education must pass the comprehensive examination to become eligible to take Education 295A-295B, the writing seminars required in their major concentration, or Education 299, Thesis.

Final Approval
The student's graduate program of study as approved by the Graduate Council must be completed before the degree will be granted.
GENERAL REGULATIONS FOR ALL GRADUATE DEGREES

1. Transfer and/or Extension Credit. A total of not more than six units of work earned at another college, if approved by the graduate adviser, or work taken in extension courses at San Diego State may be accepted as a part of the requirements for the master's degree. All extension courses must be approved by the major department or division and the Graduate Council prior to the date of completion of the course. Work taken by correspondence is not acceptable.

2. Study Load. The maximum study load in the summer session is one unit per week of attendance. During the fall or spring semesters, the maximum load is 15 units per semester when 200-numbered courses are included in the student's program. For students employed full time, the recommended maximum study load is six units.

3. Official Program of Study. Official programs of study, as signed and revised by the graduate adviser and accepted by the Graduate Council, are binding unless a student withdraws from the Graduate Division. Withdrawal is defined as taking no courses during a calendar year. Students who have withdrawn must file a request for readmission to the Graduate Division before they will be permitted to register for any courses leading to the master's degree.

It is the student's responsibility to complete the specific courses listed on his official program of study. No changes will be permitted unless approved by the graduate adviser, the Dean of Graduate Studies, and recorded in the Graduate Office. No course can be deleted from an official program after the course has been completed.

4. Application for Graduation. An application for graduation must be filed in the Graduate Office four weeks in advance of the date of graduation.

GENERAL REQUIREMENTS FOR THE BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

TYPES OF CURRICULA

San Diego State College offers the following types of curricula:

(a) Arts and Sciences curricula, leading to a degree.
(b) Teacher education, leading to a degree or teaching credential.
(c) Occupational curricula, leading to a degree or certificate.
(d) Preprofessional curricula, leading to admission to professional schools.

GRADUATION REQUIREMENTS

(a) A minimum of 124 semester units for the A.B. degree or 128 to 132 semester units for the B.S. degree, representing a four-year college course, is required for graduation.
(b) A minimum of 24 semester units must be earned in residence, at least 12 of which must be completed among the last 20 semester units counted toward the degree. Credit in summer sessions may be counted on a unit for unit basis toward this requirement.
(c) Each student shall complete with a grade-point average of 2.0 (grade of C on a five-point scale) or better, a pattern of courses defined by this college. (The grade of A is 4.0; B is 3.0; C is 2.0; D is 1.0; F is 0.0.)
(d) At least 40 upper division units are required for the A.B. degree or at least 36 upper division units for the B.S. degree.
(e) The state requirements in American history, institutions and ideals; United States Constitution; and California state and local government must be completed for the bachelor's degree.
(f) All requirements in general education, the major and minor fields, competency tests, and any other requirements made by the college must be completed for graduation.

COMPETENCY TESTS IN ENGLISH, MATHEMATICS, AND SPEECH

Each student must demonstrate competence in the use of English writing, mathematics, and speech as determined by tests administered by the college. Students failing these tests are required to enroll in special remedial courses or programs. Passing these tests or satisfactory completion of designated courses or other remedial requirements is a requirement for graduation.

The Writing Competency Test must be taken at the first scheduled date for the test following the student's completion of 45 units of college work. Students transferring to this college with 45 units or more of advanced standing credit must take this test before registration. Passing this test or satisfactory completion of designated courses or remedial programs prescribed by the student by the College Committee on English is a requirement for graduation.

The Mathematics Competency Test is the mathematics part of the College Aptitude Test required of all students before registration. Students failing to score at a satisfactory level are required to enroll in Mathematics A. The graduation requirements in mathematics competency may be satisfied by passing the mathematics section of the College Aptitude Test, the course in Mathematics A, or one of the following lower-division courses: Mathematics 3, 4, 10, 21, 22, 40, 50, 51, 52, or 60.

The Speech Competency Test is given to students who are enrolled in Speech Arts 3, Oral Communication, a required general education course. Students failing the Laboratory, and complete the course for an additional one unit of credit as part
GRADUATION REQUIREMENT IN AMERICAN INSTITUTIONS

AMERICAN HISTORY, INSTITUTIONS AND IDEALS, UNITED STATES CONSTITUTION, AND CALIFORNIA GOVERNMENT

Each student of a state college to qualify for graduation shall demonstrate competence in the following:

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 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 REQUIREMENT 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 71A and 71B
(d) Political Science 139A and 139B

COMPLETION OF REQUIREMENT THROUGH EXAMINATIONS

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

(a) American history, institutions and ideals
(b) United States Constitution
(c) California state and local government

Students electing to remove these 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 the summer session.

COMPLETION OF REQUIREMENT 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 8A and 8B
History 176A and 176B
History 179A and 179B
History 181A and 181B

Courses meeting requirements in U.S. Constitution

Political Science 71A
Political Science 115
Political Science 107A and 107B
History 17A
History 172A

Courses meeting requirements in California Government

Political Science 71B
Political Science 107B
Political Science 115
Political Science 139B
Political Science 143
Political Science 148
History 8B
History 17B
History 172B
History 189

GENERAL EDUCATION REQUIREMENTS

Forty-five semester units in courses designated in the college catalog and in the schedule of classes as general education must be completed in addition to courses in the major field, unless such courses are ones specifically required of all students as part of the general education program. These courses must be selected from the fields listed below with completion of the minimum number of units required and not exceeding the maximum number of units allowed in each field in order to satisfy the requirement of 45 units in general education. 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.

General education courses may be found in the section of the catalog under Announcement of Courses and Programs of Study. The course numbers are preceded by an asterisk (*).

For specific explanation of the requirements within each field of general education, refer to the explanation of requirements below.

GENERAL EDUCATION AREAS

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Social Sciences</td>
<td>9</td>
</tr>
<tr>
<td>(b) Natural Sciences</td>
<td>9</td>
</tr>
<tr>
<td>(c) Literature, Philosophy, and the Arts</td>
<td>6</td>
</tr>
<tr>
<td>(d) Communication: Oral Communication Written Communication</td>
<td>2</td>
</tr>
<tr>
<td>(e) Psychology</td>
<td>3</td>
</tr>
<tr>
<td>(f) Physical and Health Education: Physical Education Health Education</td>
<td>2</td>
</tr>
<tr>
<td>(g) Mathematics</td>
<td>0</td>
</tr>
<tr>
<td>(h) Foreign Languages</td>
<td>0</td>
</tr>
<tr>
<td>(i) Family Life Education</td>
<td>0</td>
</tr>
<tr>
<td>(j) Air Science</td>
<td>0</td>
</tr>
</tbody>
</table>

Total number of units required: 45

SPECIFIC REQUIREMENTS IN GENERAL EDUCATION

The Social Sciences

(a) Social Sciences. A minimum of nine or maximum of 12 units must be selected from the general education social science courses listed below, with at least three units in each of two or more fields. Included in the selection should be courses which meet the graduation requirement in American history, institutions and ideals, U.S. Constitution, and California state and local government. The student should also refer to the requirements in his major field before selecting general education social science courses from the following lists:

Anthropology 1, 2, 3, 152, 154
Geography 2, 12A-12B, 151, 152, 153
Economics 1A-1B, 110, 111, 170
Sociology 1, 10, 125, 140

The Natural Sciences

(b) Natural Sciences. A minimum of nine or maximum of 12 units must be selected from general education courses in the natural sciences. At least one general education course of not less than three units must be selected in the life sciences (biology) and at least one course of not less than three units in the physical sciences (astronomy, chemistry, geography, geology, physics, and the three-hour
equivalent must represent laboratory work. Before selecting a course, the student should read the course description to determine whether there are exclusions or limitations in applications of the credit. He should also refer to the requirements in his major field before selecting general education natural science courses from the following lists:

**Life Sciences**
- Nonlaboratory courses:
  - Biology 1, 161
  - Microbiology 110
  - Oceanography 100
  - Zoology 165

- Laboratory courses:
  - Biology 3, 4

**Physical Sciences**
- Nonlaboratory courses:
  - Astronomy 1, 2, 105
  - Geography 1 or 3 (but not both)
  - Geology 2
  - Oceanography 100
  - Physical Science 1, 2, 5, 130
  - Physics 2A, 2B

- Laboratory courses:
  - Astronomy 9
  - Chemistry 2A, 2B
  - Geology 3
  - Physics 3A, 3B, 5

**Literature, Philosophy, and the Arts**

(c) Literature, Philosophy, and the Arts. A minimum of six or a maximum of 12 units must be selected from general education courses in the area of literature, philosophy, and the arts. At least one course of not less than three units must be selected in literature or philosophy from courses in English, comparative literature, or philosophy. Twelve units may be concentrated in these fields, but not in the arts. Up to nine units may be selected from courses listed below under the fine arts and practical arts, but not more than three units may be counted in the practical arts toward general education. Courses should be selected from the following list:

**Fine Arts**
- Art A, B, 5, 6A, 8, 13, 16A, 18A, 50, 51, 52A, 52B, 150
- Music 7A, 10A, 10B, 51, 70, 75
- through 88, 151, 170, 175
- through 188

**Practical Arts**
- Home Economics 3, 4A, 15
- Industrial Arts 5, 6, 85
- Library Science 10

**Oral and Written Communication**

(d) Oral and Written Communication. Two units must be completed in oral communication by passing Speech Arts 3 or equivalent. A speech test is given to all students who enroll in Speech Arts 3. Students failing this test are required to register concurrently in Speech Arts 2, Oral Communication Laboratory, for one unit of credit which may not be counted toward general education requirements. A minimum of three units, with a maximum of six units, must be selected from courses in written communication. All students must complete three units in English 1 or 1X as a prerequisite for all English courses except English 2. Selection should be made from the following general education courses:

**Oral Communication**
- Speech Arts 3, or two units of 1-X for foreign students

**Written Communication**
- English 1, or 1-X for foreign students, 61, 62, 105
BACHELOR OF ARTS DEGREE IN ARTS AND SCIENCES

(For information on the bachelor of arts degree with teaching credentials, refer to the section of this catalog on Professional Curricula in Teacher Education.)

REQUIREMENTS FOR THE DEGREE

The student must complete the following requirements for the bachelor of arts degree in arts and sciences:
1. One major field, in addition to 45 units in general education courses. (Refer to the department offering the major for specific information.)
2. One minor field, if required by the major department. (Refer to the department offering the minor for a description.)
3. A minimum of 124 units, at least 40 units of which must be in courses carrying upper division credit (may include the major and minor).
4. All graduation requirements described in the section of the catalog on General Requirements for the Bachelor of Arts and Bachelor of Science Degrees.

MAJOR FIELD

The major in arts and sciences consists of the total number of upper division units in the major field, including the specific courses prescribed by the department. Prerequisite and related courses in the lower division must also be completed. Unless otherwise provided, these required lower division courses may not be included in general education.

LIST OF MAJORS

Majors offered in arts and sciences are listed below. For information on majors with teaching credentials, refer to the section of this catalog on Professional Curricula in Teacher Education.

- Anthropology
- Art
- Biology
- Botany
- Chemistry
- Economics
- English
- French
- *General major
- Geography
- Geology
- History
- Home economics

* General Major. The general major offers an opportunity for students to obtain a general type of training leading to occupational objectives not otherwise provided in the regular curricular programs available in the college.

Requirements. In addition to the general education requirements, a student taking the general major must complete 36 upper division units chosen from three fields with not more than 15 units nor fewer than nine units from any one field. A minimum of one year course in each major must be completed in the lower division as foundation for upper division work in the general major. A minor is not required; however, four additional upper division elective units must be completed to meet the minimum requirement of 40 upper division units for graduation.

LIST OF MINORS

Minors offered in arts and sciences are listed below. For information on minors available in teaching credential programs, refer to the section of this catalog on Professional Curricula in Teacher Education.

- Accounting
- Air science
- Anthropology
- Art
- Astronomy
- Banking and finance
- Biology
- Botany
- Broadcasting
- Business Education
- Business management
- Chemistry
- Comparative
- Comparative
- Credit management
- Economics
- Education
- Engineering
- English
- French
- Geography
- Geology
- German
- History
- Home economics

- Industrial arts
- Journalism
- Language arts
- Latin-American
- Studies
- Mathematics
- Microbiology
- Music
- Philosophy
- Physical education
- Political science
- Physics
- Psychology
- Public administration
- Real estate
- Recreation
- Sociology
- Speech arts
- Zoology

CURRICULUM THROUGH DIRECTED STUDY

Through a planned arrangement of courses within the major and minor fields, certain specialized curricula may be developed, such as preprofessional programs, area study, and contemporary civilization programs, and programs of an occupational nature not otherwise provided for in the major fields. Such programs are listed below and are described in other sections of the catalog as indicated.

PREPROFESSIONAL CURRICULA

A description of these programs appears in the section of the catalog on Preprofessional Curricula. Programs are available in the following areas:

- Preprofessional
- Prelegal
- Premedical
- Preparation for other professions

BROAD AREA STUDIES

For a description of programs in American Studies, European Studies, or Humanities, refer to the section of the catalog on Humanities.
BACHELOR OF SCIENCE DEGREE IN ARTS AND SCIENCES

REQUIREMENTS FOR THE DEGREE

The student must complete the following requirements for the bachelor of science degree in arts and sciences:

1. One major field, in addition to 45 units in general education courses. (Refer to the department offering the major for specific information.)
2. From 128 to 132 units, with a minimum of 36 upper division units (may include courses in the major).
3. All graduation requirements described in the section of the catalog on General Requirements for the bachelor of arts and bachelor of science degrees.

MAJOR FIELD

The major in arts and sciences consists of the total number of upper division units in the major field, including the specific courses prescribed by the department. Prerequisite and related courses in the lower division must also be completed. Unless otherwise provided, these required lower division courses may not be included in general education. A minor is not required for the B.S. degree.

LIST OF MAJORS

Majors in arts and sciences are offered in the following fields:

- Science
  - Biology
  - Botany
  - Chemistry
  - Engineering
  - Microbiology
  - Nursing
  - Physics
  - Zoology
- Other
- Health education
- Radio and television broadcasting

CURRICULA THROUGH DIRECTED STUDY

Through a planned arrangement of courses within the major and minor fields, certain specialized curricula may be developed, such as preprofessional programs and programs of an occupational nature not otherwise provided for in the major fields. Such programs are listed below and are described in other sections of the catalog as indicated.

PREPROFESSIONAL CURRICULA

A description of these programs appears in the section of the catalog on Preprofessional Curricula. Programs are available in the following areas:

- Pre-legal
- Pre-medical
- Preparation for other professions

MEDICAL TECHNOLOGY PROGRAM

For a description of this program, refer to the section of the catalog on Microbiology.

PREPROFESSIONAL CURRICULA

Preprofessional curricula, which usually require three or four years of collegiate work, are offered. Curricular 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 premedical, 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 pre-dentistry.

Students ordinarily elect to concentrate in chemistry and zoology with a major in one and a minor in the other. Requirements for these majors and minors are described under these departments.

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 units in one foreign language if required by the college to which a student expects to transfer.

Course of Study for Predental Curriculum. Freshman year, physical education activities, Health Education 21, Speech Arts 3, English 1, English 2 or other literature course, Mathematics 3 and 4, Chemistry 1A-1B, Biology 5 or Biology 4 (31 units); sophomore year, physical education activities, Psychology 1, Chemistry 5A, Physics 2A-2B and 1A-1B, Zoology 51, Biology 15, social science including courses in American history, institutions and ideals; U. S. Constitution; and California state and local government (30 units).

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 prescribed 60 units: Chemistry 101A-101B, Zoology 100, Art 119A, Psychology 11, 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 facility in the individual programs. There are two forms of concentration which will usually be indicated for the prelegal student, either of which may be selected, in consultation with the adviser, to fit the student's interests. These are the major-minor pattern and the general major pattern. Science should receive first consideration when choosing the pattern of concentration 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 1A-1B or 71A-71B, 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 and in consultation with the college of law in which he plans to work, but keeping in mind the examinations for admission to schools of law. The recommended list below should receive prime consideration by all prelegal students in student needs.
Up to 12 units of lower division courses in social science may be counted toward the general education requirements in social science, depending upon the major selected.

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

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

PREMEDICAL CURRICULUM

The entrance requirements of medical colleges ordinarily range from three to four years of premedical work. The lower division requirements of the liberal arts curricula include the general requirements of standard medical colleges and should therefore be met in full whether the curriculum extends over a period of three or of four years. All plans for premedical work should include an arrangement of courses to meet the requirements of the medical college which the student expects to enter.

Students ordinarily elect to concentrate in chemistry and zoology with a major in one and a minor in the other. Requirements for these majors and minors are described under these departments.

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, two or three years of French or German. Two years of Latin also recommended.

Course of study for premedical curriculum in addition to general education requirements:

Freshman year: Chemistry 1A-1B, Biology 5 or Biology 3 and 4 or Physics 2A-2B, 3A-3B.


Junior year: Chemistry 101, foreign language to 12 units, Zoology 100 and 105.

Senior year: Completion of requirements for graduation with a major preferably in chemistry or zoology.

Students should consult with the adviser in the premedical curriculum for selection and arrangement of courses.

PREPARATION FOR OTHER PROFESSIONS

Programs leading to professional study in agriculture, architecture, forestry, optometry, pharmacy, theology, veterinary science, and other areas, may be planned for a student who may wish to take some undergraduate work in liberal arts at this college. Since these professional areas frequently require a complete four-year course of study at the institution granting the degree, preprofessional programs are not provided at San Diego State College. 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 advisors will assist the student in planning his course of study.

PROFESSIONAL CURRICULA IN TEACHER EDUCATION

TEACHING 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. Several kinds of credentials are available, each authorizing certain specific kinds of service. A student who completes the prescribed program at San Diego State College for any of the credentials listed below will be recommended by the college to the State Department of Education for the credential.

This section of the catalog describes (1) the general nature of all credentials and combinations of certain credentials, (2) admission to teacher education, and (3) basic programs of study for all credentials. The program of study for each of the majors within the special secondary, general secondary, and junior high school credentials can be found in the section of the catalog on Announcement of Courses and Programs of Study, under the heading of the department offering the major.

CREDENTIAL PROGRAMS

Programs of study are offered for the following credentials:

The credential

<table>
<thead>
<tr>
<th>Subjects and grades for which it is valid</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Elementary</td>
</tr>
<tr>
<td>Kindergarten-Primary</td>
</tr>
<tr>
<td>Junior High School</td>
</tr>
<tr>
<td>Special Secondary in Art</td>
</tr>
<tr>
<td>Special Secondary in Business Education</td>
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<tr>
<td>Special Secondary in Industrial Arts</td>
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<tr>
<td>Special Secondary in Music</td>
</tr>
<tr>
<td>Special Secondary in Physical Education</td>
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<tr>
<td>Special Secondary in Speech Arts</td>
</tr>
<tr>
<td>Health and Development</td>
</tr>
<tr>
<td>Teaching Exceptional</td>
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<tr>
<td>Children</td>
</tr>
<tr>
<td>General Secondary</td>
</tr>
<tr>
<td>General Pupil Personnel Services</td>
</tr>
</tbody>
</table>

40
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, hand-
writing, reading and spelling as indicated by scores on fundamentals tests for
those applying for elementary education. (See the college catalog for dates of
these tests which should be taken in the second semester of the freshman
year.)
3. Satisfactory scores on a general culture test, English proficiency test, and
mathematics competency test, for junior high school, special secondary, health
and development, general secondary or junior college credentials. (See the
college catalog for dates of these tests, which should be taken in the second
semester of the freshman year.)
4. Satisfactory quality of speech and voice control.
5. Results of the college health examination given for teaching credential can-
didates.
6. Interviews with representatives of the Admissions Committee and, for sec-
ondary 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 State Board of Education: intelligence,
scholarship, professional aptitude, personality and character, speech and lan-
guage usage, and many-sided interests.
7. Satisfactory grade point averages on the first two years or more of a given
credential or its equivalent and on all subsequent work taken for the creden-
tial. Minimum grade point averages are indicated below:
   a. Elementary credentials: 2.2.
   b. Junior high school credential: 2.5.
   c. General secondary credential: 2.75.
   d. General secondary credential: all subjects, 2.5, and major field, 2.75.
   e. Junior college credential: 2.5.
8. For administration, supervision, and general pupil personnel services credential
candidates, a satisfactory grade point average (minimum 2.5) on all work
applicable to that credential, exclusive of the work applied to the basic creden-
tial.
9. For general secondary credential 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

Students who have completed two or more semesters of work in another college,
upon transferring to San Diego State College, should make application for admit-
tion to teacher education as soon as they enroll in the college. Transfer students
admitted to the college with either upper division or graduate standing should take
the following tests for admission to teacher education given during the testing and
advising program before the beginning of their first semester at the college. (See
college catalog for dates.)

TRANSFER STUDENTS WITH ProvisionAL CREDENTIALS

Teachers with a provisional credential who are teaching and working concur-
rently toward a regular credential may have a program designed to fit their back-
ground. According to present law, teachers on provisional credentials are required
and provisional credential before the provisional credential can be renewed. Before the
matriculated in the college and must complete admission to teacher education.
the time of renewal, successful teaching experience must be verified. For an
Evaluation Office, Administration Building, San Diego State College. For addi-
tional 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. Whenever a transfer student has had teaching experience, the college requires that a statement from the employer(s) be filed with the Evaluations Office.

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 at either this college or elsewhere must be approved by an official adviser in order to be credited toward meeting credential requirements or pattern requirements for a degree.

GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

WITH THE BACHELOR OF ARTS DEGREE

The general elementary and kindergarten-primary credentials are granted with the A.B. degree in teacher education. All elementary education students must complete requirements for the general elementary credential. Those who wish to specialize further in kindergarten-primary education may elect courses leading to the additional credential.

Requirements for the general elementary and kindergarten-primary credentials overlap with the following exceptions: Kindergarten-primary practicum, piano, and art courses required for the kindergarten-primary units may be taken as part of the 124 units required for a general elementary credential.

Major for the Credentials

The major for the general elementary or kindergarten-primary credential is in elementary education. The program of studies for this major and for these credentials will be found in the section of the catalog on Announcement of Courses and Programs of Study, under the heading Education. Curricular outlines for both credentials may also be obtained from the Coordinator of Elementary Education.

Minors for the Credential Program

One of the minors listed below is required in either of the credential programs. A description of the minor may be found in the section of the catalog on Announcement of Courses and Programs of Study, under the heading of the department offering the minor.

English
French
General science
German
Mathematics
Physical education
Industrial arts
Social science
Speech arts

ACCELERATED CREDENTIAL PROGRAM FOR STUDENTS WITH FOUR-YEAR DEGREES

Students with A.B. or B.S. degrees are eligible for an accelerated program leading to a general elementary or/and kindergarten-primary credential. The normal requirements for admission to teacher education are the same as for undergraduates. For additional information see the Coordinator of Elementary Education.

JUNIOR HIGH SCHOOL CREDENTIAL WITH THE BACHELOR OF ARTS DEGREE

The junior high school credential is granted with the A.B. degree in teacher education. It is available to students with minors in home economics or industrial arts or in combination with the general elementary or special secondary credential. Students wishing to secure the junior high school credential under conditions other than these should see the Coordinator of Secondary Education for program of study.

PROFESSIONAL CURRICULUM IN TEACHER EDUCATION

One teaching major, in addition to 45 units in general education courses, and one teaching minor are required of all students taking this credential. Students not taking this credential in combination with another credential are required to complete a minimum of 24 units in professional education courses. Students taking this credential in combination with another credential should refer to the section of the catalog entitled: Combination of Credentials.

Teaching Majors and Minors

Teaching majors and teaching minors are offered in the following fields:

Teaching Majors

English
French
General science
German
Mathematics
Romance languages
Spanish
Social science

Teaching Minors

Home economics
Industrial arts
The special secondary field major
when the combination credentials are earned

The program of studies of each of these majors and minors will be found in the section of the catalog on Announcement of Courses and Programs of Study, under the heading of the department offering the major.

Professional Courses in Teacher Education

Professional courses in teacher education include 24 units in the following: Education 100, 110, 120, 121 (methods in the major and minor fields), 180, plus Health Education 151.

SPECIAL SECONDARY CREDENTIAL WITH THE BACHELOR OF ARTS DEGREE

The special secondary school credential is granted with the A.B. degree in teacher education in the following fields:

Major

Art
Business education
Home economics
Industrial arts

Minors

Music
Physical education
Speech arts

The program of studies for each of the majors will be found in the section of the catalog on Announcement of Courses and Programs of Study, under the heading of the department offering the major.

Professional Courses in Teacher Education

Professional courses in teacher education consist of 22 upper division units to include the following: Education 100, 110, 120, 121 (methods in the major), 180, and Health Education 151. Certain of the majors require additional professional education courses. These are listed in each case along with the requirements for the major.

HEALTH AND DEVELOPMENT CREDENTIAL

Courses and field experiences are available which lead to the credential required for employment as a school nurse.

In addition to the general requirements of the State of California for all credentials, applicants for admission to the health and development credential program shall:

1. Verify possession of a current California registered nurse license issued by the State of California.
2. Verify preparation and/or experience under one of the following:
   a. Possession of a bachelor's degree granted by an institution accepted for credentialing purposes by the California State Board of Education.
   b. Completion of a program of college or university study in public health nursing accredited by the National League for Nursing.
   c. Satisfactory full-time service as a school nurse in the schools of California for three years within the five years immediately prior to September 15, 1957.
3. Verify personal qualifications suitable for employment as a school nurse through personal interviews or communications from professional associates.
4. File a Program Planning Sheet and application forms with the Education Division Office.

**CURRICULA LEADING TO HEALTH AND DEVELOPMENT CREDENTIAL**
The candidate shall complete 56 semester units of acceptable preparation. This may be included as part of the preparation presented for the bachelor's degree. Following are listed the areas of preparation outlined by the California State Department of Education and the program of courses which will provide the acceptable preparation:

A. Prevention and control of disease. Health Education 210B, Seminar: Communicable and Non-communicable Disease 3

B. Growth and development of children and youth and the learning process. Education 110, Development and Learning or Education 111, Educational Psychology, plus Education 112 or 113, Development 4

C. Principles and practices of public health nursing. Nursing 125, Public Health Nursing 5

D. Organization, administration, and legal aspects of the school health program. Health Education 153, Administration of the School Health Program 5

E. The nurse in the school health program. Nursing 160, Nursing in School Health Services 3

F. Materials and methods of instruction in health education. Education 121P, Methods in Health Education 2

G. Scope, function, and role of public education. Education 102, Secondary Education 3

H. Counseling and guidance. Education 115, Guidance in Elementary Education, or Education 230, Guidance Problems in Secondary Education 3

I. Mental health. (This area is fulfilled within the above courses.)

J. Supervised field observation. Education 182, Directed Internship 8

**CREDENTIAL TO TEACH EXCEPTIONAL CHILDREN**
The credential to teach exceptional children is available in the following areas of specialization:

A. Speech Correction and Lipreading in Remedial Classes

B. Teaching the Mentally Retarded

**CREDENTIAL REQUIREMENTS**
In addition to the general requirements of the State of California for all credentials, the following are requirements for the credential to teach exceptional children:

1. Possession of, or concurrent application for, a valid kindergarten-primary, general elementary, junior high school, or general secondary credential.
2. Satisfactory completion of interviews for admission to the program for exceptional children.
3. Completion of the work for the general area and the area of specialization as indicated below.

**a. The general areas:**
- Education 170, Exceptional Children
- Education 115 or 210 or Psychology 152, Counseling and Guidance
- Speech Arts 170, Speech Development
- Education 182 or 371, Directed Internship

**Units**
- 3
- 3
- 3
- 4

**Total**
- 13

**b. Area of specialization:**

1. Speech Correction and Lipreading in Remedial Classes:
   - Speech Arts 101, Phonetics 3
   - Speech Arts 174, or Education 174, Principles and Methods of Speech Correction 3
   - Speech Arts 176, Stuttering and Neurological Disorders 3
   - Speech Arts 177, or Education 177, Aural Rehabilitation 3
   - Speech Arts 178, or Education 178, The Teaching of Lipreading 2
   - Speech Arts 179, Clinical Methods in Speech Correction 3
   - Speech Arts 180, Field Work in Clinical Practice in Speech Correction 4-6

**Total**
- 21-23

Grand total
- 34-36

It is strongly recommended that students in the area of speech and hearing therapy obtain as much background in psychology as possible. Suggested courses are:
- Psychology 131, Psychology of Personality (3)
- Psychology 150, Abnormal Psychology (3)
- Psychology 151, Introduction to Clinical Appraisal (3)

2. Teaching the mentally retarded:
   - Education 171, Curriculum and Methods for Mentally Retarded Children 3
   - Art 10 or 110, Crafts in the Elementary School 3
   - Education 172, Workshop for Teaching the Mentally Retarded, meets the requirements for Education 171 and Art 10 or 110 when taken for 6 units 3
   - Psychology 109, Mental Deficiency 3
   - Electives (a minimum of 3 units to be selected in consultation with advisor) 3

**Total**
- 12

By careful scheduling it is possible to earn this credential in either area of specialization concurrently with the basic credential. The student should plan carefully a schedule of studies with the education advisor for the credential if he wishes to finish the credential during the four-year undergraduate period. It may be necessary to attend summer school to achieve this.

**GENERAL SECONDARY CREDENTIAL**

**GENERAL INFORMATION**
A candidate for the general secondary school credential must complete the requirements for an A.B. or B.S. degree with prescribed work in one of the majors and one of the minors listed below, together with the 45 units in general education courses required by this college for the degree.

**CREDENTIAL REQUIREMENTS in General Education**
The general education requirements at this college will satisfy those required for the credential. Students who have received the bachelor's degree from another institution must have earned at least 40 units in general education to include a minimum of six units in each of the following areas: (1) science and mathematics, (2) practical and fine arts, (3) social studies, (4) communicative arts. In addition, all candidates for the credential must complete from 24 to 30 units in a graduate major.

**MAJORS COMMON TO BOTH GENERAL AND SPECIAL SECONDARY CREDENTIALS**
Students desiring a major in art, business education, homemaking education, industrial arts, music, physical education, or speech arts may complete the requirements for the special secondary credential simultaneously with the bachelor's degree, then continue with the graduate program. For further details regarding Programs of Study, refer to the section of the catalog on Announcement of Courses and Programs of Study, under the heading of the department offering the major.
MAJORS AND MINORS FOR THE GENERAL SECONDARY CREDENTIAL

Teaching Majors  
- Art
- Biology and general science
- Business education
- English
- French
- German
- Health education
- Homemaking education
- Industrial arts
- Language arts
- Mathematics
- Music
- Physical education (Men)
- Physical education (Women)
- Physical science and general science
- Psychology
- Romance languages
- Social science
- Spanish
- Speech arts

Teaching Minors  
- Art
- Biology and general science
- Business education
- Economics
- English
- French
- German
- Health education
- History
- Homemaking education
- Industrial arts
- Mathematics
- Music
- Physical education (Men)
- Physical education (Women)
- Physical science and general science
- Psychology
- Romance languages
- Social science
- Spanish
- Speech arts

Persons with majors in broad fields (language arts, life science and general science, physical science and general science, Romance languages, or social science) cannot take a minor within the area of their major.

Requirements in the teaching majors and minors are described under the heading of the department offering the major or minor. Refer to the section of the catalog on Announcements of Courses and Programs of Study.

PROGRAM APPROVAL REQUIRED

Every candidate for the general secondary credential must have a program approved in writing by the department chair and in education as part of admission to the teacher education program.

Any person desiring the general secondary credential should consult with the Director of Secondary Education during his first semester of attendance at San Diego State College.

RECOMMENDED PROGRAM FOR THE GENERAL SECONDARY CREDENTIAL

1. The following courses should be completed before receiving the bachelor's degree: Health Education 151 (may be taken any semester); Education 100 and 221 (should be taken consecutively). Those persons changing from another vocational objective to education during the senior year may take Education 100 and 221 concurrently by special permission of the Coordinator of Secondary Education, following admission to teacher education and a check of the student's qualifications.

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Education 151</td>
<td>3</td>
</tr>
<tr>
<td>Health Education for Secondary Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 100, The Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>Education 110, Development and Learning</td>
<td>3</td>
</tr>
</tbody>
</table>

2. After completion of requirements in (1) above, the following courses may be taken either before or after receiving the bachelor's degree; however, they should be taken concurrently with the first directed teaching assignment unless the student has equivalent teaching experience.

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 120, The Teaching Process</td>
<td>3</td>
</tr>
<tr>
<td>Education 180 or 316, Directed Teaching-Secondary (or equivalent)</td>
<td>3</td>
</tr>
<tr>
<td>Education 121 (methods in field of student teaching assignment)</td>
<td>2-4</td>
</tr>
</tbody>
</table>

3. The graduate work must consist of San Diego State College's standard year of work, 24 to 30 semester units of upper division or graduate work, including the following specific requirements:

   a. At least 12-15 semester units completed at San Diego State College.
   b. At least six upper division or graduate semester units in subject fields commonly taught in junior and senior high schools. Graduate work in the major is recommended when this is a teaching subject area field.

(c) Enough units to complete at least a 21 semester unit minor, with a minimum of six semester units of upper division credit in the minor subject area.

For a statement of requirements in the teaching major and minor fields, refer to the department offering the major or minor, in the section of the catalog on Announcements of Courses and Programs of Study.

4. Professional Education during the graduate year: Completion of the courses listed in (1) and (2) above and the following:

   Education 221 (in the field of the second directed teaching assignment)
   Education 230, Guidance Problems in Secondary Education
   Education 316, Directed Teaching, or equivalent teaching experience

GENERAL PUPIL PERSONNEL SERVICES CREDENTIAL

In addition to the general requirements of the State of California for all credentials, the following are requirements for admission to the general pupil personnel services credential program:

1. Verification of a bachelor's degree granted by an institution accepted for credentialing purposes by the State Board of Education.
2. Verification of two years of successful teaching experience, or an equivalent as stated in Title 5 of the California Administrative Code.
3. Satisfactory completion of at least two interviews with members of the Guidance Studies Committee of the Department of Education.
4. Presentation of a brief professional autobiography including a self-evaluation of potential as a pupil personnel worker.

The program of studies for the credential consists of a minimum of 30 semester hours of postgraduate work consisting of course work and field experiences in a general area and in at least one specialized area. It is possible for students to obtain the credential at San Diego State College in one or more of the following areas of specialization:

1. Pupil counseling
2. Child welfare and attendance
3. School psychology
4. School psychology

Students desiring to meet the requirements as a school psychologist will be required (1) to meet the requirements of the general pupil personnel services credential in school psychology and (2) obtain an additional year of graduate work in school psychology.

Further details on this credential are available in the Education Division Office of the college.

JUNIOR COLLEGE CREDENTIAL

GENERAL INFORMATION

This credential entitles the holder to teach only in a junior college. Most of the professional course work will be offered in the evening program. Most major departments have worked out a combined M.A. degree and junior college credential program that would make it possible to obtain both in a calendar year of graduate work. The admission requirements are the same as those for the general secondary credential.

MAJORS AND MINORS

Recommendation of the candidate for the junior college credential will require a subject matter major equivalent to that required for the appropriate master's degree. Candidates who earn the master's degree from this institution with a subject major will regularly qualify in this respect. Those with a master's or doctor's degree in subjects from another institution will have their work evaluated to determine equivalency.

San Diego State will recommend for the credential only those candidates who have major or subject matter fields for which the college is authorized to grant the master's degree. A list of these majors can be found in the Graduate Bulletin and in the section of this catalog on the Graduate Division.
CURRICULA LEADING TO CREDENTIALS IN ADMINISTRATION AND SUPERVISION

Courses and field experience are available which lead to credentials in elementary and secondary administration and supervision. A selection and admission program is employed to select candidates for these credentials who have the promising background experiences and competencies necessary to enable them to serve in positions of supervision and administration.

GENERAL REQUIREMENTS FOR ADMINISTRATION AND SUPERVISION CREDENTIALS

In addition to the general requirements of the State of California for all credentials the following requirements are common for admission to and completion of all supervision and administration credentials:

1. Maintain a grade point average of 3.00 on all work applied toward the credential, exclusive of courses required for the basic credential.
2. Admission to the program of administrative studies, which includes:
   a. Completion of information on a personal data sheet and the filing of official transcripts of all college work. (Forms and information available in Division of Education Offices.)
   b. Completion of two counseling interviews with resident staff members teaching courses on the level, elementary or secondary, at which the candidate is working. The sequence of courses for the credential will be planned with the candidate at this time.
3. Admission to the program must be completed at any time previously to enrolling in Education 262, 263, 264, 265, 266, 267, and 360.
4. Candidate should not enroll for more than three semester units of 200 numbered courses applied toward the credential during any single semester when he has a full-time teaching position.
5. Candidate must have completed a minimum of two full years of successful teaching experience before he may be admitted to courses in the core subjects, Education 262, 263, 264, 265, 266, 267, and 360.

CURRICULA LEADING TO CREDENTIAL IN ELEMENTARY SCHOOL ADMINISTRATION

In addition to the requirements listed above, the candidate shall:

1. Possess a valid general elementary credential.
2. Present written evidence of two years of successful teaching experience on the elementary level.
3. Complete 30 semester units of upper division or graduate work in addition to the holding of the general elementary credential. These units shall include specific courses designated by the California State Board of Education and San Diego State College.
4. Complete a minimum of 15 units of postgraduate work in residence at San Diego State College.
5. Make formal application for an evaluation for the credential at San Diego State College and at the completion of all requirements, make application for the credential.
BACHELOR OF EDUCATION DEGREE AND THE
GENERAL ELEMENTARY CREDENTIAL

Provisions for the granting of the bachelor of education degree are made in the California Administrative Code, Title 5, Article 7, Section 921, Requirements for this degree are summarized as follows:

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 60 semester units of standard college work acceptable toward the degree, and must hold a California provisional kindergarten-primary or provisional general elementary credential.

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 history, geography, government, and similar fields. Courses must be selected from two or more of these fields. 9 units
     b. Natural sciences
        - Shall include the fields of biology, chemistry, geology, physics, zoology, and similar fields. At least one course must be selected from a physical science and one from a life science. 9 units
     c. Literature, philosophy or the arts
        - Courses in fine and practical arts shall not exceed 6 units. 6 units
    - Courses in general education must meet the grade requirements 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:
     a. Health and physical education
        - Oral and written expression. 2 units
     b. Psychology
        - 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 languages. At least one course in general education must include instruction in fire prevention. 14 units
     c. 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. 15 units

2. Principles and practices of curriculum construction and evaluation:
   - Education 290 (3 units)
3. Measurement and appraisal of educational achievement and aptitudes:
   - Education 120 or 152 (2-4 units)
4. Pupil personnel, counseling and guidance, including techniques and practices of child study and parent education:
   - Education 230 (3 units)

B. Concurrently with or subsequently to teaching experience, graduate or undergraduate training shall include work in the following subject groups, including directed fieldwork of such a nature as to give the applicant first-hand knowledge, or understanding of problems and issues as they exist in the public schools:
1. Federal, state, county and city school organization, administration, and supervision:
   - Education 260 (3 units)
2. Finance, law, business administration:
   - Education 270 (3 units)
3. The organization and administration of secondary schools:
   - Education 263 (3 units)
4. Supervision of instruction and curriculum in the secondary schools:
   - Education 265 (3 units)
5. Directed fieldwork or internship in administration and supervision:
   - Education 267 or 360 (3-6 units)

C. Elective courses in general or professional education to complete 18 units in addition to completing requirements for the general secondary credential.

CURRICULA LEADING TO CREDENTIAL IN SUPERVISION

In addition to the general requirements previously listed for administration and supervision, the candidate shall:
1. Possess a bachelor's degree granted by an institution accepted for credentialing purposes by the California State Board of Education.
2. Present verification of desirable personal characteristics for supervision by two persons who have been associated with the applicant in a school administration or supervisory relationship within the past five years.
3. Present verification in an accredited institution or the chief school administrator of a minimum of five years of successful public school service which the college or school administrator certifies as constituting an adequate basis for supervision. Criteria shall include such items as superior reaching, leadership, efficiency, the ability to work effectively with others, and other traits considered important in the performance of supervisory duties.
4. Complete 24 semester hours of postgraduate work of upper division or graduate level concurrent with or subsequent to public school service. Preparation shall include work in each of the following areas:
   a. Philosophy, methods and materials of the applicant's basic credential field with emphasis on how to help teachers in that field. Education 240 or 254 (3 units)
   b. Techniques of supervision. Education 264 or 265 (3 units)
   c. Dynamics of human behavior, group processes and skills of communication. Education 278 (3 units)
   d. Curriculum development. Education 240 or 250 (3 units)
   e. Community activities, including field practice in agencies especially interested in children and youth. Education 266, 267, or 360 (3 units)
   f. The instructional aspects of school plants and equipment, including planning and utilization. Education 262 or 265 (3 units)
   g. School finance and law. Education 270 (3 units)
   h. The responsibility and relationships of teachers, administrators, supervisors and members of governing boards in the organization of the school system and in the profession. Education 207 or 260 (3 units)

(61)
BACHELOR OF VOCATIONAL EDUCATION DEGREE

ELIGIBILITY

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

GENERAL REQUIREMENTS

The educational program for each applicant shall be determined by the College in terms of the needs of the individual applicant and the standards of the institution. Each applicant for the degree shall have completed, with a grade point average of 2.0 (grade of C) or better, a course of 124 semester units, including the credits recommended by the Board of Examiners, and shall have met the general education requirements prescribed for the bachelor of arts or bachelor of science degree.

The candidate must also meet all institutional requirements prescribed for candidates for other bachelor degrees, including requirements in American history, institutions and ideals, U. S. Constitution, and California state and local government.

THE MAJOR

The credits recommended by the Board of Examiners for Vocational Teachers for the applicant's occupational, managerial and supervisory experience shall be applied toward a major in vocational arts. The vocational teacher training completed by the applicant may be used toward a minor in education or toward electives if some other minor is used.

RESIDENCE

The candidate for this degree must complete a minimum of 24 semester units in residence in this college, at least 12 units of which must be completed among the last 20 semester units counted toward the degree. Credit in summer sessions may be counted on a unit for unit basis toward this requirement.
Announcement of Courses
and
PROGRAMS OF STUDY
COURSE NUMBERS
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 (see section on Admission and Registration for information concerning eligibility to enroll in these courses); those numbered 300 to 399 are professional education courses to be taken at the graduate level.

CREDIT FOR UPPER DIVISION AND GRADUATE COURSES
A student with lower division standing is not eligible to take upper division courses, with the following exceptions: A student in the last semester of his sophomore year who is approaching upper division standing and has the written approval of the chairman of the department and the Dean of the College, or his authorized representative. This written approval must be filed in the Evaluations Office, Administration Building, on the Adjustment of Academic Record form, which may be obtained by the student at the Evaluations Office.

Enrollment and Credit in Graduate Courses
Enrollment in or credit for graduate level (200 numbered) courses is limited to students in regular graduate standing. Permission to enroll in or receive credit for these courses may be granted to unclassified graduates only with consent of instructor and concurrence of the Dean of Graduate Studies. Refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division for further information.

GENERAL EDUCATION COURSES
Course numbers preceded by an asterisk (*) are general education courses which may be applied toward the 45 unit requirement in general education, unless specifically required as part of the major. Refer to the section of the catalog entitled: General Requirements for the Bachelor of Arts and Bachelor of Science Degrees.

UNITS
Figures in parentheses indicate the unit value of the course. One "unit" represents 50 minutes of recitation or lecture, together with the required preparation, or three hours laboratory work or two hours of activities each week for a semester of 18 weeks.

PREREQUISITES
Prerequisites for courses are stated. A student should not enroll in a course for which he is not eligible.

Admission to all 200-numbered courses requires regular graduate standing and consent of instructor.

SEMESTER IN WHICH COURSES ARE OFFERED
Roman numeral I indicates course is offered in fall semester. Roman numeral II indicates course is offered in 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.

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 State Department of Education may not be offered or may be postponed.

**PROGRAMS OFFERED BY THE COLLEGE**

**DEGREES, MAJORS, MINORS, CREDENTIALS, SPECIAL CURRICULA, CERTIFICATES**

<table>
<thead>
<tr>
<th>Summary</th>
<th>Number available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Majors offered for the bachelor's degree</td>
<td>35</td>
</tr>
<tr>
<td>Areas of emphasis within these majors</td>
<td>21</td>
</tr>
<tr>
<td>Majors available with the A.B. degree</td>
<td>40</td>
</tr>
<tr>
<td>Majors available with the B.S. degree</td>
<td>21</td>
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<tr>
<td>Major available with the B.Ed. degree</td>
<td>1</td>
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<tr>
<td>Major available with the B.V.E.D. degree</td>
<td>1</td>
</tr>
<tr>
<td>Minors offered for the bachelor's degree</td>
<td>75</td>
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<tr>
<td>Credentials available in teacher education</td>
<td>18</td>
</tr>
<tr>
<td>Special curricula</td>
<td>8</td>
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<tr>
<td>Certificate (nondegree) programs</td>
<td>3</td>
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<tr>
<td>Major fields offering the master's degree</td>
<td>25</td>
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<tr>
<td>Major fields offering the M.A. degree in liberal arts</td>
<td>16</td>
</tr>
<tr>
<td>Major fields offering the M.A. degree for teaching service</td>
<td>21</td>
</tr>
<tr>
<td>Major fields offering the M.S. degree</td>
<td>8</td>
</tr>
</tbody>
</table>

**MAJORS FOR THE BACHELOR'S DEGREE**

<table>
<thead>
<tr>
<th>Majors</th>
<th>Degrees</th>
<th>Teaching Credentials in Major Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>B.S.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Anthropology</td>
<td>A.B.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Art</td>
<td>A.B.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Banking and finance</td>
<td>B.S.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Biology</td>
<td>A.B.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Botany</td>
<td>B.S.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Business education</td>
<td>A.B.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Business management</td>
<td>B.S.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Chemistry (w or w/o Certificate of American Chemical Society)</td>
<td>A.B.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Economics</td>
<td>B.S.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>Engineering (emphasis in aeronautical, civil, electrical and electronic, industrial, or mechanical)</td>
<td>A.B.</td>
<td>Special secondary; general secondary</td>
</tr>
<tr>
<td>English</td>
<td>A.B.</td>
<td>Junior high school; general secondary</td>
</tr>
<tr>
<td>French</td>
<td>A.B.</td>
<td>Junior high school; general secondary</td>
</tr>
<tr>
<td>General major</td>
<td>A.B.</td>
<td>Junior high school; general secondary</td>
</tr>
<tr>
<td>General science</td>
<td>A.B.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Geography</td>
<td>A.B.</td>
<td>Junior high school</td>
</tr>
<tr>
<td>Geology (emphasis in general physical or economic; paleontology and stratigraphy; or geophysics)</td>
<td>A.B.</td>
<td>Junior high school</td>
</tr>
<tr>
<td>German</td>
<td>A.B.</td>
<td>Junior high school; general secondary</td>
</tr>
<tr>
<td>Health education</td>
<td>B.S.</td>
<td>Junior high school; general secondary</td>
</tr>
<tr>
<td>History</td>
<td>A.B.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Home economics (emphasis in general home economics or food and nutrition)</td>
<td>A.B.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Music</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Music (emphasis in performance, music history and literature; or creative activity and composition)</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Nursing</td>
<td>B.S.</td>
<td>General secondary</td>
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<tr>
<td>Office management</td>
<td>B.S.</td>
<td>General secondary</td>
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<tr>
<td>Personnel management</td>
<td>B.S.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Philosophy</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Physical education</td>
<td>A.B.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Physical science</td>
<td>A.B.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Physics (emphasis in applied physics or electronics)</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Political science</td>
<td>A.B.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Psychology</td>
<td>B.S.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Public administration</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Public personnel management</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Radio and television投注ing (emphasis in production, writing, or business)</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Recreation</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Real estate</td>
<td>B.S.</td>
<td>General secondary</td>
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<tr>
<td>Romance languages</td>
<td>B.S.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Secretarial management</td>
<td>B.S.</td>
<td>General secondary</td>
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<tr>
<td>Social science</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Social welfare</td>
<td>B.S.</td>
<td>General secondary</td>
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<tr>
<td>Sociology</td>
<td>A.B.</td>
<td>General secondary</td>
</tr>
<tr>
<td>Spanish</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Speech arts (emphasis in theatre, broadcasting, public address, or speech correction)</td>
<td>A.B.</td>
<td>General secondary</td>
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<tr>
<td>Vocational arts</td>
<td>B.V.E.D.</td>
<td>General secondary</td>
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<tr>
<td>Zoology</td>
<td>B.S.</td>
<td>General secondary</td>
</tr>
</tbody>
</table>

**SPECIAL CURRICULA AND CERTIFICATES**

- **Preprofessional Curricula**
  - **Military Curriculum**
    - Air science (A.F.R.O.T.C.)

- **Certificate (nondegree) Programs**
  - Certificate in industrial management
  - Certificate in public administration
  - Certificate in public welfare administration

- **Humanities**
  - Certificate in American studies
  - Certificate in European studies
  - Certificate in medical technology

- **Curricula in Broad Field Areas**
  - Certificate in educational administration
  - Certificate in business administration
TEACHING CREDENTIALS

- General elementary
- Kindergarten-primary
- Junior high school
- Special secondary in
  - Art
  - Business education
  - Home economics
  - Industrial arts
  - Music
  - Physical education
  - Speech arts
  - Health and development
  - Teaching exceptional children
  - General secondary
  - General pupil personnel services
  - Junior college
  - Administration in elementary education
  - Administration in secondary education
  - Supervision

MINORS FOR THE BACHELOR’S DEGREE

- Accounting
- Air science
- Anthropology
- Art
- Economics
- Banking and finance
- Biology (offered as biology and general science with the general secondary credential)
- Botany
- Broadcasting
- Business education
- Business management
- Chemistry
- Comparative literature
- Credit management
- Economics
- Education
- Engineering
- English
- French
- General science (with general elementary or kindergarten-primary credential only)
- Geography
- Geology
- German
- Health education
- History
- Home economics (offered as homemaking education with the general secondary credential)

MASTER’S DEGREE

<table>
<thead>
<tr>
<th>Major Fields</th>
<th>Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art</td>
<td>MA, MA(T)</td>
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<tr>
<td>Biology</td>
<td>MA, MS, MA(T)</td>
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<tr>
<td>Business administration</td>
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<tr>
<td>Business education</td>
<td>MA(T)</td>
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<tr>
<td>Chemistry</td>
<td>MA, MA(T)</td>
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<tr>
<td>Economics</td>
<td>MA</td>
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<tr>
<td>Education</td>
<td>MA</td>
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<tr>
<td>English</td>
<td>MA, MA(T)</td>
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<tr>
<td>French</td>
<td>MA</td>
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<tr>
<td>Geography</td>
<td>MA</td>
</tr>
<tr>
<td>Health education</td>
<td>MA(T)</td>
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<tr>
<td>History</td>
<td>MA(T)</td>
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<tr>
<td>Industrial arts</td>
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<tr>
<td>Mathematics</td>
<td>MA, MS, MA(T)</td>
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<tr>
<td>Mechanical engineering</td>
<td>MA</td>
</tr>
<tr>
<td>Music</td>
<td>MA, MA(T)</td>
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<tr>
<td>Personality supervision and training</td>
<td>MA(T)</td>
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<tr>
<td>Physical education</td>
<td>MA(T)</td>
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<td>Physical science</td>
<td>MA</td>
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<td>Physics</td>
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<td>Political science</td>
<td>MA</td>
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<td>Psychology</td>
<td>MA, MA, MA(T)</td>
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<tr>
<td>Public administration</td>
<td>MS</td>
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<td>Romance</td>
<td>MA(T)</td>
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<tr>
<td>Languages</td>
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<tr>
<td>Social science</td>
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<td>Sociology</td>
<td>MA</td>
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<tr>
<td>Spanish</td>
<td>MA, MA(T)</td>
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<tr>
<td>Speech arts</td>
<td>MA, MA(T)</td>
</tr>
</tbody>
</table>

AIR SCIENCE

IN THE DIVISION OF AIR SCIENCE

Faculty
- Professor: Stringer, Lt. Col. Thomas H.
- Associate Professor: Brown, Major Charles E.; Donnelly, Major George W.; Williams, Capt. Jackson B., Jr.

Offered by the Division of Air Science
- ROTC curriculum
- Minor in air science
- Summer Camp
- Flight instruction

AIR FORCE RESERVE OFFICERS’ TRAINING CORPS

The Department and Division of Air Science at San Diego State College offers the curriculum prescribed by the Air Force Reserve Officers’ Training Corps. This curriculum consists of a four-year course, including a two-year lower division course and a two-year upper division course.

The objectives of the Air Force ROTC program are the development of qualities of leadership, character, and professional responsibility, and the training of officers for the Air Force. Completion of the four-year course and a bachelor's degree satisfy the prerequisites for a commission in the Air Force Reserve. Students who have demonstrated doing outstanding qualities of scholarship and leadership are considered for regular commissioning in the Air Force. Air Force ROTC graduates who are physically qualified may make application for the Air Force flight training program.

Flight instruction is offered as a part of the Air Force ROTC program to students in the senior year who are candidates for pilot training. This training includes 30 hours of instruction at a Federal Aviation Agency-approved civilian flying school leading to an FAA private pilot's license. The cost of this program is paid by the U.S. Air Force.

Eligibility for Admission to the Program

Eligibility: A regularly enrolled male student is eligible for admission to the Air Science program if he is a citizen of the United States, not less than 14 years of age, and physically qualified for military service. If a student is not physically qualified for military service, he must complete all requirements for a commission upon graduation prior to reaching age 25 years, 6 months or 28 years if programmed for flight training for the division of lower division courses, and the equivalent curriculum for enrollment in a category for commissioning, course, or portion thereof, may be waived on the basis of two years prior honorably served in the U.S. military service. Portions of the lower division courses may be waived on a year-to-year basis as deemed equivalent to previous training in the Naval ROTC. Waivers may be made in the lower division courses by the service academies or the Army ROTC, but not in the major field of study. All applicants must pass required screening tests and be selected by the Professor of Air Science, Air Force and the President of the College.

Summer Camp

Attendance is required of each student to qualify for the commission. The camp is four weeks in length and is held at the Air Force base. The student receives $78 per month during this training period. Uniforms, equipment, subsistence, and transportation are furnished by the Air Force.
Allowances

Students in the lower and upper division courses are furnished uniforms, equipment, and textbooks for air science. Students in the upper division course are given an allowance of approximately $27 per month. Upon acceptance into the upper division program, the student executes a written agreement with the United States Government and with the President of the College to complete the upper division course, completion of such course becoming a prerequisite to graduation.

Lower and Upper Division Courses

The lower division course requires one hour of leadership laboratory per week, each semester and two hours of classroom instruction during the second freshman, sophomore, and the first sophomore semester. The upper division course requires four hours of classroom instruction and one hour of leadership laboratory per week, each semester. In addition, each student in the upper division course must attend one summer camp of four weeks. The lower division course is primarily an education for citizenship in the air age. The upper division course prepares the student to assume the duties and responsibilities of junior officers in the U. S. Air Force.

Students enrolled in the AFROTC program pursue their regular courses of study in fields of their choice. Major work is not offered in air science, but a major is offered or may be used as one of the fields for a general major.

MINOR IN AIR SCIENCE

The minor in air science consists of 15 to 22 units in air science, seven units of which must be in upper division courses.

LOWER DIVISION COURSES

1. Leadership Laboratory (1) I
   One hour of Leadership Laboratory.

2. Foundations of Aerospace Power (2) II
   Two lectures and one hour of Leadership Laboratory.

3. Foundations of Aerospace Power II (2) I
   Two lectures and one hour of Leadership Laboratory.

4. Leadership Laboratory (1) II
   One hour of Leadership Laboratory.

UPPER DIVISION COURSES

131A-131B. Leadership Principles and Practices (3-3)
Four hours lecture and one hour of leadership laboratory.
Prerequisites: Air Science 21A and 21B.
Introduces principles of leadership and employment of communication theory relevant to leadership; concentrates on important behavior skills basic to leader performance with provision for practice and development in a realistic problem situation. Two units of general education credit will be allowed for 131A.

X-135. Summer Training Camp (3)
A four-week camp required of all advanced students; normally completed between junior and senior year. Credit granted through the Extension Division on basis of individual student application with approval of the Professor of Air Science.

ANTHROPOLOGY

141A-141B. Global Relations (3-3)
Four hours lecture and one hour of leadership laboratory.
Prerequisites: Air Science 131A and 131B.
A study of global relationships with attention to such aspects as weather, navigation, world political geography, and international relations, preparing the Air Force officer for active duty. Not open to students with credit for Geography 150.

151. Flight Instruction (2) I
Prerequisite: Available only to fourth year AFROTC pilot trainee students.
Flight instruction is provided in civilian aircraft to qualify students in basic principles of contact flying and ground instruction in order to qualify for Federal Aviation Agency private pilot certificate.

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

ANTHROPOLOGY

IN THE DIVISION OF SOCIAL SCIENCES

Faculty
Professor: Rogers, S.
Associate Professor: Ezell

Offered by the Department of Sociology-Anthropology
Major in anthropology with the A.B. degree.
Minor in anthropology.

MAJOR IN ANTHROPOLOGY WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. Students majoring in anthropology are required to complete a minor approved by the major advisor.

Lower Division Requirements. Anthropology 1, 2, and 3.

Upper Division Requirements. A minimum of 24 upper division units in anthropology to include Anthropology 102, 103, 152, 154, and 156.
Supporting courses in a field of emphasis should be chosen from the following groups:

Archaeology: Art, geography, geology, history.
Physical Anthropology: Psychology, statistics, zoology.
Museum Work: Art, education, psychology.
Ethnology and social anthropology: History, languages, psychology, political science, social sciences.

MINOR IN ANTHROPOLOGY

The minor in anthropology consists of 15 to 22 units in anthropology, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

1. Human Origins (1) I, II
Man's place in nature; fossil evidences of early man; theories of human development; racial variability. A general education course in the social sciences.

2. Culture Origins (5) I, II
Prehistoric cultures of Europe and the Middle East; archaeological techniques; basic inventions and cultural innovations; language and culture. A general education course in the social sciences. May be taken before Anthropology 1.

3. Primitive Societies (3) I
Man's relationship to his environment; types of preliterate society; systems of family organization, government and religion. A general education course in the social sciences. May be taken before Anthropology 1 or 2.
UPPER DIVISION COURSES

160. Physical Anthropology (3) I
Prerequisite: Anthropology 1.

163. Principles of Archaeology (3) II
Prerequisite: Anthropology 2.
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.

151A. The North American Indian (3) I
Prerequisite: Anthropology 2 or consent of instructor.
Pre-Columbian cultures of the North American Indian. The origin and migration of New World peoples. Industries, arts, crafts, social organization, religion and other phases of American Indian civilization.

151B. Indian Civilization of Middle America (3) II
The development of civilization in Pre-Columbian Mexico and Central America. Aztec, Mayan, and related cultures.

152. World Ethnography (3) I
Prerequisite: Anthropology 2 or 3, or Sociology 1.
The cultural patterns of representative aboriginal peoples. Industries, arts, social organization and supernaturalism considered with a view to environmental adjustment, historical development and functional interrelations. Ethnological theories reviewed and applied in interpreting illustrative aboriginal societies. A general education course in the social sciences.

153. Primitive Religion (3) II

154. Social Anthropology (3) I
Prerequisite: Anthropology 2 or 3, or Sociology 1.
A study of the methods and findings in some of the major problem areas of anthropology. Cross-cultural comparisons, the integration of culture, relation to personality, acculturation and analysis of cultural changes. A general education course in the social sciences.

156. Cultural Change and Processes (3) I
Prerequisite: Anthropology 1 or 2.
The individual and the culture pattern: the acquisition of culture, innovation and invention, direction of cultural development, diffusion and interpenetration of cultures. Illustrations from contemporary and historic peoples: Indians of the Southwest, Eskimos, aboriginal groups of Australia, Africa and Oceania.

161. The California Indian (3)
A survey of native California Indian culture with stress on the Indian groups of Southern California. The industries, arts, social organization, folklore and religion will be considered as revealed through the study of living peoples and archaeological evidences.

162. Cultures of South America (3) II
Prerequisite: Anthropology 2 or 3.
Survey of Indian cultures in terms of origins, migration, relation to habitat, cultural variation and relevance to contemporary trends. Development of Incas civilization, the effects of the Spanish conquest, and its aftermath.

163. Physical and Cultural Backgrounds of Personality (3) I
Prerequisite: Anthropology 1 or Sociology 1.
Race and culture; variation in human structure and function; variation and patterning of culture; relation to personality; physical and cultural factors in personality formation; history and current problems of this area. (Formerly offered under the title: Ethnology and Race Psychology.)

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

ART

167. History of Anthropological Theory (3) I
Prerequisites: Anthropology 1, 2, or 3.
A review of the development of theories which lie behind the modern sciences of ethnology and archaeology. Applications of the theory of culture to field methods and interpretation of findings.

169-S. 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.

172. Indian Cultures of the Southwest (3) II
Prerequisites: Anthropology 2 or 3, or consent of instructor.
Indian cultures of the past and present in the Southwestern states. Arts, crafts, architecture and religion as revealed through archaeology and ethnology.

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

ART IN THE DIVISION OF FINE ARTS

Faculty
Professors: Jackson (Chairman); Sorensen, Swiggett
Associate Professors: Dirks; Ruocco
Assistant Professors: Bigelow, Bowren, Lingren, Longenecker, Tanzer; Wallace

Offered by the Department
Master of arts degree with a major in art.
Master of arts degree for teaching service with a concentration in art.
Major in art with the A.B. degree.
Minor in art.

Teaching major in art with the A.B. degree and special secondary credential.
Teaching major in art leading to the general secondary credential in the postgraduate year.

THE MASTER'S DEGREE

The master of arts degree with a major in art and the master of arts degree for teaching service with a concentration in art are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJOR IN ART WITH A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. Students majoring in art are not required to complete a minor for the bachelor's degree.

The major in art may be planned with an emphasis on crafts or on graphic arts. The program with emphasis on crafts leads in the direction of industrial design, interior design, cabinet making, sculpture, weaving, textile design, ceramics, etc. The program with emphasis on graphic arts leads in the direction of illustration, portraiture, landscape painting, mural design, poster design, production illustration, advertising design, fashion design, etc. The student must complete the basic requirements plus the requirements in the selected field of emphasis.

Basic Requirements for All Students

All art majors must complete the following courses: Art A, B, 6A, 6B, 14A, 30, and 52. In addition to these courses, the student must complete the requirements in one of the fields of emphasis listed below.

Emphasis on Crafts

In addition to the basic requirements, the student emphasizing crafts must complete the following courses:

Lower Division Requirements. Art 7, 13, 61B, and two units of art electives.
Upper Division Requirements. A minimum of 24 upper-division units to include Art 166A, 111A, 113; four units selected from Art 117, 119A, 119B, 150, and eight units of upper division art electives.
Emphasis on Graphic Arts

In addition to the basic requirements, the student emphasizing graphic arts must complete the following courses:

Lower Division Requirements.  Art 15A, 16A, and four units of art electives.

Upper Division Requirements.  A minimum of 24 upper division units to include Art 106A, 112A, 112B; four units of 115; four units of 116; two units of 117, 118; and six units of upper division art electives.

MINOR IN ART

The minor in art consists of 15 to 22 units in art, six units of which must be in upper division courses.

TEACHING MAJOR IN ART WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) a teaching major in art and (2) the additional professional courses in teacher education. A minor is not required for the degree. For additional information on the credential, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major in Art

Lower Division Requirements.  Art A, B, 6A, 6B, 14A, 50, 5 or 51, 61A, 61B, and six to eight units of art electives (24-26 units).


Professional Courses in Teacher Education

In addition to the teaching major in art, the student must complete 24 upper division units of professional courses in teacher education to include Education 100, 110, 120, 121A, 130B, 180, and Health Education 151.

TEACHING MAJOR IN ART FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major.  The teaching major in art may be completed in one of the following ways:

1. By completing the special secondary credential in art with the A.B. degree and the additional courses required in the postgraduate year.

2. By completing the art major for the A.B. degree (without the special secondary credential), to include the following courses: Art 61A, 61B, 106A, 112A, 116, 119A, 194A, 195A, Speech Arts 150A; and completing the required postgraduate year.

Postgraduate Year.  In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include six units of 200-numbered courses in art to be approved by the departmental adviser.

Teaching Minor.  In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

TEACHING MINOR IN ART FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in art for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units, exclusive of course equivalents, to include, in the lower division, Art A, B, 6A, 6B, 50, 5 or 51, and three units of art electives (Art 14A is recommended); and in the upper division, Art 150 and four upper division units of art electives.

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 study of art and art appreciation. However, due to the erroneous 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 hope to acquire any of the art skills, the following courses are recommended:

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 5, Art Orientation</td>
</tr>
<tr>
<td>Art 50, History and Appreciation of Art</td>
</tr>
<tr>
<td>Art 51, Survey of Art of the Middle Ages</td>
</tr>
<tr>
<td>Art 52A-52B, Survey of Oriental Art</td>
</tr>
<tr>
<td>Art 8, Costume and House Furnishings</td>
</tr>
</tbody>
</table>

Other courses which require certain skills but which are not beyond the ability of the average college student are:

- Art 61B, Crafts | 2 |
- Art 6A, Design | 2 |
- Art A, Drawing and Composition | 2 |
- Art 94, Costume design | 2 |

LOWER DIVISION COURSES

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. (High school equivalent may excuse the student from this course.) A general education course in literature, philosophy, and the arts.

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 sketches, gesture and contour drawing. A general education course in literature, philosophy, and the arts.

5. Art Orientation (2) II

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. A general education course in literature, philosophy, and the arts. (Formerly offered as Aesthetics 5. Not open to students with credit in this course.)

6A. Design (2) I, II

Five hours. No prerequisite. Fundamentals of design and composition and theory of color. Basic course used as a prerequisite for all advanced work. A general education course in literature, philosophy, and the arts. Not open to students with credit for Art 9.

6B. Design (2) I, II

Five hours. Prerequisite: Art 6A. Original work in creative design and representation with special stress on modern tendencies.

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.) This course is not open to students with credit for Bus. Adm. 159 or Art 107.
8. Costume and House Furnishings (2) I, II
Two lectures. No prerequisite.
An appreciative study of modern architecture and modern house furnishings, with emphasis on the spirit of gracious living and an appreciative study of the modern dress with emphasis on suitability to the figure, the personality and the occasion. A general education course in literature, philosophy, and the arts.

9. Design for Teachers (3) I, II
Six hours. No prerequisite.
A fundamental course in design introducing students to the aesthetic use of color and spacing and including those special skills and the handling of those materials required for teaching in the elementary schools. Not open to students with credit for Art 6A or 6B.

10. Crafts in the Elementary Schools (3) I, II
Six hours.
Prerequisite: Art 9. A basic craft course approached from the creative viewpoint and employing the techniques, materials, and tools appropriate for the elementary grades. Not open to students with credit for Art 61A, 110, or 161A.

11. Furniture Design (2) I, II
Six hours.
Prerequisite: Art 6A.
Study of the principles of design through the making of furniture. A general education course in literature, philosophy, and the arts. (Formerly Art 6D.)

14A. Lettering (2) I
Six hours.
Prerequisite: Art 6A.
Fundamental art principles applied to lettering. Practice for quick, accurate lettering; original problems using letters as design.

14B. Posters and Commercial Art (2) 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.

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 or consent of instructor.
Composition of still life and landscape in color. A general education course in literature, philosophy, and the arts.

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 6B or consent of instructor.
Creative design in such materials as clay, wood, stone, concrete, etc.

17B. Sculpture (2) I, II
Six hours.
Prerequisite: Art 6B or consent of instructor.
Continuation of Art 17A.

118A. Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 18A or consent of instructor.
Composition of still life and landscape in watercolor. A general education course in literature, philosophy, and the arts.

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

19. Appreciation and History of Art (2) I
Two lectures. No prerequisite.
A survey of art development in painting, sculpture, architecture, and handicrafts from the dawn of art to the Renaissance. Illustrated. A general education course in literature, philosophy, and the arts. (Formerly offered as Aesthetics 50. Not open to students with credit in this course.)

31. Survey of Art of the Middle Ages (2) I
Two lectures. No prerequisite.
A study of Mexican and Middle American art from earliest time to the present. A general education course in literature, philosophy, and the arts. (Formerly offered as Aesthetics 51, Survey of Mexican Art. Not open to students with credit in this course.)

32A-32B. Survey of Oriental Art (3-5)
Three lectures.
Prerequisite: Art 52A is a prerequisite for 52B.
A study of the art of the great cultures of the Orient. A general education course in literature, philosophy, and the arts. (Formerly offered as Aesthetics 52A-52B. Not open to students with credit in this course.)

61A. Crafts (2) I, II
Five hours.
Prerequisite: Art 6A.
A foundation course which develops unification of work on the elementary school level; includes work with clay; lumber and tools, textiles, and cardboard construction. Designed for special secondary art majors and recreation majors. Not open to students with credit in Art 10, 110, or 161A.

61B. Crafts (2) I, II
Five hours.
Prerequisite: Art 6A.
Problems involving the application of design principles to various fields—pottery, textiles, weaving, metal work, wood carving, and bookbinding.

94A. Costume Design (2) I, II
Six hours.
Prerequisite: Art 6A.
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. Interior Design (2) I, II
Six hours.
Prerequisites: Art A and 6A.
The consideration of the house as a unit; the arrangement of garden, house, floor plan and furniture as functional and decorative problems.

95B. Interior Design (2) I, II
Six hours.
Prerequisite: Art 95A.
Continuation of Art 95A.
ART

114B. Advanced Advertising Design (2) II
Six hours.
Prerequisite: Art 114A.
Advanced study with emphasis on the development of a portfolio of advertising design samples by the individual student.

115. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 6B.
Drawing and painting from nude and costume models. May be repeated to a maximum of eight units.

116. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 16A or 16B.
Painting in oils from still life, landscape, or models, stressing composition. May be repeated once for credit.

117. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 6B and 17A or 17B.
Creative design in such materials as clay, wood, stone, concrete, etc. May be repeated once for credit.

119A. Ceramics (2) I
Six hours.
Prerequisite: Art 6A.
Building of pottery on the basic techniques of coil, slab, mold making, and slip casting. Ceramic sculpture, glazing and kiln operations.

119B. Ceramics (2) II
Six hours.
Prerequisite: Art 119A.
Study of glazes and elementary clay technology. Mold making, slip casting with application to individual creative problems.

119C. Ceramics (2) II
Six hours.
Prerequisite: Art 119B.
Continuation of Art 119B.

120A. Advanced Design (2) I, II
Six hours.
Prerequisites: Art B and 6B.
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.
Prerequisite: Art 120A.
Continuation of Art 120A.

120P. Appreciation and History of Art (2) II
Two lectures. No prerequisite.
The period from the Renaissance through the modern school treated in the same manner as in Art 50. A general education course in literature, philosophy, and the arts. (Formerly offered as Aesthetics 150. Not open to students with credit in this course.)

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

175. Problems in Art for Teachers (1-3) I, II, Summer
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.

194A. Costume Design (2) I, II
Six hours.
Prerequisite: Art 6A.
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 A and 6A.
The concept of the house as a unit; the arrangement of garden, house, floor plan and furniture as functional and decorative problems.

195B. Interior Design (2) I, II
Six hours.
Prerequisite: Art 195A.
Continuation of Art 195A.

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

GRADUATE COURSES

216. Seminar in Creative Painting (3)
Prerequisites: Art 112A, 112B and two units of Art 116; or four units of Art 112A in oils. May be repeated to a maximum of six units.

217. Seminar in Creative Sculpture (3)
Prerequisites: Four units in Art 117.
Aesthetic organization of selected subject matter in the medium of sculpture. May be repeated to a maximum of six units.

219. Seminar in Creative Crafts (3)
Prerequisites: Six units completed in upper division courses in sculpture or ceramics or a combination of the two subjects.
Advanced creative work in selected craft media. May be repeated to a maximum of six units.

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.

292A-292B. Seminar in Art History (3-3)
Prerequisites: Art 50 and 150 or equivalents.
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)
Prerequisite: A semester course in art appreciation.
An intensive study of the activity of creative expression and aesthetic appreciation in the area of visual experience. The aesthetic analysis of original works of art.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the instructor, to be arranged with department chairman and the instructor.

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

ASTRONOMY

IN THE DIVISION OF PHYSICAL SCIENCES

Faculty
Professor: Smith, C. E. (Chairman, Astronomy-Physical Science)
Assistant Professor: Silverman
Lecturer: Krieger

Offered by the Department of Astronomy-Physical Science

A minor is offered in astronomy.

A course work is not offered in astronomy. Students desiring to prepare for advanced work in astronomy should include the following courses: Astronomy 1, 2, 9, 10, Mathematics 50, 51, 52; Physics 4A-4B-4C; a reading knowledge of French and German.

Interested students can very well prepare themselves for careers in the new science of astrophysics, or the field of astrophysics, by combining a minor in astronomy with major work in mathematics and/or physics, possibly including also upper division chemistry courses.

MINOR IN ASTRONOMY

The minor in astronomy consists of 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
A cultural course planned to develop an appreciation of astronomy with emphasis on the solar system. Attention is given to the effects by which astronomical knowledge has been gained. A six-inch refractor and other telescopes are available for observation. A physical science course in general education in the area of the natural sciences.

2. Modern Astronomy (3) II
Prerequisite: Astronomy 1 or consent of instructor.
A study of the stellar system in the light of modern research, especially photographic and spectrographic. A physical science course in general education in the area of the natural sciences.

3. Practice in Observing (1) I, II
A three hours of laboratory.
Requisites: Astronomy 1 or concurrent registration in Astronomy 1 or Physical Science 1 or 5.
A course designed to supplement Astronomy 1. The course will include observation studies, use of astronomical co-ordinates, and descriptive observations of celestial objects with telescopes. This is a physical science course in general education in the area of the natural sciences. Meets the laboratory requirement in general education.

4. Advanced Observational Astronomy (1) II
Three hours of laboratory.
Prerequisite: Astronomy 9.
A continuation of Astronomy 9. More advanced problems in observation will be taken up such as the determination of latitude by observations of Polaris, transit observations, astronomical photography, etc.

5. Elementary Navigation (3) I
Three hours of laboratory.
Prerequisites: Astronomy 1 and 9 are desirable.
A study of compass corrections, time, line of position, use of celestial co-ordinates, etc. A few class hours devoted the use of tables such as H.O. 214 for the solution of astronomical triangles.

UPPER DIVISION COURSES

162. Astronomical Optics (2) II
Two lectures and three hours of laboratory.
Prerequisites: Astronomy 1 or Physics 4C or 2B and 3B.
Theory and applications of optical instruments used in astronomy. In the laboratory the students are required to complete an approved project in optical instrumentation.

164A-164B. Practical Astronomy (3-3)
Two lectures and three hours of laboratory.
Prerequisites: Astronomy 1 and 9 and credit or concurrent registration in Mathematics 51, 104A is a prerequisite for 164B.
Determination of latitude, longitude, time. Study of methods of reduction of photographic plates. Study of precession, nutation, proper motion, refraction and adjustment of equatorial telescope.
BIOLOGY

**Major in Biology with the A.B. Degree**

Lower Division Requirements. Biology 3 and 11; Botany 50 and 51; Zoology 50 and 51; Chemistry 2A-2B; and Physics 2A-2B.

Upper Division Requirements. Twenty-seven upper division units in biology, botany, microbiology, and zoology to include the following: Biology 101, 110, 111, 116; Microbiology 101; and eight units of upper division electives to be selected with approval of the adviser.

**Major in Biology with the B.S. Degree**

Lower Division Requirements. Biology 3 and 11; Botany 50 and 51; Zoology 50 and 51; Chemistry 2A-2B; Physics 2A-2B.

Upper Division Requirements. A minimum of 36 upper division units in biology, botany, microbiology, and zoology to include the following: Biology 101, 110, 115, 116; Microbiology 101; the remaining units to be selected with approval of the adviser.

**TEACHING MAJOR IN BIOLOGY AND GENERAL SCIENCE FOR THE GENERAL SECONDARY CERTIFICATE**

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

**Teaching Major.** The teaching major in biology and general science may be used as a biology major for the bachelor's degree by students who have been admitted to the general secondary credential program in teacher education.

Lower Division Requirements. Biology 3 and 11; Botany 50 and 51; Zoology 50 and 51; Chemistry 2A-2B; Physics 2A-2B (or with the approval of the departmental adviser, high school physics and college courses in Geology 2 and Physical Science 1).

Upper Division Requirements. Twenty-seven upper division units to include Biology 101, 110, 115, 161, Microbiology 101, and eight units to be selected with approval of the adviser.

**Postgraduate Year.** In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include at least four units of 200-numbered courses which may be met by two biology seminars or by one biology seminar and two units of Botany 298 or Zoology 298. All courses must be selected with approval of the departmental adviser.

**Teaching Minor.** The undergraduate program in the teaching minor in biology and general science leading to the general secondary credential in the postgraduate year.

Teaching minor in biology and general science for the general secondary credential.

Curricula in the biological sciences which prepare for the fields of entomology, fish and game, plant quarantine, and wildlife.

**THE MASTER'S DEGREE**

The master of arts degree with a major in biology, the master of arts degree for teaching service with a concentration in biology, and the master of science degree in applied biology are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

**MAJORS FOR THE BACHELOR'S DEGREE**

Courses in the biology major are in addition to 45 units in general education courses, except that 12 units of lower division courses in the natural sciences may be counted in general education. Students majoring in biology are not required to complete a minor for the bachelor's degree.
THE MASTER'S DEGREE

The master of arts degree with a major in biology and an emphasis in botany, the master of arts degree for teaching service with a concentration in biology, and the master of science degree in applied biology are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

Courses in the major are in addition to 45 units in general education courses, except that nine units in the natural sciences may be counted in general education. A minor is not required of botany majors for the bachelor's degree.

Major in Botany With the A.B. Degree

Lower Division Requirements. Biology 5, or 3 and 4; Biology 15; Botany 50 and 51; and Chemistry 1A-1B or 2A-2B. Recommended: German, French, or Spanish, Microbiology 1 or 101, and Geology 1A-1B or 2 and 3.

Upper Division Requirements. A minimum of 24 upper division units, at least 18 of which must be in botany and biology, to include Botany 107 and 114, and six units of which may be in core courses selected from microbiology, chemistry, geology, and zoology, with approval of the departmental adviser.

Major in Botany With the B.S. Degree

Lower Division Requirements. Biology 5, or 3 and 4; Biology 15; Botany 50 and 51; and Chemistry 1A-1B or 2A-2B. Recommended: German, French, or Spanish, Microbiology 1 or 101, and Geology 1A-1B or 2 and 3.

Upper Division Requirements. A minimum of 36 upper division units in botany and related fields, selected with approval of the adviser, to include Botany 107, 114, and Biology 155. Chemistry 101A and Biology 161 are strongly recommended.

MINOR IN BOTANY

The minor in botany consists of 15 to 22 units in botany, six units of which must be in upper division courses.

LOWER DIVISION COURSES

Nonvascular Plants (4) I
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
The development and phylogenetic relationships of the algae and fungi. (Formerly Botany 101A.)

Vascular Plants (4) I
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
The structure, development and phylogenetic relationships of the Bryophytes and vascular plants. (Formerly Botany 101B.)

UPPER DIVISION COURSES

Mycology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Botany 50 or consent of instructor.
The structure, food relations, and classification of fungi.

Plant Anatomy (4) I
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
The arrangement of structural elements within plant organs, with emphasis on cell and tissue types.

Plant Physiology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 or consent of instructor, and Chemistry 2A-2B.
The activities of plants, including food manufacture, absorption, conduction, transpiration, respiration, growth and movement.
112. Cultivated Trees and Shrubs (3) I
One lecture and six hours of laboratory and field work.
Prerequisite: Biology 5. 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.
Prerequisite: Biology 5. Botany 102 is recommended.
Kinds, relationships, systematic arrangement, and geographical distribution of vascular plants; collection and identification.

119-S. Field Botany (4) Summer
Two units of lecture and two units 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: Botany 99, 101, and 102.
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.

162. Agricultural Botany (2) II
Field trips to be arranged.
Prerequisite: Botany 5.
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.

199. 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.

GRADUATE COURSES

290. Bibliography (1) (Offered as Biology 290)

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

299. Thesis or Project (3) I, II
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 DIVISION OF BUSINESS ADMINISTRATION

Offered by the Division
Master of science degree in business administration with concentrations available in six areas.
Master of arts degree for teaching service with a concentration in business education.
Majors and minors for the bachelor's degree offered by five departments, as listed below.
Teaching majors and a teaching minor for credentials offered by the Department of Business Education, as listed below.
Certificate (nondegree) in industrial management, offered by the Department of Management.

Bureau of Business and Economic Research
Accredited by the American Association of Collegiate Schools of Business.

DEPARTMENTS

Department of Accounting
Major in accounting with the B.S. degree.
Minor in accounting.

Department of Business Law, Real Estate, and Insurance
Majors with the B.S. degree in the following:

- insurance
- real estate

Minors in the following:

- insurance
- real estate

Department of Management
Majors with the B.S. degree in the following:

- banking and finance
- business management
- industrial management
- personnel management

Minors in the following:

- banking and finance
- business management

Certificate (nondegree) in industrial management.

Department of Marketing
Major in marketing with the B.S. degree.
Minor in marketing.

Department of Business Education
Majors with the B.S. degree in the following:

- business education
- office management
- secretarial management

Minors in the following:

- business education
- secretarial management

Teaching major in business education with the A.B. degree and special secondary credential.

Teaching major in business education leading to the general secondary credential in the postgraduate year.

Teaching minor in business education for the general secondary credential.

THE MASTER'S DEGREE

The master of arts degree for teaching service with a concentration in business education and the master of science degree in business administration with concentrations in six areas are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is an organized research activity serving the needs of the Division of Business Administration and the Department of Economics. Operationally, it is a part of the Division of Business Administration, with a director and a policy committee. Fiscal matters are co-ordinated through the San Diego State College Foundation. The principal objectives of the bureau are to: (1) conduct research in the areas of economics and business, with special reference to local and regional problems; (2) facilitate research in these areas by the faculty and students; (3) seek co-operative arrangements with outside individuals and organizations for conducting specific research projects; (4) compile local and regional data; (5) publish the results of bureau research investigations and assist the faculty in publication of their research.
DEPARTMENT OF ACCOUNTING

Faculty
Professors: Brown, E.; Lamden; Odmark; Wright (Chairman)
Assistant Professors: Broshar; Dodds; Ferrell; Robinson, W.; Smadden; Williamson
Lecturers: Cole; Harrmeyer; Kronemeyer; Miller

Major in Accounting With the B.S. Degree
The accounting major is offered with the B.S. degree. Courses in the major are in addition to 45 units in general education courses. Students majoring in accounting are not required to complete a minor for the bachelor's degree.

Lower Division Requirements. Business Administration 1A-1B, 2, 30A-30B, 81, and Economics 1A-1B.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 100, 101, 102, 106, 131 or Economics 135, Business Administration 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175; Economics 102, 111, 131, 132, 142, 147, 170, 171, 172, and 190. In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

Minor in Accounting
The minor in accounting is offered to students who are not business administration majors. The minor consists of 15 to 22 units in accounting, of which Business Administration 1A-1B and 100 must be included. A total of nine units must be in upper division courses.

DEPARTMENT OF BUSINESS LAW, REAL ESTATE, AND INSURANCE

Faculty
Associate Professor: Catlett (Chairman)
Assistant Professors: Chapman; Hipkiss; Reznikoff
Lecturers: Eldredge; Rink

MAJORS FOR THE BACHELOR'S DEGREE

Major in Insurance With the B.S. Degree
The major in insurance and real estate is offered with the B.S. degree. Courses in the major are in addition to 45 units in general education courses. Students taking these majors are not required to complete a minor for the bachelor's degree.

Lower Division Requirements. Business Administration 1A-1B, 2, 30A-30B, 81, and Economics 1A-1B.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 120, 121, 124, 125, 131 or Economics 135, Business Administration 134, 135, 136, 137, 138, 139, 140, 141, 171, and 185. In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

Major in Real Estate With the B.S. Degree
The major in real estate is offered primarily for the student desiring to acquire a core of essential knowledge of the principles of real estate and urban land use general business. The student in the Division of Business Administration seeks a career in real estate development, land management, real estate finance, insurance, science, sociology, and other areas so as to develop a broad educational background in this field of study.

Lower Division Requirements. Business Administration 1A-1B, 2, 30A-30B, 81, and Economics 1A-1B.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 131 or Economics 135, Business Administration 134, 136, 137, 138, 139; and six units selected from Business Administration 100, 106, 107, 121, 124, 153, 157, 172, 175; Economics 127, 142, 187; and Political Science 160 (this latter course being recommended as a part of the six units for most majors). In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

MINORS

Insurance. A minor in insurance is offered to students who are not business administration majors. Students desiring this minor will include Business Administration 1A-1B, 30A-30B, and nine upper division units which must include Business Administration 120 and either Business Administration 121 or 124.

Real Estate. A minor in real estate is offered to students who are not business administration majors. To minor in real estate a student is required to complete a minimum of 21 units, including Business Administration 1A-1B, 30A-30B, and nine upper division units which must include Business Administration 170 and six units to be selected with the approval of the advisor in real estate.

DEPARTMENT OF MANAGEMENT

Faculty
Professors: Belcher (Chairman); Torbert
Associate Professors: Galliart; Peters, L. H.; Pierson; Robinson, W.; Schoof
Lecturers: Lovell; McGuire; Terrel

MAJORS FOR THE BACHELOR'S DEGREE

The majors in management are offered with the B.S. degree. Courses in the major are in addition to 45 units in general education courses. Students taking these management majors are not required to complete a minor for the bachelor's degree.

Lower Division Requirements. Business Administration 1A-1B, 2, 30A-30B, 81, and Economics 1A-1B.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 101, 134, 135, 136, 140; and 15 units selected from Business Administration 120, 121, 128, 129, 141, 143, 144, 145, 170, 171, 172, 173, 174, 175; Economics 102, 111, 131, 132, 142, 147, 170, 171, 172, and 190. In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

Major in Business Management With the B.S. Degree

Lower Division Requirements. Business Administration 1A-1B, 2, 30A-30B, 81, and Economics 1A-1B.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 100, 101, 134, 135, 136, 140; and 15 units selected from Business Administration 120, 121, 128, 129, 141, 143, 144, 145, 146, 153, 155, 161, 170, 171, 172, 173, 174, 175; Economics 100A, 100B, 111, 131, 135, 138, 142, 150, 151, and 170. In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

MAJOR IN INDUSTRIAL MANAGEMENT WITH THE B.S. DEGREE

Lower Division Requirements. Business Administration 1A-1B, 2, 30A-30B, 81, Engineering 1 and 23, Economics 1A-1B, and Mathematics 1A-1B.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 102, 131 or Economics 135, Business Administration 134, 135, 140, 144, 150, Economics 140; and six units selected from Business Administration 120, 121, 128, 130A, 130B, 131, 133, 135, 138, 141, 142, 143, 145, 146, 153, 155, 161, 170, 171, 172, 173, 174, 175; Economics 100A, 100B, 111, 131, 135, 138, 142, 150, 151, 170. In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.
MINORS IN MANAGEMENT

Banking and Finance. A minor in banking and finance is offered to students who must include Business Administration 1A-1B, Economics 1A-1B, and Business Administration 134, and Economics 135.

Business Management. A minor in business management is offered to students who must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 134 and six additional units of upper division courses approved by the adviser in this field.

Credit Management. A minor in credit management is offered to students who must complete 15 to 22 units including Business Administration 1A-1B, 30A-30B, and three additional units of upper division courses approved by an adviser in this field.

Industrial Management. A minor in industrial management is offered to students who must complete 15 to 22 units including Business Administration 1A-1B, 30A-30B, and six additional units of upper division courses approved by an adviser in this field.

PERSONNEL MANAGEMENT. A minor in personnel management is offered to students who must complete 15 to 22 units including Business Administration 1A-1B, 134, and six additional units of upper division courses approved by an adviser in this field.

CERTIFICATE IN INDUSTRIAL MANAGEMENT

Admission to candidacy for the Certificate in Industrial Management is open to all industrial employees without reference to previous academic experience. Candidacy for admission to the certificate program will be established by approval of six units of applicable courses. The candidate must have a 2.5 grade average (C+) on all courses taken to date. To receive the certificate, the candidate must complete a total of 30 units of approved courses.

Courses required of all candidates are as follows: Bus. Adm. 100, 102, 103, 152, 153, 154, and 155; Economics 140, 150, 151, 152.

DEPARTMENT OF MARKETING

Assistant Professors: Barber, Hale; Lawson; Sharkey (Chairman)
Lecturers: deJulien; Johnston; McCord; Merrill, E.; Valle

Major in Marketing With the B.S. Degree

The major in marketing is offered with the B.S. degree. Courses in the major are not required to complete a minor for the bachelor's degree.

LOWER DIVISION REQUIREMENTS

Business Administration 1A-1B, 30A-30B, 71 or equivalent, 73, 78, and Economics 1A-1B.

UPPER DIVISION REQUIREMENTS

Business Administration 131 (or Economics 135); Business Administration 134, 137, 152; Psychology 105, 132, and 133; in addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

DEPARTMENT OF BUSINESS EDUCATION

Faculty

Professor: Gibson
Associate Professors: Crawford, M. (Chairman); LeBaron; Scraup
Assistant Professors: Archer; Langenbach; Pemberton
Lecturers: Stubbs; Woodward

MAJORS FOR THE BACHELOR'S DEGREE

The majors in business education, office management, and secretarial management are offered with the B.S. degree. Courses in the major are in addition to 45 units in general education courses. Students with these majors are not required to complete a minor for the B.S. degree.

Major in Business Education With the B.S. Degree

This major is in a distributive education with the B.S. degree is primarily for the student who is planning to take the general secondary credential in the postgraduate year with business education as the teaching major.

The student must complete (1) the basic lower division requirements, (2) the basic upper division requirements, and (3) the requirements in two subfields of the B.S. degree.

(1) Basic Lower Division Requirements

Business Administration 1A-1B, 30A-30B, 71 or equivalent, 73, 78, and Economics 1A-1B.

(2) Basic Upper Division Requirements

Business Administration 131 (or Economics 135), 134, 137, 152, 153, and 154; Business Administration 150 and six units selected with approval of the adviser in marketing.

(3) Subfield Requirements

A total of 24 units in one of the following subfields of which accounting or secretarial must be one:

Accounting. Business Administration 35B and six units selected from Business Administration 100, 102, or 106.
Secretarial. Business Administration 75B or equivalent, and Business Administration 183A-183B.
Business Management. Business Administration 2 and six upper division units selected in consultation with the adviser in business education.

Merchandising. Business Administration 50, 160, and 181 (Students who plan to meet the requirement of the School of Business Education for a special secondary limited credential in vocational business education must have, in addition to the above requirements, one year of practical experience in a business setting and six units in business administration or economics, and two semester units to be selected from Business Administration 152, 153, and 159.)

Major in Office Management With the B.S. Degree

LOWER DIVISION REQUIREMENTS

Business Administration 1A-1B, 30A-30B, 71 or equivalent, 73, 78, and Economics 1A-1B.

UPPER DIVISION REQUIREMENTS

Business Administration 131 (or Economics 135); Business Administration 134, 137, 152; Psychology 105, 132, and 133; in addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.
Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 131 (or Economics 137), 134, 150, 154, 184, 185, 186, 188, Economics 140; and 15 units selected from Business Administration 100, 102, 123, 146, 196, Economics 170, and Psychology 121.

Major in Secretarial Management With the B.S. Degree
Lower Division Requirements. Business Administration 1A-1B, 30A-30B, 71 if equivalent, 73, 75A-75B or equivalent, 80, and Economics 1A-1B.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 131 (or Economics 135), 134, 150, 183A-183B, 184, 185, 186, 188, Economics 140; and nine units selected from Business Administration 196, 133, 144, 153, and 196.

MINORS
Business Education. A minor in business education is offered to students who are not Business Administration majors. This minor consists of 15 to 22 units to include Business Administration 1A-1B, 71 and 72, or equivalents, and nine units of upper division courses selected with approval of the adviser in business education.

Secretarial Management. A minor in secretarial management is offered to students who are not business administration majors. This minor consists of 15 to 22 units. The student must demonstrate competency equal to that required in Business Administration 72 before he can be admitted to the minor program. The minor must include Business Administration 75A-75B, or its equivalent, in the lower division and 12 units in the upper division to include Business Administration 181A-181B, 185, 186, and 188.

TEACHING MAJOR IN BUSINESS EDUCATION WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) the teaching major in business education, (2) the additional professional courses in teacher education, and (3) present evidence of practical experience in the field named in the credential. A minor is not required for the bachelor's degree.

Teaching Major in Business Education With the A.B. Degree

The student must complete (1) the basic lower division requirements, (2) the basic upper division requirements, and (3) the requirements in two subfields listed below, of which accounting or secretarial must be one.

(1) Basic Lower Division Requirements. Business Administration 1A-1B, 30A-30B, 72 or equivalent, 73, and 80. Economics 1A-1B must be included in general education to meet prerequisite and credential requirements.

(2) Basic Upper Division Requirements. Twenty-four upper division units to include Business Administration 131 (or Economics 135), 134, 150, 158, 185, 186, 188, 189, and Economics 140.

(3) Subfield Requirements. Complete the courses in two of the following subfields, of which accounting or secretarial must be one:

Accounting. Business Administration 2 and six units selected from Business Administration 100, 102, and 106.

Secretarial. Business Administration 75B or equivalent, and Business Administration 183A-183B.


Marketing. Business Administration 50, 160, and 181. (Students who plan to meet the requirements of the State Department of Education for a special secondary limited credential in vocational business education must have, in addition to the above requirements, one year of practical experience in a distributive occupation and four semester units to be selected from Business Administration 132, 153, and 159.)

Professional Courses in Teacher Education

In addition to the teaching major in business education, the student must complete 24 upper division units of professional courses in teacher education to include Education 100, 110, 120, 121U, 180; one of the following: Education 121Q, 121R, or 121S; and Health Education 121.

Work Experience

Satisfactory evidence must be presented of one-half year, or 1,000 hours, of approved experience in the field named in the credential.

TEACHING MAJOR IN BUSINESS EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a one-year internship. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in business education may be completed in one of the following ways:

1. By completing the special secondary credential in business education with the A.B. degree and the additional courses required in the postgraduate year.

2. By completing the business education major for the B.S. degree (without the special secondary credential), and the additional courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include five graduate units in Business Administration 170 and 271.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

TEACHING MINOR IN BUSINESS EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in business education for the general secondary credential may also be used as a major for the bachelor's degree. The minor consists of a minimum of 21 units, exclusive of course equivalents, and must include Business Administration 71, 72, 1A, 1B; and nine upper division units in business administration courses selected with approval of the adviser in business education.

COURSES IN BUSINESS ADMINISTRATION

LOWER DIVISION COURSES

1A-1B. Principles of Accounting (3-3) I, II

Four hours of lecture and laboratory.

Prerequisite: Business Administration 1A is a prerequisite for 1B.

Introduction to the theory, practice, and principles of accounting as they relate to single proprietorship, partnership, and corporate types of business enterprises.

2. Mathematics of Finance (3) I, II

Prerequisites: Two years of algebra in high school or equivalent.

Interest and annuities; amortization; sinking funds; valuation of bonds; depreciation; mathematics of building and loan associations.

30A-30B. Business Law (3-3) I, II

Prerequisite: Business Administration 30A is a prerequisite for 30B.

Principles of business law and their application to actual cases involving business transactions. Subjects included in 30A are contracts, sales and agency. Business Administration 30B includes partnerships, corporations, negotiable instruments, property, and creditor's rights.
50. Salesmanship (2) I, II
Theoretical and psychological backgrounds of salesmanship; newer concept of selling; the selling of ideas and services; steps in a sale: attention, interest, desire, closing; the development of clientele and of good will; the personal factor in salesmanship.

71. Beginning and Personal-use Typewriting (3) I, II
Five hours of lecture and activity.
Fundamentals of typing. Development of personal-use skills. Not open to students with credit for high school typewriting.

72. Typewriting (3) I, II
Five hours of lecture and activity.
Advanced typewriting. Production work and problem typing.

73. Office Machines (1 to 3) I, II
The operation of calculators and adding-listing machines and their application to business problems.

75A-75B. Shorthand (3-3) I, II
Five hours of lecture and activity.
Prerequisite: Business Administration 75A is a prerequisite for 75B.

76. Advanced Shorthand (3) I, II
Prerequisite: Business Administration 75A-75B.
Development of speed in writing and transcription.

80. Business Writing (3) I, II
Prerequisite: English 1 and Business Administration 71.
Written communications in typical business situations.

UPPER DIVISION COURSES

100. Intermediate Accounting (3) I, II
Prerequisite: Business Administration 1A-1B.
Theories and principles underlying balance sheets of partnerships and corporations.

101. Advanced Accounting (3) I, II
Prerequisite: Business Administration 100.
Problems involved in physical, investments, installment sales, estate accounting, consolidations, insurance and foreign exchange.

102. Cost Accounting (3) I, II
Prerequisite: Business Administration 1A-1B.
Basic theories and practices of materials costing, labor costing, and overhead absorption as applied to process and job order cost systems.

103. Advanced Cost Accounting (3) I, II
Prerequisite: Business Administration 102.
Theories and practices of job order and process cost systems including standard costs and costs for special managerial decisions.

104. Managerial Cost Accounting (3) I, II
Prerequisite: Business Administration 114.
Use of accounting information to solve management problems related to control and planning of manufacturing. Included are basic accounting principles and techniques, variance analysis, break-even charts, budgeting, and control.

106. Income Tax Accounting (3) I, II
Prerequisite: Business Administration 1A-1B.
Theory and procedures in the preparation of federal and California income tax returns for individuals.

107. Advanced Income Tax Accounting (3) I, II
Prerequisite: Business Administration 106.
Theory and procedures in the preparation of federal and California income tax returns for partnerships, corporations, and fiduciaries; brief survey of social security and estate and gift taxes.
X-126A—126B. C. L. U. Preparation (3–5) Extension
Preparation for the Chartered Life Underwriter examination. Content to be selected by instructor from the following: Part I—Life Insurance Fundamentals; Part II—Business, Accident and Sickness, Group Insurance, and Pensions; Part III—Law, Trusts, and Estates; Part IV—Economics and Finance; and Part V—Life Underwriting. Each part of this offering represents a two-semester course.

128. Credits and Collections (3) I, II
Prerequisites: Business Administration 1A-1B and 30A-10B.
The credit man and his work, including the instruments with which he works, sources of credit information, the technique of his department, collection methods, legislation for the protection of debtor and creditor, and credit insurance.

129. Credit Management (3) I, II
Prerequisites: Business Administration 128 and senior standing.
Problems involved in credit and financial management, including methods of developing credit policies, organizing a credit department or institution, supervising and co-ordinating the work of subordinates in the credit field.

130A-130B. Advanced Business Law (3–3) I, II
Prerequisites: Business Administration 30A-10B.
Principles and rules of law. First semester includes contractual relationships, obligations, and trade regulation. Second semester includes formation and operation of business entities. Either semester may be taken first.

131. Corporation Finance (3) I, II
(Same course as Economics 133)
Prerequisites: Economics 1A-1B.
The corporate form of organization, instruments of long-term finance, methods of raising capital, efficient financial management, the financing of organizations, and governmental control. Not open to students with credit in Economics 133.

133. Investments (3) I, II
Investment principles and practices with emphasis upon problems of the small investor, such as rents of a good investment, sources of information, types of stocks, and bonds, mechanics of purchase and sale, investment trusts, real estate mortgages, and life.

134. Business and Industrial Management (3) I, II
Prerequisites: Economics 1A-1B.
Principles and practices of business management as applied to industrial organization and operation; emphasis upon efficient utilization and control of resources.

135. Production Planning and Control (3) I, II
(Same course as Engineering 173)
Prerequisites: Business Administration 134.
Forecasting and estimating; authorization to manufacture; order, flow, block and load control; continuous versus intermittent production; use of drawings; tabulation of data; co-ordination of production with other factory departments. Not open to students with credit in Engineering 173.

136. Motion and Time Study (3) I, II
(Same course as Engineering 176)
Prerequisite: Business Administration 134.
Work simplification through methods improvement; operations analysis; flow charts; calculation of time standards, work and speed analysis; new developments in job timing and motion economy study; time reduction curves; work standards. Not open to students with credit in Engineering 176.

137. Plant Layout and Materials Handling (3) I, II
Prerequisite: Business Administration 135.
Principles of effective plant layout and materials handling methods; emphasis on process analysis, operation sequence analysis, location and layout of production service, storage, packing, and loading facilities.

139. Quality Control (3) I
(Same course as Engineering 177 and Mathematics 177)
Prerequisites: Business Administration 134 and either Economics 140 or Mathematics 12.
Statistical techniques; tolerances and variants; standards; organization for inspection; inspection methods for raw materials, work in process, and finished products; control of inspection devices. Not open to students with credit in Engineering 177 or Mathematics 177.

140. Organization and Management Theory (3) I, II
Prerequisites: Business Administration 134 and senior standing.
Administrative principles and their application to the objectives, organization, planning, policies, and controls of a business.

141. Electronic Data Processing (3) I, II
Prerequisites: Business Administration 134 and consent of instructor.
The role of high speed computing equipment in management decision making. Effect of improved data availability on management control. Analysis of procedures for effective data processing. Selection and use of equipment. Introduction to programming. Applications to accounting, production and marketing.

142. Manufacturing and Tooling Administration (3) Extension
(Same course as Engineering X-179)
Prerequisite: Business Administration 135 or consent of instructor.
Production breakdown and relationship to manufacturing plan and tooling policy.

143. Systems and Procedure Analysis (3) I, II
Prerequisites: Business Administration 80, 100, and 134.
The application of scientific management principles to administrative systems: analysis of paperwork flow, and forms design; communication, feedback and control techniques; economic analysis of alternative types of equipment; preparation of written procedures.

144. Personnel Management (3) I, II
Prerequisite: Business Administration 134.
Problems and philosophies in the management of personnel relations. Selecting, training, supervising and rating employees. Methods used by management in job evaluation; wage and salary, payment plans; employee services; health and safety; labor relationships; stimulation of interest.

145. Human Relations in Management (3) I, II
(Same course as Political Science 145)
Prerequisite: Business Administration 144 or Political Science 144.
Human factors in supervision and management. Problems of incentives, attitudes, communication, and other personal relations between employees and employer.

146. Wage and Salary Administration (3) I, II
(Same course as Political Science 146)
Prerequisite: Business Administration 144 or Political Science 144.
Job analysis; major techniques of job evaluation; problems of wage and salary administration, incentive pay methods; merit rating plans. Not open to students with credit in Political Science 146.

147. Supervisory Staff and Employee Training (3) I, II
(Same course as Political Science 155)
Prerequisite: Business Administration 144 or Political Science 144.
Training in a management function and as an aspect of communication, operating methods and structure of training departments; types of training; evaluation of training results. Teaching methods and use of reaching aids. Not open to students with credit in Political Science 155.

148. Problems in Personnel Management (3) II
Prerequisite: Business Administration 144.
An advanced course dealing with practices and issues in personnel administration. Evaluation of procedures and techniques in the major functions of personnel management. Review and appraisal is emphasized.
149. Personnel Management Laboratory (3) I, II
Three hours of laboratory.
Prerequisites: Concurrent registration in Business Administration I.
Involves personnel management practices and policies. Experience in interviewing, training, and conducting personnel research assignments, using data analysis tools, role playing and similar techniques.

150. Marketing Principles (3) I, II
Prerequisites: Economics 1A-1B.
Study of marketing functions, activities of producers, wholesalers, retailers, and middlemen; channels of distribution; integration of marketing activities with other business policies; government regulations.

151. Problems of Marketing Management (3) I, II
Prerequisites: Business Administration 150.
An advanced course dealing with practical aspects of marketing. Solutions of problems faced by producers, wholesalers, retailers and other middlemen in the marketing of their products.

152. Retailing Principles (3) I, II
Prerequisites: Business Administration 150.
Study of retail stores, emphasizing the problems of store managers and merchandising executives; store location, organization, personnel, sales promotion, buying and handling of merchandise; advertising; turnover; and control of the sales force. Problems of profit control of operating and changing conditions.

153. Advertising Principles (3) I, II
Prerequisites: Business Administration 150.
Advertising as a sales promotional tool in marketing activities; consumer, media and product analysis; advertising media; preparation of advertisements; measurement of advertising effectiveness; economic and legal aspects of advertising; public relations; advertising campaigns.

154. Advertising Problems (3) I, II
Prerequisites: Business Administration 150 and 153, or consent of instructor.
Practice in applying principles of advertising to specific problems. A variety of cases, including large, medium and small businesses, are covered. Emphasis is on the coordination of advertising activities.

155. Public Relations (3) I
(Same course as Journalism 180)
Principles, methods, and objectives in the field of public relations; evaluation of the "publics" of organizations and industry; case studies of public relations problems. Open to students with credit in Journalism 180.

156. Radio and Television Station Management and Advertising (3) I
Prerequisites: Speech Arts 81A and 81B and consent of instructor.
Administrative and commercial management and advertising methods of radio and television station operation and promotion; traffic. Open to students with credit in Speech Arts 181.

157. Market Research (3) I
Prerequisites: Business Administration 150 and Economics 140.
The solution of business problems by formal research techniques. Procedures of research are developed by considering actual business problems such as determining marketing potential, brand preferences, and sales forecasts.

158. Color and Design in Merchandising (3) I, II
(Same course as Art 107)
Six hours. No prerequisite.
Principles of line, mass, and color applied to the design of manufacturing goods to utility and sale value. Shape and color in relation to utility and sale value. Practical problems. Not open to students with credit in Home Economics 160.

160. Merchandise Analysis (3) I
(Same course as Home Economics 160)
Characteristics, merits, limitations, care, and selling points of the more important consumer products. Stress on manufacturing processes as they affect the sale value of home economics majors. Not open to students with credit in Home Economics 160.

161. Traffic Management (3) I
Prerequisites: Economics 1A-1B.
Organization and functions of a traffic department, routing policy on shipments, freight rates and classifications, receiving and shipping, loss and damage claims, warehousing, packaging and loading, documentation, export and import shipments, government regulations.

162. Industrial Marketing (3) I, II
Prerequisites: Business Administration 134 and 150, or consent of instructor.
Description and importance of the industrial market channels of distribution, advertising policies, merchandising techniques, methods of selling, promotional methods, pricing techniques, applications of marketing research in industrial marketing. Planning the overall marketing programs.

163. Sales Management (3) I, II
Prerequisites: Business Administration 50 and 150.
Consideration of the structure of sales organizations; sales policies; selection, training, assignment, evaluation and control of the sales force; sales analysis; sales quotas; sales costs and budgets; marketing and product research and analysis; coordination of personal selling with other forms of sales effort.

164. Purchasing and Buying (3) I, II
Prerequisites: Business Administration 134 and 150.
Policies for purchasing raw materials, parts, supplies and finished goods for manufacturing operations, for commercial use, and for wholesale and retail resale. Buying procedures, inventory control, vendor relations, legal problems, quality control, financing. Formerly Business Administration 134. Not open to students with credit in this course.

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

166. Real Estate Principles and Practices (3) II
(Same course as Economics 139)
Prerequisites: Economics 1A-1B.
Function 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. Not open to students with credit in Economics 139.

167. Law of Real Property (3) II
Prerequisites: Business Administration 30A-30B and 170 or Economics 139, or consent of instructor.
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.

168. Property Management (3) I
Prerequisites: Business Administration 170 or Economics 139, or consent of instructor.
Study of the rental markets, property management programs, collection procedures, lease forms, tenant relations, rent control, rehabilitation procedures, and accounts and records.

169. Real Estate Finance (3) I, II
Prerequisites: Economics 1A-1B, Business Administration 30A-30B, 170 or Economics 139, or consent of instructor.
Methods of financing real estate; sources of real estate credit; loan servicing; governmental financial agencies; financial analysis of acquisition and sale of mortgages and trust deeds.

170. Real Estate Appraisal Theory (3) I
Prerequisites: Business Administration 170 or Economics 139, and Economics 138, or consent of instructor.
Introduction to the theories, functions, and purposes of appraisals of residential and income properties; Methods of valuation; techniques of market data analysis, rehabilitation estimates.

171. Appraisal of Real Estate (3) II
Prerequisite: Business Administration 174.
Methods and procedures of appraising real property; student appraisals of family dwellings, commercial and apartment properties; writing of standard appraisal reports.
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 for credit, 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 co-ordinators 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 finance, legislation affecting consumers. A general education course in family life education. (Formerly B.A. 138.)

183A-183B. Executive Secretarial Procedures (3-3)
Analysis of and practice in executive secretarial procedures in modern offices, includes review for the Certified Professional Secretary examination. Prerequisite: Business Administration 72 and 75B or their equivalents.

184. Office Management (3) I, II
Functions, facilities, techniques, organization and personnel relationship of the business office. (Formerly Business Administration 173.)

185. Office Systems and Automation (3) I, II
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. Office Machines Methods (2) I, II
Methods and theories of voice-writing, addressing, and duplicating machine operation as applied to office procedures. (Formerly Business Administration 174.)

188. Records Management (1) I, II
Systems: preparing, keeping, storing and disposing of office records, including the use of equipment and supplies. (Formerly Business Administration 178.)

189. Objectives and Curriculums in Business Education (3) I
Scope, function, and curricula of business education in the secondary schools.

190. Work Experience (2) I, II
Supervised work in co-operating business firms; relationship between theory and practice in specific business conditions. Prerequisite: Permission of instructor.

191. 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.

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

GRADUATE COURSES

200. Seminar in Accounting Theory (3)

201. Seminar in Business Organization and Management (3)
Prerequisites: Business Administration 134 and consent of instructor. Analysis of selected topics in business organization and management directed to the development of theories of organization and to an understanding of the operation of enterprises. Emphasis on planning, co-ordination, leadership and decision-making.

221. Seminar in Personnel Management (3)
Prerequisites: Business Administration 144, Economics 150, and consent of instructor.
Contemporary problems in personnel and industrial relations. Investigations by seminar members of aspects of human factors in management, labor relations and other personnel-related topics. Case problems involving such areas as communication, participation, status, control, and effects of technological change.

222. Seminar in Finance (3)
Prerequisites: Business Administration 131 and/or Economics 135, and consent of instructor.
Principles and problems involved in financing business firms from both internal and external sources. Stressing of student research and knowledge of literature in the field of finance.

223. Seminar in Insurance (3)
Prerequisites: Business Administration 120, 124, 125, and consent of instructor.
Advanced study of insurance management including underwriting, investment, and other problems related to effective business operation. Programming of personal, partnership and corporation estates.

224. Seminar in Industrial Management (3)
Prerequisites: Economics 140 or equivalent, Mathematics 22 or equivalent, and consent of instructor.
A study of quantitative analytical techniques for managerial planning and decision-making. Aspects of operations research that apply to business situations.

230. Seminar in Marketing (3)
Prerequisites: Business Administration 150 and consent of instructor.
Selected phases of marketing, such as pricing policies and practices, channels of distribution, sales promotion activities, distribution cost analysis. Written reports on special aspects of the semester's subject matter are required.

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 methods and techniques and the teaching of shorthand and typewriting. May be repeated with new subject matter. Maximum of six units may be applied for the master's degree program.

271. Seminar in Office Management (2)
Prerequisites: Business Administration 1A, 1B, 194.
Current trends in the problems of office management and their solution. The relation of records, reports, budgets and manuals to managerial control.

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.

296. Directed Field Experience (1-6)
Students lacking practical experience in the occupational area will be required to obtain such experience in the field, subject to approval by the faculty advisor. Experience in addition to the 30 units for the master of science degree, when experience is lacking or not acceptable. Not open to students who have already qualified.

298. Special Study (1-6) I, II
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. Students have an option of a comprehensive examination or a thesis or project with approval of the graduate office.
CHEMISTRY

IN THE DIVISION OF PHYSICAL SCIENCES

Faculty
Professors: Isenee (Chairman); Joseph; Nichols; Robinson, D.; Rowe; Spangler, J.; Wolba
Associate Professor: Wick
Assistant Professors: Harrington; Hellberg; Jensen; Landis; Malik; Shepard; Stewart; C; Wadsworth

Offered by the Department
Master of arts degree with a major in chemistry.
Master of arts degree for teaching service with a concentration in chemistry.
Master of science degree in chemistry.
Major in chemistry with the A.B. degree.
Major in chemistry with the B.S. degree.
Certificate of the American Chemical Society with the A.B. or B.S. degree.
Minor in chemistry.
Teaching major in physical science and general science, with a concentration in chemistry, leading to the general secondary credential.
The Department of Chemistry is on the approved list of the American Chemical Society.

THE MASTER'S DEGREE

The master of arts degree with a major in chemistry, the master of arts degree for teaching service with a concentration in chemistry, and the master of science degree in applied chemistry are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The Department of Chemistry is on the approved list of the American Chemical Society. The bachelor's degree may be taken with or without the Certificate of the American Chemical Society.
A minor is required of chemistry majors for the B.A. degree, but is not required for the B.S. degree.
Foreign language (German) is required under Plan A for the A.B. degree and for the programs leading to the Certificate of the American Chemical Society.
Foreign language is not required for the A.B. degree under Plan B or under programs which do not lead to the Certificate of the American Chemical Society.
Courses in the major are in addition to 45 units in general education courses, except that nine units of required lower division courses in chemistry and physics may be counted in general education. A maximum of six units of mathematics taken in prerequisite to entrance in Mathematics 50 may be counted in general education.
Curricular outlines for the various programs are given below.

MINOR IN CHEMISTRY

The minor in chemistry consists of 15 to 22 units in chemistry to include Chemistry 1A-1B, or equivalent, and six units of upper division chemistry courses.

MAJOR IN CHEMISTRY WITH THE B.S. DEGREE AND CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY

The curriculum outlined below for the B.S. degree 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 or engineers in chemistry. The degree may be obtained without the Certificate of the American Chemical Society by appropriate substitution of courses for the German requirement. A minor is not required of students taking the B.S. degree.

MAJOR REQUIREMENTS

Lower Division Requirements. Chemistry 1A-1B and 5A-5B; Physics 4A-4B-4C; and Mathematics 50, 51, and 52 (43 units).

Upper Division Requirements. A minimum of 36 upper division units in chemistry to include Chemistry 101A-101B, 102A-102B, 110A-110B, 111 and 17 units of upper division electives in chemistry.

Foreign Language Requirement. German 1, 2, and 8A-8B (12 units), required for the Certificate of the American Chemical Society.

OUTLINE FOR THE B.S. DEGREE AND CERTIFICATE

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<th>Units</th>
<th>1st &amp; 2nd Year</th>
<th>1st &amp; 2nd Year</th>
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<td>Sem.</td>
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<tr>
<td>Chemistry 1A-1B</td>
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<td>Physics 4A</td>
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<tr>
<td>Speech Arts 3</td>
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<tr>
<td>English 1</td>
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<tr>
<td>*P.E. activity</td>
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<th>Units</th>
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<tr>
<td>Chemistry 102A-102B</td>
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<td>Chemistry 110A-110B</td>
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<tr>
<td>German 8A-8B</td>
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<tr>
<td>Social science</td>
<td>3</td>
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<tr>
<td>Psychology 1</td>
<td>3</td>
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</tr>
<tr>
<td>*Health Education 21</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

*General education course.

*May include four units lecture and one unit laboratory in chemistry courses, requiring three full-year courses in chemistry as prerequisites. Remainder may include courses in related subjects by approval of department. May not include Chemistry 105.

MAJORS IN CHEMISTRY WITH THE A.B. DEGREE

Students taking the A.B. degree with a chemistry major are required to complete a minor in another field. Two programs for the A.B. degree in chemistry are outlined below. Plan A with the Certificate of the American Chemical Society and outlined below. Plan B without the certificate.

Plan A With the A.B. Degree and Certificate of the American Chemical Society

Plan A is offered for students who wish to take the A.B. degree and the same requirements meet the recommendations of American Chemical Society and the requirements of most universities for admission to graduate work in chemistry. Students under Plan A who wish to graduate with the Certificate of the American Chemical Society are required to complete 12 units of German, including German 8A-8B. The degree may be taken without the certificate by omitting German 8A-8B, but completing German 1 and 2.

Lower Division Requirements. Chemistry 1A-1B and 5A-5B; Physics 4A-4B-4C; and Mathematics 50, 51, and 52 (43 units).

Upper Division Requirements. A minimum of 24 upper division units in chemistry to include Chemistry 101A-101B, 102A-102B, 110A-110B, 111 and five units of upper division electives in chemistry.

Foreign Language Requirement. German 1, 2, and 8A-8B (12 units), required for the degree and Certificate of the American Chemical Society.
### OUTLINE FOR PLAN A

**First year**

<table>
<thead>
<tr>
<th>Units</th>
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<tbody>
<tr>
<td>Chemistry 1A-1B</td>
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<tr>
<td>Mathematics 40</td>
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<tr>
<td>Physics 4A</td>
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<tr>
<td><em>Speech Arts</em></td>
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<td><em>Biology I or 2</em></td>
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<tr>
<td><em>English 1</em></td>
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<td><em>P.E. activity</em></td>
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**Second year**

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<thead>
<tr>
<th>Units</th>
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<tbody>
<tr>
<td>Chemistry 5A-5B</td>
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<tr>
<td>Physics 4B, 4C</td>
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<tr>
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### Third year

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<tr>
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<tbody>
<tr>
<td>Chemistry 101A-101B</td>
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</tr>
<tr>
<td>Chemistry 102A-102B</td>
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<td>4</td>
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<tr>
<td>Chemistry 103A-103B</td>
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<td>4</td>
</tr>
<tr>
<td>German 8A-8B</td>
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<tr>
<td>Social science</td>
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<tr>
<td><em>Health Education 2</em></td>
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<tr>
<td><em>Psychology 1</em></td>
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**Fourth year**

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<tr>
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<tr>
<td>Advanced chemistry</td>
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<td>Minor (U.D.)</td>
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<td>Lit., Phil., and Arts</td>
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<td>Social science</td>
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<tr>
<td>Electives</td>
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</tbody>
</table>

**Total**

15 16

* General education course.
† The A.B. degree may be obtained without the Certificate of the American Chemical Society by substituting four units of general education for the course requirements in chemistry as prerequisites.
‡ Must include four units of Social science, two units of Advanced chemistry, and one unit laboratory from courses requiring three full-year courses in chemistry as prerequisites.

### Plan B WITH THE A.B. DEGREE FOR RELATED PROFESSIONS

Plan B is designed for students who do not intend to become professional chemists, but who desire the major in chemistry as part of a general education or preparation for training in a related profession. By appropriate choice of electives, graduates can meet the requirements for admission to medical schools. The sequence of courses outlined below represents the minimum required for an A.B. degree in chemistry.

### LOWER DIVISION REQUIREMENTS

Chemistry 1A-1B and 5A-5B, Physics 2A-2B, 3A-3B, and Mathematics 21 and 22. French or German recommended.

### UPPER DIVISION REQUIREMENTS

A minimum of 24 upper division units in chemistry to include Chemistry 101A-101B, 102A-102B, 103A-103B, 111, and five units of upper division electives in chemistry.

### OUTLINE FOR PLAN B

**First year**

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<thead>
<tr>
<th>Units</th>
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<tbody>
<tr>
<td>Chemistry 1A-1B</td>
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<td>Physics 2A-2B</td>
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<tr>
<td>Physics 3A-3B</td>
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<tr>
<td>Mathematics 21, 22</td>
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<tr>
<td>English 1</td>
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<tr>
<td>Psychology 1</td>
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<tr>
<td><em>French or German</em></td>
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<tr>
<td><em>Speech Arts</em></td>
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<tr>
<td><em>Health Education 2</em></td>
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<tr>
<td><em>Psychology 1</em></td>
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<tr>
<td><em>P.E. activity</em></td>
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**Second year**

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<th>Units</th>
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<tr>
<td>Electives</td>
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</tbody>
</table>

**Total**

15 15

* General education course.
† One unit of a general education course and seven units of electives may be substituted for the French or German.

### TEACHING MAJOR FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major in physical science and general science, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

### Teaching Major

The teaching major in physical science and general science may be completed in one of the following ways:

1. By completing the science major with the A.B. degree and the additional courses required in the postgraduate year.
2. By completing the major in chemistry or in physics with the A.B. or B.S. degree and the following additional courses, which may be counted in general education: Astronomy 1 and 9, and Geology 2 and 3, 31A. Recommended electives if not otherwise included in the major: Geology 4, Mineral Arts 5, 6, 65, Botany 119, Chemistry 101A, General Chemistry 103, Geology 119. The student must also complete the courses required in the postgraduate year.

### Postgraduate Year

In the postgraduate program the candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. To include four graduate units selected from Chemistry 200 (2-4 units) and Physics 200 (2-4 units), or other 200-numbered courses in chemistry and physics selected with approval of the adviser.

### Teaching Minor

In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on professional curricula in Teacher Education for a list of the approved teaching minors.

### LOWER DIVISION COURSES

**1A-1B. General Chemistry (5-5)**

Three lectures and six hours of laboratory.

**Prerequisites:** Elementary algebra and plane geometry. Recommended: High school chemistry, physics, and additional mathematics.

General principles of chemistry with emphasis on inorganic materials. Qualitative analysis is included in the second semester.

**2A-2B. Fundamentals of Chemistry (3-3)**

Two lectures and three hours of laboratory.

A general course including inorganic and organic chemistry for students not intending to take further work in chemistry other than Chemistry 3. A physical science course in general education meeting the laboratory requirement in natural science. Not open to students with credit for Chemistry 1A-1B.

**3. Chemistry of Nutrition (3)**

Three lectures and demonstrations.

**Prerequisites:** Chemistry 2A-2B. This course intended primarily for majors in human economics, nursing, and related fields.

Digestion, metabolism and nutrition of foodstuffs and the role of vitamins, hormones and electrolytes in life processes.
5A. Elementary Quantitative Analysis (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 1A-1B and facility in the use of logarithms and the rule
of three.
Theoretical consideration of the principles of gravimetric and volumetric analysis
with laboratory practice in standardized reagents and analyzing samples.

5B. Quantitative Analysis (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 5A.
Further work in the theory and practice of volumetric and gravimetric analysis
and the study of electroanalytical methods.

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

UPPER DIVISION COURSES

101A-101B. Organic Chemistry (4-4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Chemistry 1A-1B.
The first semester lecture stresses aliphatic compounds and includes an introduc-
tion to aromatic compounds. The second semester stresses the aromatics con-
tinuous with more complex aliphatics and introduces mechanisms of organic
reactions.

102A-102B. Organic Chemistry Laboratory (1-1) I, II
Three hours of laboratory.
Prerequisite: Open only to students enrolled concurrently in Chemistry 101A.
Synthesis of typical aliphatic and aromatic compounds. Study of the theory and
practice of laboratory operations.

X-104A-104B. Modern Chemistry (3-3)
No prerequisite.
Fundamental principles of chemistry and a survey of recent developments in
the field of chemistry. This course is intended primarily for junior high school
and high school teachers of science and for others who are interested in chemistry
as it is applied to modern civilization. Designed for viewers of "Continental Classroom"
on television.

103. Advanced Quantitative Analysis (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 5A.
Advanced work in the theory and practice of volumetric, gravimetric, and elec-
tronanalysis. Not open to students who have credit for Chemistry 101B.

110A-110B. Physical Chemistry (3-3)
Three lectures, problems and report.
Prerequisites: Physics 2A-2B; Mathematics 52; and Chemistry 5A-5B.
Theoretical principles of chemistry with emphasis on mathematical rela-
tions.

111. Physical Chemistry Laboratory (4) II
One discussion period and nine hours of laboratory.
Prerequisite: Chemistry 110B or concurrent registration with consent of instructor.
Physical-chemical apparatus and measurements, with emphasis on technical report
writing.

114A-114B. Clinical Biochemistry (4-4)
(Offered 1961-62 and alternate years)
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 5A and 101A.
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. General Biochemistry (3-3)
Two lectures and three hours of laboratory.
Prerequisites: Chemistry 5B and 101B.
The chemistry and metabolism of carbohydrates, fats, and proteins.

118. Colloid Chemistry (2) II
(Offered 1960-61 and alternate years)
Prerequisites: Chemistry 101A, 110A, and 110B.
The theoretical principles of colloid chemistry and the preparation, properties,
and practical applications of colloids.

127. Advanced Inorganic Chemistry (3) II
Prerequisite: Three years of chemistry.
A lecture course dealing with such topics as the physical basis of the periodic
system, complex inorganic compounds, and the nature of the chemical bond.

130. Chemistry for Elementary Teachers (3) Summer
Lectures, demonstrations, and field trips. No prerequisite.
Practical chemistry designed to develop an understanding of basic concepts,
methods and materials of chemistry used in the elementary school. Not open to
students with previous credit in chemistry.

131. Theoretical Organic Chemistry (5) II
Prerequisites: Chemistry 101B and 110A.
The application of modern electronic theory to the physical and chemical prop-
erties of organic compounds.

144A-144B. Principles of Chemical Engineering (3-3)
Prerequisites: Credit or registration in Chemistry 110A, or credit or registration
in Engineering 108 or equivalent.
Industrial stoichiometry, unit processes, and unit operations. Problems, reports,
and field trips.

134. Organic Qualitative Analysis (3) I
One lecture and six hours of laboratory.
Prerequisites: Chemistry 5B or 101A, and 101B.
A systematic study of the identification of organic compounds and mixtures.

135. Instrumental Methods of Analysis (3) I
One lecture and six hours of laboratory.
Prerequisites: Three year-courses in chemistry.
Theory and practice of modern methods of instrumental analysis, including use
of pH meters, colorimeters, spectrophotometers, and other analytical devices. Dis-
cussion, reports, field trips, special individual projects.

136. Quantitative Microanalysis (3) II
One lecture and six hours of laboratory.
Prerequisites: Chemistry 5B and 101B.
Techniques of microanalysis including carbon, hydrogen, nitrogen, halogen,
sulfur, oxygen and metal analyses.

146. Introduction to Nuclear Chemistry (4) I
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 1B.
Theoretical and physical chemistry of the measurement and processing of
radioactive materials. Not applicable to the major in chemistry.

147. Reactor Chemistry (4) II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 160.
Chemistry of the lanthanide and actinide series and of important light elements.
Separation processes, industrial chemical methods. Separation processes,
radioactive materials. Laboratory work in the processing of fuel and fission product
materials. Not applicable to the major in chemistry.

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

176. Biochemistry (3) II
One lecture and six hours of laboratory.
Prerequisites: Chemistry 5A and 110B.
Principles and techniques of radioactivity as applied to chemistry. Measurements
related to radionuclides, and tracer applications.
191. Chemical Literature (1) I
   Prerequisite: Upper division standing in chemistry.
   An introduction to the availability, scope and use of the chemical literature.

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 for a maximum of six units.

199. Special Study (1-6) I, II
   Individual study. Six units maximum credit.
   Prerequisites: Open only to students who have shown ability to do A or B work in chemistry; consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3) I, II
   An intensive study of some phase of advanced chemistry, such as chemical kinetics; molecular structure; photochemistry; electrochemistry. May be repeated with new subject matter for additional credit.

220. Chemical Thermodynamics (3) I
   Prerequisites: Mathematics 52 and Chemistry 110B.
   An introduction to the study of chemical thermodynamics.

221. Quantum Chemistry (3) II
   Prerequisite: Chemistry 220B.
   Selected topics in thermodynamics and quantum chemistry, including an introduction to the statistical approach to quantum mechanics.

222. Chemical Kinetics (2) I
   Prerequisites: Mathematics 52 and Chemistry 110B.
   Theory of rate processes; applications of kinetics to the study of reaction mechanisms.

223. Physical Chemistry of Electrolytic Solutions (2) II
   Prerequisite: Chemistry 220.
   Theory of ionic solutions; electrode potentials, determination of activity coefficients, partial molar quantities and their applications.

230. Advanced Organic Chemistry (2) I
   Prerequisite: Chemistry 101B.
   Applications and limitations of organic reactions from the viewpoint of synthesis.

231. Mechanisms in Organic Reactions (2) II
   Prerequisites: Chemistry 110B and 131.
   Reactivity mechanisms in organic reactions.

240. Chemistry of the Less Familiar Elements (2) II
   Prerequisite: Chemistry 127.
   Modern inorganic theory applied to electronic configurations, periodic relationships and use of selected familiar elements.

250. Advanced Analytical Chemistry (2) I
   Prerequisites: Chemistry 105 and 110B.
   Selected topics in advanced analytical chemistry.

260. Advanced Biochemistry (2) II
   Prerequisites: Chemistry 110B and 115.
   Fat, protein, and carbohydrate metabolism, mechanisms of biological reactions, genetic factors, and hormone control.

270. Nuclear Chemistry (2) I
   Prerequisite: Chemistry 170.
   Chemistry of the actinides. Nuclear reactions, induced radioactivity, interaction of radiation with matter, fission systems, interpretations arising from nuclear models.

290. Bibliography (1) I, II
   Exercise in the use of basic reference books, journals, and specialized bibliographies; preparatory to the writing of a master's project or thesis.

296. Directed Field Experience (1-6)
   Meets the requirement of directed field experience for candidates for the master of science degree, but is not limited to candidates for the degree. May be required in addition to the 30-unit requirement for the degree.

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

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

COMPARATIVE LITERATURE

IN THE DIVISION OF 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.

COMPARATIVE LITERATURE MINOR

The minor consists of 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)
   (Same course as English 52A-52B)
   A chronological survey from Homer to modern times. The first semester stresses the classical, epic and tragic, the second semester stresses modern literature, including prose fiction, the drama, and the essay. Not open to students with credit for English 52A-52B. A general education course in literature, philosophy, and the arts.

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. A general education course in literature, philosophy, and the arts.

*104A-104B. Spanish American Literature (3-3)
   (Same course as Spanish 104A-104B)
   A general education course in literature, philosophy, and the arts.

*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. A general education course in literature, philosophy, and the arts. Not open to students with credit for English 115.

*134. 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. Not open to students with credit in Humanities 138 or in Aesthetics 138.
*140A-140B. Masterpieces of French Literature (3)
A cultural course designed to be given in introduction to the great French writers 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. A general education course in literature, philosophy, and the arts.

*142. The Golden Age of German Literature (3) I, II
(Same course as German 142)
Masterpieces of German literature from the eighteenth and early nineteenth centuries. A general education course in literature, philosophy, and the arts. Not open to students with credit for German 142.

*152A-152B. World Drama (3-5)
(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 productions. A general education course in literature, philosophy, and the arts. Not open to students with credit for English 152A-152B.

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

ECONOMICS

IN THE DIVISION OF SOCIAL SCIENCES

Faculty
Professors: Anderson, G. (Chairman); Cameron; McClintic; Ryan.
Associate Professors: Brookshires; Gifford.
Assistant Professors: Balbilot; Berekley; Bridenstine; Chadwick; Flagg; Neuman.
Lecturer: Bellurus.

Offered by the Department
Master of arts degree with a major in economics.
Master of arts degree for teaching service with a concentration in social science (economics).
Minor in economics.
Minor in economics for the general secondary credential.
Institute of Labor Economics.
Economics Research Center.

ECONOMICS RESEARCH CENTER

Calculating machines, drafting equipment, and a specialized collection of research materials are located in the Economics Research Center in the Humanities-Social Sciences Building. These research facilities are available to advanced students and faculty members in all fields. The regular faculty seminars of the Economics Research Center are held in this center.

INSTITUTE OF LABOR ECONOMICS

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

MAJOR IN ECONOMICS WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. Students majoring in economics are required to complete a minor for the bachelor's degree.

Lower Division Requirements. Economics 1A-1B and Business Administration 1A-1B.

Upper Division Requirements. A minimum of 24 upper division units in economics to include Economics 100A-100B and 140. Six of the 24 units may be in related fields to be selected with the approval of the adviser in economics.

MINOR IN ECONOMICS

The minor in economics consists of 15 to 22 units in economics, nine units of which must be in upper division courses.

TEACHING MINOR IN ECONOMICS FOR THE GENERAL SECONDARY CREDENTIAL

A teaching minor in economics is offered for the general secondary credential. The minor is not available to students with the broad social science major. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units to include Economics 1A-1B and a year course in another social science area (12 units), and in the upper division, Economics 100A and six units of upper division electives in economics (9 units).

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. (Prior to and during the fall semester, 1958, macro-analysis was included in Economics 1B.)

*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. (Prior to the fall semester, 1958, micro-analysis was included in Economics 1A.)

UPPER DIVISION COURSES

100A. Intermediate Economic Theory (4) I, II
Prerequisites: Economics 1A and 1B.
Economic theory with special reference to the theory of the firm and the industrial economy, with special reference to national income analysis and the theory of investment.

100B. Intermediate Economic Theory (4) I, II
Prerequisites: Economics 1A and 1B.
Economic theory with special reference to national income analysis and the theory of investment.

102. Comparative Economic Systems (2) II
Prerequisites: Economics 1A and 1B.
The economic aspects of laissez-faire and regulated capitalism, co-operatives, United socialism, communism, nazism, fascism. Experience in Russia, Germany, United States, Great Britain, and other countries. The case of evaluating economic systems. The individual and state in each system. Planning in a liberal capitalist society.

110. Introduction to Econometrics (3)
Prerequisites: Twelve units in economics, including Economics 140.
Econometric methods, analysis; application of commonly used equations, symbols, and measurements to economic problems.

119. Economic History of Europe (3) I
Prerequisites: Economics 1A and 1B, or consent of instructor.
A general survey of economic development from the Middle Ages to the present. A general survey of economic development from the Middle Ages to the present, with particular attention given to the impact of the Industrial Revolution on national economies, especially on England's commerce and industry. A general education course in the social sciences.
114. Economic History of the United States (3) II
Prerequisites: Economics 1A and 1B.
A comprehensive survey of American economic development and of national legislation in the field of industry and commerce. A general education course in the social sciences.

127. Agricultural Economics (3) II
Prerequisites: Economics 1A and 1B.
The issues of economic planning and control of agriculture. The nature of such problems as surplus production, low income and population change. Emphasis on price controls, crop restrictions and other programs and proposals.

131. Public Finance (3) II
Prerequisites: Economics 1A and 1B.
Principles and practices of taxation and public expenditures. Economic effects of public spending, deficits and taxation. Financing social security and other services. Fiscal policy and prosperity. Relation to inflation and deflation. Special emphasis on social problems involved.

135. Money and Banking (3) I, II
Prerequisites: Economics 1A and 1B.
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
Prerequisites: Economics 1A and 1B.
Analysis of major influences affecting city location and growth; role of private governmental institutions in influencing residential and other land uses; land acquisition, public and private contracts. Comparative analysis of urban properties. Discussion of San Diego problems.

139. Real Estate Principles and Practices (3) II
(Same course as Business Administration 170)
Prerequisites: Economics 1A and 1B.
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. Not open to students with credit in Business Administration 127.

140. Statistical Methods (3) I, II
Prerequisites: Economics 1A, 1B and Mathematics 1 or 21 at this college with grade of C or better, or qualification by examination on subject matter of Mathematics 1 or 21.
Introduction to descriptive statistics, statistical inference, correlation, index numbers, and time series. Not open to students with credit for another upper division course in statistics.

142. Business Cycles (3) I
Prerequisites: Economics 1A and 1B.
Fundamental factors in business cycles are analyzed and cycle theories are examined. Study of current business conditions begins early in the course and develops into a practical application of forecasting methods to both business and other data.

150. Labor Problems (3) I, II
Prerequisites: Economics 1A and 1B.
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.

151. Labor Legislation (3) I
Prerequisites: Economics 1A and 1B.
Labor-management relations; labor standards; arbitration and conciliation of industrial disputes. Federal, state and local laws dealing with these subjects.

152. Collective Bargaining (3) II
Prerequisites: Economics 1A and 1B.
The practice of collective bargaining; management and union problems; public policy and collective bargaining; conditions of successful collective bargaining.

154. Government and Business (3) I, II
Prerequisites: Economics 1A and 1B.

173. Economics of Energy and Water Resources (3) I
Prerequisites: Economics 1A and 1B.
Economic aspects of energy and water resource utilization. Relevant aspects of the electric power and fossil fuel industries. Water resource programs and projects emphasizing California developments.

174. Economic Concentration and Monopoly Power (3) I
Prerequisites: Economics 1A and 1B.
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.

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

191. International Economics-Principles (3) I
Prerequisites: Economics 1A and 1B.

192. International Economics-Problems (3) II
Prerequisites: Economics 1A and 1B.
Important aspects of international trade and conflict in the economic fields. Aspects of international trade and conflict in the economic fields, economic policies and problems in the world market. Foreign trade, trade and investment opportunities and population flows. The international economy and international trade and investment opportunities. Colonial relations and problems.

193. Investigation and Report (3) I, II
Prerequisite: For economics majors only. Designed to further stimulate independent study and investigation of the subject; to furnish guidance to the collection, organization, and presentation of factual material; to improve the technique of term reports.

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

200A-200B. Seminar in the Development of Economic Thought (3-3)
Prerequisites: Twelve units in economics.
A critical study of the development of economic thought.

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

231. Seminar in Public Finance (3)
Prerequisites: Economics 131.
Advanced study of public finance problems and literature; research.

235. Seminar in Money and Banking (3)
Prerequisites: Economics 135.
Individual research, seminar reports, and group discussion of selected economic problems related to the structure and functioning of the financial system.

258. Seminar in Labor Economics (3)
Prerequisites: Economics 150 and 151.
Individual study and group discussion of selected topics in labor economics.

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

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)
Prerequisites: Economics 190 and 195.
Individual and group research into selected topics; group discussion of procedures and results.

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

299. Thesis (1)
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 DIVISION OF EDUCATION

Faculty
Professors: Alcorn; Apple; Ballantine; Brydegaard; Carlson, T. R.; Friedrich, Gjerde; Griesier; Hausman; Hunter; Kinder; Koester (Chairman); Lindley; Madsen; Schrump (Dean); Schunert; Stoughton; White, A.
Associate Professors: Anderson, E.; Anderson, P. S.; Bacon; Baker, D.; Campbell; Crum; Fischer; Fulkerson; Gates; Jarolimek; Karlen; Klemm; Malcom; Nadeli; Prouy; Roemich; Trammer.
Assistant Professors: Birch; Briggs; Bruce; Fall; Fishburn; Ger; Gess; Groff; Grocke; Hill; Koeln; LaPray; Lienert; McCay; Miller; Person; Porst; Platz; Rodney; Schmidt; Servey; Singer; Smith, H.; Strand; Strong; Saydam; Thalsh; Wheeler; Wheeler.
Instructors: Plazak; Taylor, W.

Lecturers: Anderson, V.; Baumgartner; Bennett; Darow; Epler; Hammond; Howes; Nall; Plate; Schumack; Sylvester; Taylor, M.; Walt

Offered by the Department
Major of arts degree in education with concentrations in nine areas.
Major in elementary education with the A.B. degree and general elementary and/or kindergarten-primary credential.

EDUCATION

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THE MASTER'S DEGREE

The master of arts degree with a major in education with concentrations in nine areas is offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

THE CREDENTIAL PROGRAMS

For a complete description of credential programs, refer to the section of this catalog on Professional Curricula in Teacher Education.

MAJOR IN ELEMENTARY EDUCATION FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

A major in elementary education is offered with the A.B. degree and general elementary and/or kindergarten-primary credential. A student may take a program leading to the general elementary credential or a combination program leading to the general elementary and kindergarten-primary credentials.

In addition to 45 units in general education courses, all students must complete (1) the lower division prerequisites for the credential and degree, (2) a major in elementary education, and (3) one teaching minor selected from those listed below.

Prerequisites

Prerequisites for Both Credentials. Art 9 and 10, or equivalents; Music 7A, which may be counted in general education. Music 7B; Physical Education 53; and Geography 1 and 2, both of which may be counted in general education (21 units).

Additional prerequisites for the kindergarten-primary credential: Music 10A-10B; or qualifying by examination (2 units).

Major in Elementary Education

Major for Both Credentials. 39-43 upper division units to include the following courses: Education 112, 151 (6 units); Education 131 (13 units); Education 130 (7 units); Education 111 (2 units); Education 101 (2 units); Education 181 (7 units); Education 185 (2 units); Education 180 (2 units); Health Education 150 (2 units). Additional requirement for the kindergarten-primary credential: Education 132 (4 units).

Minors for the Credentials

Minor for Both Credentials. The minor, which is described in this section of the catalog under the heading of the department offering the minor, must be selected from the following:

English
Industrial arts
Spanish
French
Mathematics
Speech arts
General science
Physical education
German

Students taking the general elementary credential in combination with a special secondary credential may use the major in the special secondary field for the minor in the elementary field.

MINOR IN EDUCATION

The minor in education consists of 15 to 22 upper division units in education courses selected with the approval of the department chairman. Students who take courses may take the course selected by department chairman. Students who take courses selected by the department chairman must have been regularly admitted to teacher education. Refer to the section of this catalog on Professional Curricula in Teacher Education.
LOWER DIVISION COURSES

A. Review of Arithmetic (0) I, II
B. Review of Handwriting (0) I, II
C. Review of Reading (0) I, II
D. 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 Foundations

100. The Secondary School (4) I, II
Three lectures and three hours of laboratory and/or field work, including self-visual experiences.

101. History and Philosophy of Education (2) I, II Summer
Prerequisites: Senior standing and a minimum of 12 units of education. Historical backgrounds and underlying philosophies upon which the public school system has been established. Emphasis on the meaning of education, educational aims and values, and democracy and education.

102. Secondary Education (3) Irregular
An introduction to understanding the development of secondary education and its present status as a social institution.

Psychological Foundations

110. Development and Learning (4) I, II
Three lectures and three hours of laboratory and/or field work.
Prerequisite: Education 100.

111. Educational Psychology (2) I, II Summer
(Same course as Psychology 130)
Prerequisite: Psychology 1.

112. Child Growth and Development (3) I, II Summer
Should precede Education 151 for elementary credential candidates. Study of the mental, emotional, social, and physical development during childhood and early adolescence. Directed observation required.

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.

114. Interpretation of Early Childhood Behavior (3) Irregular in Summer
For kindergarten-primary teachers. A course in the analysis and interpretation of early childhood behavior. Emphasis on understanding and interpreting the creative factors in the behavior of children 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.

116A-116B-116C, Child Study Laboratory (2-2-2) I, II
Development of background and procedures for child study and their application to field situations. Field work required. For teachers in service. Education 116A is prerequisite for 116B, and 116B is prerequisite for 116C.

118. Supervision of Child Welfare and Attendance (3) Irregular
Content includes laws relating to children, guidance principles, social casework, agency relationships, conference techniques, home visitation methods, employment supervision, attendance work, child accounting, familiarity with testing techniques.

Methods—Secondary

120. The Teaching Process (4) I, II
Three lectures and three hours of laboratory and/or field work.
Prerequisites: Education 110 and concurrent registration in Education 180 or 160.

To develop teacher competency at the secondary level in professional and community relationships, and in planning teaching, and evaluating learning activities (with emphasis on the use of audio-visual resources and the development of class morale).

121. Methods and Materials of Instruction and Audiovisual Aids
Major (2), Minor (2)
Lecture courses, prerequisite that Education 121K and 121N meet for one lecture and three hours of laboratory. Professional courses in specific teaching fields taken concurrently with the first directed teaching assignment. Each course emphasizes the application of best practice with reference to each subject area named.

Offered in the Fall Semester
121A. Methods in Art
121B. Methods in English
121C. Methods in Homemaking Education
121D. Methods in Industrial Arts
121E. Methods in Foreign Languages
121F. Methods in Music
121G. Methods in Phys. Ed. (Men)
121H. Methods in Phys. Ed. (Women)
121I. Methods in Physical Science
121J. Methods in Speech Arts
121L. Methods in Social Science

Offered in the Spring Semester
121K. Methods in Art
121L. Methods in English
121M. Methods in Industrial Arts
121N. Methods in Homemaking Education
121O. Methods in Industrial Arts
121P. Methods in Music
121Q. Methods in Physical Science
121R. Methods in Speech Arts
121S. Methods in Social Science

Offered Irregularly
121T. Methods in Accounting
121U. Methods in Typing

122. Reading in Secondary Education (3) Irregular
The nature of the reading program, development of techniques and skills, vocabulary development, reading in the content fields, the differentiated attack, measurement, diagnosis, and remediation.

123. Driver Education (2) Summer
Prerequisite: Consent of instructor.
A workshop type course designed to prepare teachers of the course in high school.

124. Advanced Driver Education (2) Summer
Prerequisite: Education 123.
An advanced workshop dealing with special problems in driver education, including legal and sociological aspects, administration, and special training techniques.

125. Organization and Administration of Music Education (2) I
An advanced workshop in the organization and administration of music education.

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.
130. First Elementary Education Practicum (13) Prerequisite: Admission to elementary education.
Curriculum, principles, methods and materials of instruction (including individual), and participation in elementary education, in the areas listed in A through G below.
130A. Arithmetic in Elementary Education (2-3) I, II, Summer
130B. Art in Elementary Education (2-1) I, II, Summer
130C. Language Arts in Elementary Education (2-3) I, II, Summer
130D. Music in Elementary Education (2-3) I, II, Summer
130E. Reading in Elementary Education (2-3) I, II, Summer
130F. Observation and Participation (2) I, II
130G. Curriculum (4) I, II

131. Second Elementary Education Practicum (7) Prerequisite: Education 130.
Curriculum, principles, methods and materials of instruction (including individual), and participation in elementary education, in the areas listed in A through D below.
131A. Social Studies in Elementary Education (2-3) I, II, Summer
131B. Science in Elementary Education (2-3) I, II, Summer
131C. Directed Teaching (2) I, II
131D. Curriculum (4) I, II

132. Kindergarten-Primary Practicum (4) I, II, Summer
Prerequisite: Education 130 and 131.

133. Child's Literature in Elementary Education (5) Irregular
Criteria for the selection of children's literature, children's reading interests, the development of units of instruction in the social studies, the use of the verse, dramatic readings and similar procedures, and the use of the library.

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, and spelling. Students in this course will observe in the summer demonstration school and discuss with the staff teaching procedures.

135. Workshop in Elementary Education (3 or 6) Irregular
To meet the needs of individual or groups of teachers who desire to study selected problems in elementary education. The observation of classroom teaching will be provided for members in attendance. Interested persons should correspond with the Coordinator of Elementary Education, San Diego State College.

136. Music Literature for Elementary Teaching (3) Summer
Prerequisite: Music 7A and teaching experience, or consent of instructor.
Music literature for the classroom teacher, music and related activities, stressing integration of these activities with the total classroom program.

137. Reading Difficulties (2) Summer
Prerequisites: Education 112 and 130E or 122, or consent of instructor.
Reading difficulties, their cause, prevention, and correction. Remedial practices in reading useful to the classroom teacher, school counselor, and reading specialist.

138. Curriculum in Elementary Education (1) 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. Audiovisual Instruction (3) I, II Summer
Three lectures and two hours of laboratory.
Audiovisual materials and techniques as they affect learning; operation of equipment.

140. Creating Audiovisual Materials for Classroom Use (5) 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.

141. Workshop in Educational Television (6) Summer
(Same course as Speech Arts 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. Not open to students with credit for Speech Arts 143-S.

Measurement

190. Psychological Testing (5) I, II (Same course as Psychology 105)
Prerequisite: One of the following courses: Psychology 104A, Education 151, 152, 153, 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.

191. 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.

192. Measurement and Evaluation in Secondary Education (2) Irregular
Prerequisite: Education 111.
Problems of evaluation in secondary education, construction of examinations, the elements of statistics, the selection and interpretation of standardized measures.

Honors Course

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

Exceptional Children

170. Exceptional Children (3) I, II Summer
Characteristics and adjustment problems of mental, physical, and emotional deviations.

171. Curriculum and Methods for Mentally Retarded Children (3) II or Summer
Selection, organization and presentation of curricular materials for mentally retarded children.

172. Workshop for Teaching the Mentally Retarded (3-6) Summer
Curriculum and methods of teaching, integrated with a demonstration class.
Particular emphasis on the arts and crafts program. Opportunities will be provided for teachers to develop materials of instruction. To meet California credential requirements in the areas described, students with credit for Education 171 are limited to enrollment in 3 units.

173. Vision Testing and Hygiene (2) Irregular
Measurement of visual acuity including an analysis of vision tests, hygiene and the physiology of the eye, conservation of sight, and classroom adaptation for the visually handicapped.

174. Principles and Methods of Speech Correction (3) II
(Same course as Speech Arts 174)
Three lectures and 25 hours of clinical participation, or a special study for non-participants.
Prerequisites: Speech Arts 150 and 170, or consent of instructor.
Etiology and treatment of the more common speech disorders, including physiological speech, voice disorders, cleft palate, foreign dialect. Not open to students with credit for Speech Arts 174.
176. Stuttering and Neurological Disorders (3) I
(Same course as Speech Arts 176)
Three lectures and 25 hours of clinical participation, or a special study for nonparticipants.
Prerequisites: Speech Arts 150 and 170.
Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy, speech problems and speech in adults and children. Not open to student with credit for Speech Arts 176.

177. Auditory Rehabilitation (2) I
(Same course as Speech Arts 177)
The adjustment of the hard-of-hearing and the deaf, with emphasis on the use of the hearing aids. Public school hearing programs, educational programs, and social problems. Meets audiometric certification requirements. Not open to students with credit for Speech Arts 177.

178. The Teaching of Lipreading (2) II
(Same course as Speech Arts 178)
History, theory and methods of lipreading and language development for the hard-of-hearing and the deaf. Aids for the classroom teacher. Program and materials of instruction for the specialized teacher. Not open to students with credit for Speech Arts 178.

Student Teaching

180. Directed Teaching—Secondary (2-12) I, II
Prerequisites: Admission to teacher education and education program approved by the Coordinator of Secondary Education. Any grade below a C is unacceptable for a credential.
Systematic observation, participation and teaching under supervision in a junior or senior high school. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

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 a C is unacceptable for a credential.
Systematic observation, participation and teaching under supervision in the student teaching in an elementary school or affiliated elementary school. 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—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.

Conference and Special Courses

190. Conference on the Teaching of Mathematics (1) Summer
May be taken three times for credit. In-depth discussion of problems in teaching 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 centering on current problems in counseling and guidance. Designed to serve the needs of any person desiring to keep informed of developments in this area.

192. Audiovisual Conference (1) Summer
May be taken three times for credit. Course does not fulfill credential requirements. A series of lectures, demonstrations and discussions, centering on problems in the use of audiovisual instructional materials. Designed for teachers, administrators, audiovisual representatives and others interested in current developments in this area.

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 by arrangement in extension.

198. Special Study (1-6) I, II, and Summer
Individual study. Six units maximum credit.
Prerequisites: Open only to senior and graduate students in education who have shown ability to work independently; consent of instructor.

GRADUATE COURSES

Prerequisites for All Graduate Courses
For requirements for admission to graduate courses, refer to the section of the catalog on the Graduate Division. In addition to these general requirements, all graduate courses in education are prerequisite for enrollment in all graduate courses in education.

Sociological Foundations

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

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 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 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
Prerequisites: Education 101 and teaching experience. 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. A study of community influences on learning and child growth and development, and of group techniques; implications for curriculum planning.

Educational Psychology

220. Advanced Educational Psychology (3) I, II, Summer
Prerequisites: Education 111 and teaching experience. Advanced study of research and its application to learning and human growth. A study of research and its application to learning and human growth.

211. Seminar in Educational Measurement (3) Summer
Prerequisites: One of the following: Education 100, 151, or 152. Emphasis upon construction, administration, and validation of teacher-made tests.

222. The Gifted Child (1) I, Summer
Prerequisites: Education 112 and 113, or Education 110. The abilities and characteristics of the intellectually gifted or talented, related problems of curriculum, teaching, administration and guidance.
223. Educational Psychology: Junior College (2) I
Fieldwork required.
Prerequisite: Credit or concurrent registration in Education 201.
The nature of the junior college student; the learning process including conceptions of audiovisual materials. The functions of student personnel services in the junior college.

230. Guidance Problems in Secondary Education (3) I, II, Summer
Prerequisite: Education 110.
The theory and practice of guidance emphasizing advanced mental hygiene concepts needed by teachers and counselors.

231. Techniques of Pupil Appraisal (3) I, II or Summer
Prerequisites: Psychology 105, Either Education 152 or 151, 104A and either Education 152 or 151.
Techniques of collecting, assembling and interpreting data about individual pupils for guidance purposes. Fieldwork required.

232. Problems in Vocational Guidance (3) I, Summer
Prerequisites: Education 200 and 211.
To prepare counselors for vocational guidance in secondary schools. Emphasis on group and individual procedures for assisting pupils to understand and improve vocational and self information.

233. Guidance Counseling Techniques (3) I, II
(Same course as Psychology 233)
Prerequisite: Education 115 or 210, or Psychology 151.
Designed for school counselors. To stress the understandings and procedures necessary for effective interviewing. Not open to students with credit in Psychology 233.

234. Administration of Pupil Personnel Services (3) I, Summer
Prerequisite: Education 200.
The organization and administration of school guidance services, including the use of community resources and a study of laws relating to children and child welfare.

237. Research in Guidance Problems (1-3) Summer
Individual study by graduate students who have demonstrated exceptional ability and a need for such work. Admission by permission of the Coordinator of Secondary Education and instructor.

238. Fieldwork in School Guidance (3) II
Prerequisites: Consent of instructor and 12 units in guidance and related areas.
Application of the principles and procedures in testing, counseling, and related personnel work in the public school. Weekly seminar sessions with college and cooperating staff.

239. Workshop in Pupil Personnel Services (3) Summer
Prerequisites: Teaching experience and consent of director of the workshop.
Application of principles and procedures to specific situations for improvement of pupil personnel services. Individual problems emphasized.

240. Curriculum Construction and Evaluation in Elementary Education (3)
I, II, Summer
Prerequisite: 12 units of work in elementary education and consent of instructor.
Advanced study of the research in curriculum development, construction, and evaluation.

241. Problems in the Teaching of Arithmetic (3) Irregular
Prerequisite: Education 130A.
A study of research and practice in the methods of teaching and in the curriculum of elementary and junior high school arithmetic.

242. Problems in the Teaching of Reading (3) Irregular
Prerequisites: Education 130E and 137.
Advanced study of trends in reading instruction. Topics include developmental differences, and interests. Students will develop individual projects or problems.

243. Seminar in Social Studies in Elementary Education (3) Irregular
Prerequisite: Consent of instructor.
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: Consent of instructor.
Advanced study of problems in teaching language arts in the elementary school. Emphasis will be on spelling, literature and written and oral communication. Emphasis will be placed on the study of scientific research in the field.

245. Seminar in Elementary Education (3) Irregular
Prerequisites: 12 units in elementary education and consent of instructor.
A study of 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) II, Summer
Prerequisites: Psychology 204 and Education 137, or consent of instructor.
Experience in the 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.
A course designed for teachers in service. A study of the function and implementation of general education in the secondary school.

248. 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.

249. 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 current trends in secondary schools. Extensive individual work on related problems of interest to members of the class.

250. 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 in study of trends in intercultural education in American schools, including units, curricular and instructional materials and techniques.

251. Research in Curricular Problems (1-3) Irregular
Individual study by graduate students who have demonstrated exceptional ability and a need for such work.

252. Federal, State, County and City School Organization and Administration (3) I, II, Summer
Prerequisites: Possession of a valid teaching credential.
A study of federal, state, county and city school organization and administration including the interrelationships of the four levels.
262. The Organization and Administration of Elementary Schools (3) I, Summer
Prerequisites: Possession of a general elementary credential, teaching experience, Education 115, 240, 260, 270 and admission to the program of Administrative Studies.
A study of the problems of personnel, local finance, curriculum, school plant and community relations of elementary schools. Field project required.

263. The Organization and Administration of Secondary Schools (3) I, Summer
Prerequisites: Possession of a valid general secondary credential, teaching experience, Education 230, 250, 260, 270 and admission to the program of Administrative Studies.
A study of the problems of personnel, local finance, curriculum, school plant, transportation and community relations of secondary schools. Field project required.

264. Elementary School Supervision (3) II, Summer
Prerequisites: Possession of a general elementary credential, teaching experience, Education 115, 240, 260, 270 and admission to the program of Administrative Studies.
Principles and practices of supervision and methods of evaluating instruction and the curriculum in elementary education. Field project required.

265. Secondary School Supervision (3) II, Summer
Prerequisites: Possession of a general secondary credential, teaching experience, Education 230, 250, 260, 270 and admission to the program of Administrative Studies.
Principles and practices of supervision, curriculum and teaching methods in secondary education. Field project required.

266. Fieldwork in Elementary School Administration and Supervision (3) I, II
Prerequisites: Prior to registration in the course, admission to the program of Administrative Studies, completion concurrently of all other requirements for the elementary administration or supervision credential, and permission of local school administrator and the instructor. Study of the administration and supervision of an elementary school with the cooperation of a local school administrator and under the supervision of a college staff member. Field projects required.

267. Fieldwork in Secondary School Administration and Supervision (3) I, II
Prerequisites: Admission to the program of Administrative Studies, completion concurrently of all other requirements for the secondary administration or supervision credential, and permission of local school administrator and the instructor. Study of the administration and supervision of a secondary school with the cooperation of a local school administrator and under the supervision of a college staff member. Field projects required.

268. Seminar in School Administration (3) Summer
Prerequisite: Consent of instructor.
An intensive study of research on selected problems in the field of school administration. Permission will be made for individual work on special topics of interest to students.

270. School Finance, Business Administration, and Law (3) I, II, Summer
Prerequisite: Possession of a valid teaching credential or consent of instructor. A study of public school finance at state, local and federal levels; analysis of finance, administration and other aspects of school administration.

271. Supervision of Student Teaching (2) Irregular
Prerequisite: Open to experienced teachers interested in the teacher education program. Study of student orientation, observation, instruction, counseling and evaluation of credential candidates, and student teachers. Evaluation by student teachers plan lessons, conduct classroom teaching, analyze pupils’ difficulties and achievement.

274A. Utilizing Audiovisual Materials in the Classroom (5) I, Summer
Prerequisite: Education 140. A critical analysis of research evaluating the use of visual, auditory, and other sensory materials in education.

275. Administering the Use of Audiovisual Materials (5) II, Summer
Prerequisite: Education 140 or consent of instructor. Organizing, supervising, and coordinating audiovisual centers as an integral part of educational systems.

278. Educational Leadership (3) I, II, Summer
Prerequisite: Possession of a valid teaching credential or consent of instructor. An analysis of the factors and practice in leadership of group and individual instruction in four areas: (a) the community; (b) the teaching staff; (c) the student personnel; (d) the professional field of educational administration and supervision.

290A. Procedures of Investigation and Report (2) I, II, Summer
Prerequisite: For majors in education, concurrent registration in 290B. Procedures for selecting and investigating methods of investigation, data analysis, and reporting. Procedures for selecting, analyzing, and summarizing professional literature.

290B. Bibliography (1) I, II, Summer
Exercises in the use of basic reference books, journals, and specialized biographies preparatory to a seminar project or to the writing of a thesis.

191A-191B. Seminar (1-3) I, II, Summer
Prerequisites: Education 290 and advanced to candidacy for the master's degree. 
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
Prerequisite: Consent of instructor. Six units maximum credit.

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 (1-7) I, II
Prerequisites: Admission to teacher education; education program approved by Coordinator of Elementary or Secondary Education. Any grade below C is unacceptable for a credential. 
A study of the administration and supervision of a classroom of a general elementary school, secondary school, or special education. Supervised internship experience in pupil personnel activities with school age pupils. May be repeated with new content for additional credit.

318. Internship in Public School Administration and Supervision (2-6)
Prerequisites: Acceptance in the preceding semester. 
An intensive analysis and synthesis of practical application of problems and principles of school district administration and supervision. Permission of school administration and college staff member required.

351. Directed Internship—Mentally Retarded (4)
Prerequisite: Acceptance in the preceding semester.
Application to take the course should be made during the preceding semester. Supervised internship experience in working with mentally retarded children. May be repeated with new content for additional credit.

374. Directed Internship—Speech Correction (4)
Prerequisites: Acceptance in the preceding semester. Supervised internship experience in working with children with speech problems. May be repeated with new content for additional credit.

375. Directed Internship in Audiovisual Education (2-6)
Prerequisites: Acceptance in the preceding semester.
Supervised internship experience in audiovisual teaching in public schools.
ENGINEERING

IN THE DIVISION OF ENGINEERING

Faculty

Professors: Capp (Chairman); Morgan; Shurtleff; Walling.
Associate Professors: Lodge; Stone, H.; Stone, S.
Assistant Professors: Bauer; Bedore; Frizz; Johnson, P.; Mann; Martin; Que.
Rao; Spencer, H.
Instructor: Bitterman.
Lecturers: Bradford; King; Sholders; Yang.

Offered by the Division

Master of science degree in mechanical engineering.
Major in engineering, with the B.S. degree, with fields of specialization in aeronautical, civil, electrical and electronic, industrial, and mechanical engineering.
Minor in engineering.

THE MASTER'S DEGREE

The master of science degree with a major in mechanical engineering is offered. For further information, refer to the Bulletin of the Graduate Division and the section of this catalog on the Graduate Division.

THE UNDERGRADUATE PROGRAM

The objective of the undergraduate program in engineering is to give the student a sound training in the fundamentals of engineering, a broad liberal education, and an ability to cope with the problems of a complex society, and an awareness of his professional responsibilities to himself and to his fellow men.

Description of the Course of Study

The course of study embraces those fundamental subjects common to the undergraduate fields of engineering. Students have an opportunity to elect patterns of additional courses reflecting limited specialization in the fields of aeronautical, civil, electrical and electronic, industrial, and mechanical engineering. Emphasis is placed upon fundamentals, close integration of lecture and laboratory work, and application of engineering science to problems of practical nature. Integrated with the professional program of courses is a sequence of study in the social-humane areas of knowledge, giving perspective to the role of engineering in civilization, and providing room for the lifetime enjoyment of human culture.

In addition to the limited specializations in specific fields mentioned above, opportunities are afforded through course planning and counseling to elect a program combining engineering fundamentals with subjects in business administration and management. This program also leads to the B.S. degree in engineering, and is intended to form the foundation for a fifth year leading to the M.S. degree in business administration. The student interested in this objective should consult both engineering and business administration advisors early in his program.

High School Preparation

It should be emphasized that the pattern of 152 semester units required for the bachelor of science degree in engineering at this college is based upon the expected utilization of mathematics permitting the student to begin his college course sequence in that subject with analytic geometry and an introduction to the calculus (Mathematics 50). An examination in mathematics is specifically required of engineering candidates in addition to the qualifying examinations taken by all applicants for admission to the college with the freshman standing. The high school subjects which are listed in this catalog under Administration and Registration, High School Preparation, as applicable to engineering and science majors.

ENGINEERING MAJOR WITH THE B.S. DEGREE

A major in engineering is offered with the B.S. degree. Courses in the major are required lower division courses in chemistry and physics may be counted in general in Mathematics 50 may be counted in general education. Specific requirements of B.S. degree are outlined below. A minor is not required for the

LOWER DIVISION COURSES

A. Introduction to Engineering (1) 1, II
   No prerequisite.
   A survey of the fields of engineering, designed to familiarize the student with the profession, nature, the requirements, the responsibilities, and the opportunities of the profession.
1. Engineering Drawing (2) 1, II
   Six hours of laboratory. No prerequisite.
   The development of the skills and techniques of drawing for engineers. Freeland
   Development of problem solving, use of drafting equipment, freehand
   Sketching, dimensioning, and lettering and drawing, use of drafting equipment, and computer aided drafting and computerized drawing theory.
2. Surveying (3) 1, II
   One lecture and six hours of laboratory.
   Prerequisite: Mathematics 21 or 40.
   Use, care, and adjustment of surveying equipment. Introduction to
   Commercial equipment, and surveying, and plane table mapping.
20A-20B. Engineering Graphics (2-2)
   Six hours of laboratory.
   Prerequisites: Credit or registration in Mathematics 40 or equivalent. Engineering
   2A is a prerequisite for Engineering 20B.

1-1592
Representation and analysis of basic engineering problems using systems of
projection, co-ordinate systems, and space solutions with mathematical correlation.
Shape and size description, sketching, and mechanical illustration. Theory and
standard practices of graphical communication. Graphical computation, functional
drawings, computer graphics, and representations and analysis of empirical data.

21. Descriptive Geometry (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Mathematics 40 and Engineering 1, or qualification by examination.

23. Manufacturing Processes (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Sophomore standing.
Analysis of the various tools and processes utilized in modern manufacturing and
fabrication operations. Field trips are made to local manufacturing organizations.

24. Engineering Measurements (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Mathematics 50 and Engineering 20B.
Fundamental principles of physical measurement as applied to engineering science.
Uncertainty, analysis, and control of errors, evaluation of observations, reliability
of computations, graphical representation of measured quantities, curve fitting.

25. Engineering Materials (3) I, II
Prerequisites: Chemistry 1B, Physics 4B, and credit or registration in Mathematics 52.
Atomic and molecular structure of materials utilized in engineering. Analysis of
the relationships between structure of materials and their mechanical, electrical,
corrosion and radiation properties, together with examples of specific applications.

Prerequisites: Engineering 50 and credit or registration in Mathematics 51.
Engineering applications of the principles of statics of force systems acting on rigid bodies. Centroids and moments of inertia, introduction to fluid statics and friction.

Prerequisites: Engineering 50 and credit or registration in Mathematics 52.
Kinematics and kinetics of particles and rigid bodies. Newtonian laws of motion,
work and energy, linear and angular momentum. Applications to engineering
problems. Vector notation will be used. Not open to students with credit for
Engineering 102.

63A-65B. Industrial Practice (2-2) I, II
Prerequisite: Sophomore standing in engineering. Selection based on personal
interview. Twelve weeks of full-time work in an engineering setting.

UPPER DIVISION COURSES

100A. Electric Circuits (3) I, II
Prerequisites: Physics 4B and Mathematics 51.
Direct-current circuits, magnetic circuits, induced voltages, single-phase and poly-
phase alternating-current circuits, coupled circuits, the transformer and introduction
of network analysis.

100B. Electrical Machinery (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 100A.
Theory of operation and the analysis of the characteristics of transformers, AC
and DC motors and generators. Associated control devices.

108. Elements of Applied Electronics (3) II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 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.

109. Dynamics (3) I, II
Prerequisites: Engineering 50, and Mathematics 52 or registration in Mathematics 117.
Fundamentals of Newtonian mechanics. Elements of vector algebra and calculus.
Kinematics and kinetics of particles and rigid bodies. Newtonian laws of motion,
work and energy, linear and angular momentum. Applications to engineering
problems. Primarily for transfer students who have not had a course in dynamics. Not
open to students with credit for Engineering 51.

110. Thermodynamics (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Physics 4C and credit or registration in Engineering 51 or 102.
Generalized concepts of force, displacement, work and energy, development of
laws of classical thermodynamics; general equations of thermodynamics; application
to simple chemical systems.

111. Physical Metallurgy (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Engineering 25 and Physics 4C.
Fundamentals of ferrous and nonferrous metallurgy in those aspects which affect
fundamentals of physical quality of metals. Effect of heat treatment, aging, and other processes
on physical properties.

112. Fluid Mechanics (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 51 or 102; Engineering 108 and 116; and credit or registration
in Mathematics 118A.
The statics and dynamics of incompressible and compressible fluids. Fluid meters
and instruments, pipe flow, open channel flow, fluid machinery.

114. Resistance of Materials (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 25; Engineering 51 or credit or registration in Engineering
102; and credit or registration in Mathematics 118A.
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.

115. Transfer and Rate Processes (3) I, II
Prerequisites: Mathematics 118A and credit or registration in Engineering 111.
Fundamentals of rates of change in enthalpy and composition of matter, heat and
mass transfer and chemical reaction rates.

120A. Structural Analysis I (3) II
Prerequisite: Engineering 116.
Methods of statics and graphical methods applied to determination of stresses in
structures and statically indeterminate structures.

120B. Structural Analysis II (3) I
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: Engineering 116 and Geology 3.
Properties of soils as structural and foundation materials. Sampling and testing
techniques.
123. Applied Hydraulics (3) I
Prerequisite: Engineering 115.
Application of principles of fluid mechanics in the fields of water supply engineering, drainage practice, and basic sanitary engineering.

124. Advanced Theory of Structures (3) II
Prerequisite: Engineering 120B or 151B.
Application of numerical methods of analysis to structural problems, further treatment of energy methods with applications to beams, frames, and rings, introduction to plastic methods of analysis.

125. Sanitary Engineering (3) II
Prerequisite: Engineering 123.
A study of water treatment plants, water distribution systems, sewage collection systems, and sewage disposal facilities; introduction to industrial and radioactive waste disposal, stream sanitation.

127. Transportation Engineering (3) I
Prerequisite: Engineering 128.
Transportation engineering as related to problems in highway and airport engineering, planning, design, and construction of municipal street layout elements, traffic engineering.

128. Surveying for Civil Engineers (3) II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 24 or 2.
Principles of control surveys, highway curves, city surveys, earthwork, engineering astronomy, precise surveys. Introduction to photogrammetry.

130. Network Analysis (3) II
Prerequisites: Engineering 100A and Mathematics 52.
Analysis of complex direct-current, single-phase and polyphase alternating-current circuits occurring in typical control systems and power systems. Theory of symmetrical components.

131. Electromechanical Control Devices (3) I
Two lectures and three hours of laboratory.
Prerequisites: Engineering 51 or 102; Engineering 100B and Mathematics 118A, and credit or registration in Engineering 101.
Application of amplitudes, thyristors, rototrols, synchrons, and selsyns in servosystems and other devices.

132. Transient Analysis of Control Systems (3) II
Prerequisites: Engineering 130 and Mathematics 118A.
The analysis of typical speed, torque, voltage, and current control systems with sinusoidal and step-function inputs.

133. Power System Analysis (3) I
Prerequisite: Engineering 100B.
Comprehensive analysis of power systems. Further study of a-c machinery including symmetrical components. Electrical, mechanical, and economic factors in transmission and distribution of electrical energy. Performance of generating and transmission equipment under normal and short-circuit conditions.

134. Engineering Electronics (3) I
Prerequisite: Mathematics 118A, Engineering 101 and 130.
Analysis of the electronic circuits of modern industrial control systems.

135. Advanced Electrical Machinery (3) I
Two lectures and three hours of laboratory.
Prerequisite: Engineering 100B.
Advanced analysis and application of electrical machinery. Emphasis upon synchronous equipment and special purpose machines. Related control equipment.

136. Electronic Instrumentation (2) I
Prerequisite: Engineering 101.
Application of electronics to the instrumentation of mechanical, hydraulic and electrical devices. Indicating and recording instruments.

140. Principles of Heat Transfer (3) I
Prerequisite: Engineering 118.
Introduction to heat transfer; introduction to heat transfer by evaporation and condensation; application of the principles of heat transfer.

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. Fluids and Combustion (3) II
Prerequisites: Engineering 148 and Chemistry 11B.
Types of fluids; stoichiometric and thermochemical analysis of combustion. Processes of combustion. Physical properties of fluids. Applications to combustion in engines and furnaces.

143. Gas Dynamics (3) II
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. Air Conditioning and Refrigeration (3) I
Two lectures and three hours of laboratory.
Prerequisite: Engineering 106.
Applications of thermodynamics and fluid mechanics to problems in air conditioning and refrigeration involved in several fields of engineering.

145. Mechanics of Machinery (3) II
Prerequisite: Engineering 146.
An extension of the principles of statics and dynamics to mechanisms and to the analysis of the mechanisms. Analysis of velocity and acceleration and the determination of static and dynamic forces. Evaluation of stability of systems.

146. Elements of Machine Design (3) I
Two lectures and three hours of laboratory.
Prerequisite: Engineering 116.
Application of mechanics, physical properties of materials, and strength of materials to the design of machine elements.

147. Introduction to Vibration Analysis (3) I
Prerequisites: Engineering 31 or 102; Engineering 116 and Mathematics 118A.
Analysis of mechanical vibration, single- and multi-degree of freedom systems; analysis of cyclical vibration and single and multi-degree of freedom systems; analysis of cyclical vibration and single and multi-degree of freedom systems.

148. Engineering Thermodynamics (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 108 and credit or registration in Engineering 115.
Further development of the laws of classical thermodynamics; introduction to kinetic theory; applications to energy transformation processes.

150A. Subsonic Aerodynamics (3) II
Prerequisites: Engineering 51 or 102; Engineering 116 or Mathematics 118A.
Fluid flow, airplane and wing theory, drag, propeller theory, aircraft and engine performance, maneuvers.

150B. Supersonic Aerodynamics (3) I
Prerequisite: Engineering 150A.
Aerodynamics of supersonic flight, supersonic flow, equations of supersonic flow, the theory of supersonic flow, small perturbation theory, similarity rules of high-speed flow.

151A. Aircraft Structures I (3) II
Prerequisites: Engineering 51 or 102; Engineering 116 and credit or registration in Mathematics 118A.
Equilibrium of forces, space structures, semimonocoque structures, air-load distribution.
151B. Aircraft Structures II (3) I
Prerequisite: Engineering 151A.
Mechanical properties of aircraft materials, design of aircraft structural components, special methods of analysis.

152. Aircraft Propulsion Systems (3) II
Prerequisite: Engineering 148 or 150B.
Theory and performance characteristics of aircraft propulsion systems including reciprocating engines, turbo-jets, ram-jets, etc.

165A-165B, 165C-165D. Industrial Practice (2-2-2-2) I, II
Prerequisites: Engineering 65A and 65B.
Supervised training in cooperative industrial organizations. Second and third year students only. Formal training with industrial experience at corresponding levels of responsibility and difficulty.

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

173. Production Planning and Control (3) I, II
(Same course as Business Administration 135)
Prerequisite: Business Administration 134.
Forecasting and estimating; authorization to manufacture; order, flow, block and load control; continuous versus intermittent production; use of drawings; tabulation of data; coordination of production with other factory departments. Not open to students with credit for Business Administration 135.

176. Motion and Time Study (3) I, II
(Same course as Business Administration 136)
Prerequisite: Business Administration 134.
Work simplification through methods improvement; operations analysis, flow charts, determination of time standards, work and speed analysis; new developments in job timing and motion, economy study; time reduction curves; work standards. Not open to students with credit for Business Administration 136.

177. Quality Control (3) I
(Same course as Business Administration 139 or Mathematics 177)
Prerequisites: Business Administration 134 and either Economics 140 or Mathematics 12.
Statistical techniques, tolerances and variance; standards; organization for inspection; methods for raw materials, work in process, and finished products; control of inspection devices. Not open to students with credit for Business Administration 139 or Mathematics 177.

X-179. Manufacturing and Tooling Administration (3) Extension
(Same course as Business Administration X-142)
Prerequisite: Engineering 173 or Business Administration 135; or consent of the instructor.
Production breakdown and relationship to manufacturing plan and tooling policy, planning, processing, and control required to activate program into production. Relationships of design engineering, tool production engineering, and tool manufacturing to production. Not open to students with credit for Business Administration X-142.

180. Principles of Engineering Economy (3) I
Prerequisite: Engineering 115.
Analysis of the costs of development and promotion, construction, operation, depreciation, capital recovery, income, return and yield. Valuations and appraisals, cost analysis and financial analysis. Application to engineering problems.

186. Advanced Resistance of Materials (3) II
Prerequisites: Engineering 51 or 102; Engineering 116 and Mathematics 188A.
Advanced topics in resistance of materials including combined stresses, buckling and failure theories. Introduction to elastic stability and instability.

187. Methods of Analysis (3) II
Two lectures and three hours of laboratory.
Prerequisite: Mathematics 188A.
Solutions of advanced engineering problems in fluids, thermodynamics and electricity utilizing the methods of analogs, dimensional analysis and the theory of models.

190A. Engineering Applications (Civil Engineering Field) (4) II
Two lectures and six hours of laboratory.
Prerequisites: Engineering 120A, 122, and 123.
Fundamental engineering science applied to the solution of a civil engineering project.

190B. Engineering Applications (Civil Engineering Field) (4) II
Two lectures and six hours of laboratory.
Prerequisites: Engineering 120A, 122, and 123.
Fundamental engineering science applied to the solution of a civil engineering construction project.

190C. Engineering Applications (Electrical Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 131 and 134.
Advanced engineering electronics including the synthesis of electrical control systems involving electronic and electro-mechanical devices.

190D. Engineering Applications (Electrical Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 146 and 148.
Applications of fundamental engineering science to heat-power machinery such as internal combustion engines and steam-power equipment, air-conditioning and refrigeration machinery, and air compressors.

190E. Engineering Applications (Mechanical Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisite: Engineering 146 and 148.
Applications 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 methods of design utilizing empirical techniques are emphasized and explained in the design of individual simple machines.

190G. Engineering Applications (Aeronautical Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisite: Engineering 150B, 151B, 151D, and credit in registration in Engineering 152.
Fundamental engineering principles applied to the analysis and design of aircraft systems. Control surface theory, stability (static and dynamic), and control. Structural analysis and design of an aircraft.

190HI. Engineering Applications (Aeronautical Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisite: Engineering 151H.
Applications of engineering principles to a comprehensive problem in the structural analysis and design of an aircraft.

196. Advanced Engineering Topics (2 or 3) I, II
Prerequisite: Consent of instructor.
Advanced topics and 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

237. Problem Analysis (3) I, II
Prerequisite: Consent of graduate adviser.
Review of methods for investigation and reporting of data. Consideration of problems in preparation of project or thesis.
298. Special Study (1-3) I, II
Individual study. Three units maximum credit.
Prerequisite: Consent of staff; to be arranged with division chairman and instructor.

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

MECHANICAL ENGINEERING
IN THE DIVISION OF ENGINEERING
Graduate Courses

260. Seminar in Mechanical Engineering (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in one of the following fields of engineering:
A. Thermodynamics and fluid flow;
B. Mechanics;
C. Engineering materials;
D. Engineering systems;
E. Operations research in engineering;
F. Nuclear engineering.

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.

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

214A-214B. Thermodynamics (3-3)
Prerequisites: Engineering 148; Mathematics 118B or consent of instructor. ME 214A is a prerequisite for ME 214B.

215A-215B. Heat Transfer (3-3)
Prerequisites: Engineering 118; Mathematics 118B or consent of instructor. ME 215A is a prerequisite for ME 215B.
Semester I. Convection heat transfer, high speed flow, mass transfer effects. Boiling heat transfer. Introduction to conduction heat transfer. Semester II. Conduction heat transfer, multidimensional conduction processes, transient analyses. Solid body and gaseous radiation and their measurements.

220. Vibration Analysis (3)
Prerequisites: Engineering 147 and credit or concurrent registration in Mathematics 118B.
Analysis of linear and nonlinear systems, of lumped and distributed systems, of multidegree of freedom systems. Transients, Self-excited vibrations.

221. Stress Analysis (3)
Prerequisites: Engineering 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. Phoretic stress, brittle failure, strain gages, and analogs in determining static, dynamic and residual stress distributions.

222. Dynamics of Machinery (3)
Prerequisites: Engineering 146 and credit or concurrent registration in Mathematics 118B.
Mathematical analysis of motion, stresses and deflections as applied to the design of machines. Dynamics of constrained systems; stability and system control. Application to systems involving mechanical, electrical and fluid links.

223. Theory of Elasticity (3)
Prerequisites: Engineering 116 and credit or registration in Mathematics 118B. Engineering 186 recommended.
Analysis of stress and strain, Stress-strain relations. The equations of elasticity. Uniqueness theorem. Compatibility conditions. Plane stress and plane strain. Flexure and torsion. Vector and tensor notation will be used.

ENGINEERING MECHANICS
IN THE DIVISION OF ENGINEERING
Graduate Courses

230. Theory of Plasticity (3)
Prerequisite: Mechanical Engineering 223.

IN THE DIVISION OF HUMANITIES

Faculty
Professors: Adams, W. R.; Block; Burnett; Haskell; Johnson, F.; Kenney; Kennedy; Marchand (Chairman); Phillips, G.; Shouse; Theobald; Tidwell; Trail.
Associate Professors: Sanders, F.; Tozer.
Assistant Professors: Baker; Frey; Monteverde; Perkins; Sandstrom; Wanlass; Widmer.
Lecturers: Black; Crane; Harper; Loomis; Oldenkamp.

Offered by the Department
Master of arts degree with a major in English.
Master of arts degree for teaching service with a concentration in English.
Master in English with the A.B. degree.
Minor in English.
Teaching major in English with the A.B. degree and junior high school credential.
Teaching major in English leading to the general secondary credential in the freshman year.
Teaching minor in English for the general secondary credential.
Teaching minor in English for the general elementary and kindergarten-primary credential.

THE MASTER'S DEGREE

The master of arts degree with a major in English and the master of arts degree for teaching service with a concentration in English are offered. For further information, refer to the Bulletin of the Graduate Division and the section of this catalog on the Graduate Division.

MAJOR IN ENGLISH WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. In the major, students majoring in English are not required to complete a minor for the bachelor's degree.

Foreign Language Requirements. Twelve units of a foreign language or equivalent knowledge demonstrated by a test of reading knowledge, administered by the Department of Foreign Languages in consultation with the English Department.

Lower Division Requirements. Twelve units in English, in addition to English 1, at least six units to be in a year course.
Upper Division Requirements. A minimum of 24 upper division units in English and comparative literature, selected with the approval of the departmental advisor.

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 and Graduate Courses in the section of the catalog on Announcements of Course and Programs of Study), substitute six units of upper division electives for six units of lower division work: each upper division unit to be selected from the following:


MINOR IN ENGLISH

The minor in English consists of 15 to 22 units in English, nine units of which must be in upper division courses.

TEACHING MAJOR IN ENGLISH WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 43 units in general education courses, (1) a teaching major in English, (2) a minor in home economics, industrial arts, or another minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination program, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. A minimum of 24 units in English or comparative literature, in addition to English 1 (which may be counted in general education), at least 18 units to be in upper division courses to include three units in American literature and three units in Shakespeare. Recommended as part of the major: English 192.

Minor. For a description of the minor, refer to the section of this catalog on Home Economics or Industrial Arts.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 108, 110, 120, 121 (methods in the major and minor fields), 109, and Health Education 151.

TEACHING MAJOR IN ENGLISH FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in English for this credential may also be used for the bachelor's degree, subject to completion of the foreign language requirement.

Lower Division Requirements. Twelve units in English, in addition to English 1, at least six units to be in a year course.

Upper Division Requirements. A minimum of 24 upper division units to include English 121A and 122; six units from English 117A or 117B; six units from English 119A, 119B, 126A, 126B, 143B; English 118A, 118B, 143A; and English 124A electives from other departments to supplement the major: Education 122, Journal-
*2. Freshman English (3) I, II
Training in reading literary materials with insight and vividness. A general education course in literature, philosophy, and the arts.

*10. Individual Reading (1) I, II
Development of personal tastes for leisure-time reading through lectures and written reports. May be taken a second time with new materials. A general education course in literature, philosophy, and the arts.

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 roots from their most frequent occurrence in English, and of the English words derived from them. No prerequisite. Not open to students with credit for General Language 20.

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. A general education course in literature, philosophy, and the arts.

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. A general education course in literature, philosophy, and the arts. Not open to students with credit for Comparative Literature 52A-52B.

56A-56B. Survey of English Literature (3-3)
Prerequisite: English 2 or consent of instructor.
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. A general education course in literature, philosophy, and the arts.

60A-60B. Literature and Personality (3-3)
The 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. A general education course in literature, philosophy, and the arts.

61. Sophomore Composition (3) I, II
Practical writing beyond the freshman level. Prerequisite: English 1 or equivalent.
A general education course in written communication.

62. Directed Writing (3) I, II
Guidance and occasional practice in effective creative writing, particularly description and narration. A general education course in written communication.

UPPER DIVISION COURSES

105. English Fundamentals (6) 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. A general education course in literature, philosophy, and the arts.

106. Creative Writing (3) I
A writing workshop in which the students are given opportunity to criticize each other's work. Emphasis is on the use of descriptive forms and, later in the course, on the structural and compositional aspects of literary art. A general education course in written communication.

110. Individual Reading (1) I, II
An advanced course in the reading of modern drama, poetry and fiction. A general education course in literature, philosophy, and the arts.

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. A general education course in literature, philosophy, and the arts. Not open to students with credit for Comparative Literature 115.

116A-116B. The Age of Elizabeth (3-3)
Semester I: Poetry and prose, exclusive of drama. Semester II: The drama to 1641, excluding Shakespeare.

117A-117B. Shakespeare (3-3)
The first semester gives special emphasis to the histories and comedies; the second, to tragedy and the dramatic romances. A general education course in literature, philosophy, and the arts.

118A-118B. Eighteenth Century English Literature (3-3)
The first semester emphasizes the social satire of Swift, Pope, Addison, Steele, Defoe, Gay, and others; the second, the more recent romantic poets, including Johnson and Cowper. A general education course in literature, philosophy, and the arts.

119A. English Romantic Poetry (3-3)
The development of the romantic movement in the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats, in relation to the thought of the romantic period. A general education course in literature, philosophy, and the arts.

119B. Victorian Poetry (3-3)
The study of the Victorians and their contemporaries and successors, relating English poetry to Nineteenth Century life and thought. A general education course in literature, philosophy, and the arts.

120A. The Seventeenth Century: Milton (3) II (Alternate years)
The poetry and major prose works of Milton, with some contemporary works of his art and mind; the history of the period and the events with which Milton participated.

120B. The Seventeenth Century: Metaphysical and Cavalier Poets (3) II (Alternate years)
The Metaphysical and Cavalier poets in relation to the cultural and literary background of the sixteenth, seventeenth, and eighteenth centuries.

124A. Romantic and Victorian Prose (3) I
Romantic and Victorian prose writers, including Coleridge, Hazlitt, Lamb, DeQuincy, Carlyle, Landor, Macaulay, and Mill, related to the literary, political, and social movements of the period.

124B. Late Nineteenth Century British Prose (3) II
The essays of Arnold, Thomas Huxley, Newman, Pater, Ruskin, and Stevenson.

125. Contemporary British Literature (3) I, II
The essays of Arnold, Thomas Huxley, Newman, Pater, Ruskin, and Stevenson.

125A. Contemporary British Literature (3) I
Selected prose and poetry of England and Ireland in the present century, especially that of the war generation. A general education course in literature, philosophy, and the arts.

131. American Literature 1820-1860 (3) I
The study of the important Romantic writers, with emphasis on the New England group. A general education course in literature, philosophy, and the arts.

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 sources materials, biographies, and representations of the American frontier.

134. American Literature 1860-1920 (3) I
The American literary scene characterized by the establishment of the modern age as manifested in the works of Whitman, Hemingway, and others.

141. American Literature 1920-1945 (3) I
The post-war literature characterized by a new realism and a new sense of Americanism as it is reflected in the works of Steinbeck, Faulkner, and others.
123. American Literature: 1860-1910 (3) II
The rise of realism in American literature. Influences, foreign and native, which
promoted the movement. Definition of realism. The literary creed of the realist.
The romantic attack and the realist defense. A general education course in litera-
ture, philosophy, and the arts.

124. American Literature: 1910 to the Present (3) I, II
Ideas and forms in representative poetry and prose. A general education course
in literature, philosophy, and the arts.

143A-143B. The English Novel (3-5)
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.

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. A general education course in literature, philosophy,
and the arts.

151. Chaucer (3) I
A study of Chaucer's works, with emphasis on "The Canterbury Tales" and
"Troilus and Criseyde."

152A-152B. World Drama (3-5)
(Same course as Comparative Literature 152A-152B)
Study of selected tragedies and comedies from Asiatic, European, English, and
American literature, with emphasis upon the human problems depicted therein
upon the universality of certain themes, such as those of Electra and Medea.
Lec-
tures, discussions, and reports on readings. A general education course in literature,
philosophy, and the arts. Not open to students with credit for Comparative Litera-
ture 152A-152B.

162. The Writing of Fiction (3) II
Prerequisite: Consent of instructor.
Constructing and writing short stories for publication.

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) 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.

193. Old English (3) I
Prerequisite: Open only to seniors and graduate students.
Elementary grammar and readings in Old English prose and poetry; introduction
to Beowulf.

195. Literary Criticism (3) II
Prerequisite: Open only to seniors and graduate students.
A historical survey of the principles and practices of literary criticism from
Horace, Longinus, Sidney, Bolleman, Dryden, Lessing, Sainte-Beuve, Coleridge, and
Arnold.

199. Comprehensive Reading and Survey (3) II
Prerequisite: Open only to students with nine upper division units in English
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

201. Problems of Literary Creation (2-6)
Prerequisites: Consent of instructor and departmental adviser.
Criticism and teaching in the larger forms.

205. Bibliography and Methods of Literary Research (3)
Prerequisite: 12 units of upper division English.
Basic references works, scholarly and critical journals; introduction to bibliogra-
phical techniques; exercises and problems in methods and exposition of research.
Recommended for the first semester of graduate work.

219. Seminar: A Major Author (3)
Prerequisite: 12 units of upper division work in English.
The critical study of a major author, such as Shakespeare, Dickens, Mark Twain.
May be repeated with new content for additional credit.

221. Seminar: A Cultural Period (3)
Prerequisite: 12 units of upper division work in English.
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.

225. Seminar: A Literary Problem (3)
Prerequisite: 12 units of upper division work in English.
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.

230. Seminar: A Literary Type (3)
Prerequisite: 12 units of upper division work in English.
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.

231. Special Study (1-6) I, II
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 HUMANITIES

Faculty
Professors: Brown, E. M. (Chairman, Foreign Languages Department); Messier
Assistant Professor: Piffard

Offered by the Department of Foreign Languages
Master of arts degree with a major in French.
Master of arts degree for teaching service with a concentration in French.

Major in French with the A.B. degree.
Minor in French.
Teaching major in French with the A.B. degree and junior high school credential.
Teaching major in French leading to the general secondary credential in the
postgraduate year.
Teaching minor in French for the general elementary and kindergarten-primary
credentials.
FRENCH

Teaching Major. The teaching major in French is the same as the major for the bachelor's degree, except that the student must include French 101A-101B in the major and must complete at least 36 units of French (exclusive of course equivalents) by date of credential candidacy.

Proficiency Examination. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass a proficiency examination administered by the Department of Foreign Languages, in the language and its area civilization. (French 40-41 or 140-141 prepare for this later examination in the area civilization.)

In graduate year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. French majors will meet this requirement by completing six units of French 220 and 201 or 214.

Teaching Minor. In the undergraduate program, the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

TEACHING MINOR IN FRENCH FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in French for the general secondary credential may also be used as a minor for the bachelor's degree. This minor consists of at least 15 units of French (exclusive of course equivalents) to include the following courses: French 1, 2, 3, 4 and French 101A-101B.

Proficiency Examination. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass a proficiency examination administered by the Department of Foreign Languages. (French 40-41 or 140-141 prepare for this later examination in the area civilization.)

TEACHING MINOR IN FRENCH FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

A teaching minor in French is offered for the general elementary and kindergarten-primary credentials. This minor consists of 15 to 22 units in French, six units of which must be in upper division courses.

LOWER DIVISION COURSES

Note: The following sequence of elementary and intermediate courses will be replaced by a new sequence for four-unit courses beginning with the fall semester, 1969.

1. (Elementary) I, II
   Three lectures and one hour of laboratory.
   Prerequisite: French 1 or one year of high school French.
   Continuation of French 1. A general education course in foreign language.

2. (Intermediate) I
   (Will be discontinued after fall 1961)
   Prerequisite: French 2 or two years of high school French.
   A general education course in foreign language. Not open to students with credit for French 8A.

3. (Intermediate) II
   (Will be discontinued after spring 1962)
   Prerequisite: French 3 or one year of high school French.
   A general education course in foreign language. Not open to students with credit for French 8B.

4. (Elementary) I
   Prerequisite: French 1 or one year of high school French.
   Continuation of French 3. A general education course in foreign language.

MINOR IN FRENCH

The minor consists of 15 to 22 units in French (exclusive of course equivalents), six units of which must be in upper division courses.

MINOR IN FRENCH WITH THE A.B. DEGREE

The minor consists of 15 to 22 units in French (exclusive of course equivalents), six units of which must be in upper division courses.

TEACHING MAJOR IN FRENCH WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to the teacher education and complete, in addition to 45 units in general education courses, (1) a teaching major in French, (2) a minor in home economics or industrial arts, or another minor approved by the Coordinating Department of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. Twenty-four units in French, to include 18 units in upper division courses.

Proficiency Examination. Before taking a directed teaching assignment in the language (Education 180), the candidate for the credential must pass a proficiency examination administered by the Department of Foreign Languages, in the language and its area civilization. (French 40-41 or 140-141 prepare for this later examination in the area civilization.)

Minor. For a description of the minor, refer to the section of this catalog on Home Economics or Industrial Arts.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 109, 120, 180, 121 (methods in the major and minor fields), and Health Education 151.

TEACHING MAJOR IN FRENCH FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a postgraduate year, for a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

MAJOR IN FRENCH WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses, except that six units in elementary German, Latin, Russian, or Spanish may be counted in general education. A minor to be approved by the departmental advisor in French is required of French majors for the bachelor's degree.

Lower Division Requirements. French 1, 2, 3, 4 (or equivalents) and courses 1 and 2 (or equivalents) in German, Latin, Russian, or Spanish. Recommended: French 1A and 1B, 2A and 2B.

High School Equivalents. Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of six years in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work, and 201 or 214.

Upper Division Requirements. A minimum of 24 upper division units, at least 21 units of which must be in French, including French 198. With the approval of the departmental advisor, the remaining three units may be selected from the following courses: French 140, 141; Geography 121; History 121A-121B, 111A-111B, 114A-114B, 122A-122B, 143A-143B, 144A-144B; and Comparative Literature 101A, 104A-104B, 121A-121B.

MINOR IN FRENCH

The minor consists of 15 to 22 units in French (exclusive of course equivalents), six units of which must be in upper division courses.
6. **Intermediate (2)** II
   (Will be discontinued after spring 1962)
   Prerequisite: French 5 or three years of high school French. Continuation of French 5.

8A-8B. **Scientific Reading (3-3)**
   (Will be discontinued after 1961-62)
   Prerequisite: French 2 with a grade of C or two years of high school French.
   Reading taken from the fields of chemistry, physics, medicine, zoology, etc. Outside readings of books and periodicals, with written reports. French 8A is not open to students with credit for French 3; and 8B is not open to students with credit for French 4.

NOTE: The following sequence of courses will replace the series of courses listed above, beginning with the fall semester, 1960.

*1. **Elementary (4) I**
   (To be offered in fall 1960)
   Four lectures and one hour of laboratory.
   Pronunciation, oral practice, readings on French culture and civilization, minimum essentials of grammar. A general education course in foreign language.

*2. **Elementary (4) II**
   (To be offered in spring 1961)
   Four lectures and one hour of laboratory.
   Prerequisite: French 1 or two years of high school French. Continuation of French 1. A general education course in foreign language.

*3. **Intermediate (4) I**
   (To be offered in fall 1961)
   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 of oral and written reports. A general education course in foreign language.

*4. **Intermediate (4) II**
   (To be offered in spring 1962)
   Prerequisite: French 3 or four years of high school French. Continuation of French 3. A general education course in foreign language.

8A-8B. **Scientific Reading (2-2)**
   (To be offered in 1961-62)
   Prerequisite: French 2 with a grade of C or better, or three years of high school French. Readings taken from the fields of chemistry, physics, medicine, zoology, etc. Outside reading of books and periodicals, with written reports. Not open to students with credit for French 3.

10. **Conversation (2) I**
    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) II**
    Prerequisite: French 10 or French 3, or four years of high school French. Continuation of French 10.

*6. **French Civilization (2)** I
   (Same course as Humanities 42)
   Conducted in English. No prerequisite.
   The major current and characteristics of French culture, as expressed through the centuries in literature, art, philosophy, music, and science. A general education course in the area of foreign languages. Not open to students with credit in Humanities 42.

*61. **French Civilization (2)** II
   (Same course as Humanities 42)
   Conducted in English. No prerequisite.
   Continuation of French 40. A general education course in the area of foreign languages. Not open to students with credit in Humanities 42.
GRADUATE COURSES

201. Old French (1)  
Prerequisite: 18 units of upper division French.  
The elements of the phonology and morphology of Old French; intensive  
reading and translation of representative texts.

214. Seminar in Contemporary French Literature (2) I  
Prerequisite: 18 units of upper division French.  
An intensive study of the current movements and techniques in the novel  
and theater in France from 1900 to the present day, with concentration on the  
most and theater in alternate years. May be repeated with new content for a  
total of six units.

220. Explication de Textes (3) II  
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.

290. Bibliography (2) See Romance Languages

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.  
Master's degree candidates in the general secondary credential program are  
expected to substitute a comprehensive examination for the thesis. In unusual  
cases a student may write a thesis with the permission of the department.  
Candidates in the liberal arts master's degree program are expected to write a  
thesis.

GENERAL LANGUAGE

IN THE DIVISION OF HUMANITIES

Faculty assigned to teach courses in general language are drawn from the  
Department of Foreign Language.

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 etymology. A study of Latin and Greek  
roots of words of most frequent occurrence in English, and of the English words  
derived from them. No prerequisite. Not open to students with credit for English 20.

30. Pronunciation of French (1) I  
A course designed especially to meet the needs of singers, radio announcers, etc.  
Three hours per week for eight weeks. No prerequisite.

31. Pronunciation of Italian (1) I  
A course designed especially to meet the needs of singers, radio announcers, etc.  
Three hours per week for eight weeks. No prerequisite.

32. Pronunciation of German (1) II  
A course designed especially to meet the needs of singers, radio announcers, etc.  
Three hours per week for eight weeks. No prerequisite.

33. Pronunciation of Spanish (1) II  
A course designed especially to meet the needs of singers, radio announcers, etc.  
Three hours per week for eight weeks. No prerequisite.

GENERAL SCIENCE

IN THE DIVISIONS OF LIFE SCIENCES AND PHYSICAL SCIENCES

Offered by the Divisions of Life Sciences and Physical Sciences

Teaching majors in general science with the A.B. degree and junior high school  
credential.

Teaching majors in (1) biology and general science and (2) physical science  
and general science, leading to the general secondary credential in the post-  
graduate year.

Teaching minor in general science for the elementary and kindergarten-  
primary credentials.

TEACHING MAJOR IN GENERAL SCIENCE WITH THE A.B. DEGREE  
AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must  
be admitted to teacher education and complete, in addition to 45 units in general  
education courses, (1) a teaching major in general science, (2) a minor in  
humanities, industrial arts, or another minor approved by the Coordinator of  
Secondary Education, and (3) the additional professional courses in teacher  
education.

It is recommended that this credential be taken in combination with the general  
elementary or special secondary credential. For a complete description of the  
required courses for the junior high school credential and the combination credential  
program, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major in General Science

The major consists of a minimum of 33 units and must include the following  
ares of science: astronomy, botany, chemistry, geology, physics, and  
teleology. Students electing this major must have one year each of high school  
Algebra and geometry, or equivalent courses.

Lower Division Requirements: Minimum requirements to include Biology 3 and  
4, or Biology 5, and Physical Science 1 and 2, or equivalent courses. Nine units  
of natural science may be counted in general education.

Upper Division Requirements: A minimum of 12 upper division units to include  
Botany 119-S or Zoology 119-S, Physical Science 130 or 130, and at least one more  
course in each of life science and physical science.

Electives to complete the minimum of 33 units in the major may be taken in  
lower or upper division courses to be selected from the following: Biology 160,  
161, Industrial Arts 85, 185, Physical Science 130, 130, Zoology 8, 9, or 165.

Minor

For a description of the minor, refer to the section of this catalog on Home  
Economics or Industrial Arts.

Professional Courses in Teacher Education

Twenty-four upper division units of professional courses in teacher education  
are required to include the following courses: Education 100, 110, 120, 121  
(methods in the major and minor fields), 180, and Health Education 151.

TEACHING MAJORS FOR THE GENERAL SECONDARY CREDENTIAL

Teaching majors are offered for the general secondary credential in (1) biology  
and general science and (2) physical science and general science. For a description  
of these majors, refer to the section of this catalog on Biology or on Physical  
Science.

TEACHING MINOR IN GENERAL SCIENCE FOR THE GENERAL ELEMENTARY  
AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in general science for the general elementary and kinder-  
garten-primary credentials consists of a minimum of 15 units to include Biology 1 and 2, or  
1 and 4, or Biology 5, or approved equivalents, Physical Science 1 and 2, or  
ascribed equivalents, and six upper division units chosen from Biology 160, Botany  
119-S, Industrial Arts 185, Zoology 119-S and 165.
GEOGRAPHY

IN THE DIVISION OF SOCIAL SCIENCES

Faculty
Professors: Past, Richardson; Storm
Associate Professor: Taylor, J. (Chairman)
Assistant Professors: Eidemiller; Woodruff; Yahr

Offered by the Department
Master of arts degree with a major in geography,
Master of arts degree for teaching service with a concentration in social science (geography),
Major in geography with the A.B. degree.
Minor in geography.

THE MASTER'S DEGREE

The master of arts degree with a major in geography and the master of arts degree for teaching service with a concentration in social science (geography) are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJOR IN GEOGRAPHY WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. Students majoring in geography are not required to complete a minor for the degree.

Lower Division Requirements. Geography 1 and 2, and Geology 1A-1B (which may be used as part of a geology minor if desired). Recommended: A reading knowledge of German, French, or Spanish.

Upper Division Requirements. A minimum of 24 upper division units in geography to include Geography 180 and 181. Six units in related fields may be accepted as part of the major with approval of the chairperson of the department.

MINOR IN GEOGRAPHY

The minor in geography consists of 15 to 22 units in geography, six units of which must be in upper division courses.

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 sea and their coasts. Related field observations. May count for physical science general education credit provided Geography 3 has not been used to fulfill the same requirement.

2. Introduction to Geography: Cultural Regions (3) I, II
Prerequisite: Geography 1 or consent of instructor.
The regional differentiation of the world by human activity; areal bases of economy and nationalism. A social science course in general education. Not open to students with credit for Geography 12A or 12B.

3. Weather (3) I, II
Elements of weather, air masses, storms, and their geographic distribution; practical instruction in the use of weather instruments, maps, and records. May count for physical science general education credit provided Geography 1 has not been used to fulfill the same requirement.

12A-12B. Culture Worlds (3-3)
A study of the evolution, distinguishing cultural characteristics and physical features of the major culture regions of the world, with emphasis on the role that the generation of the natural landscape. A general education course in social science. Not open to students with credit for Geography 2.

UPPER DIVISION COURSES

109. Climatology (3) II
Prerequisite: Geography 1 or 3, or consent of instructor.
a survey of the principal classifications of climates of the world; regional characteristics of climate; relations to soils, vegetation, and human activities.

110. Physical Geography (3) I, II
Prerequisite: Geography 1.
a study of the physical processes and concepts, and of selected areas illustrative of physiographic problems. Types of terrain, their origins, and their distribution over the earth.

111. Historical Geography (3) II
Prerequisite: Geography 1 or 2, or consent of instructor.
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.

112. California (3) I, II
Prerequisite: Geography 1 or consent of instructor.
The physiographic regions of California and the cultural landscapes developed by the successive cultural groups.

113. United States (3) I, II
Prerequisite: Geography 1 or consent of instructor.
The natural regions of the United States, their formation and economic and historical development.

114. Canada and Alasaka (3) II
Prerequisite: Geography 1 or consent of instructor.
The physical and historic phenomena of Canadian and Alaskan regionalism, the economic and strategic importance of these two areas.

115. Middle America (3) II
Prerequisite: Geography 1 or consent of instructor.
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.

116. South America (3) I
Prerequisite: Geography 1 or consent of instructor.
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.

117. Mediterranean Area (3) II
Prerequisite: Geography 1 or consent of instructor.
A study of the cultural development of the countries of Southern Europe, Western Asia, and North Africa in relation to physical background and resources.

118. Northern Europe (3) I
Prerequisite: Geography 1 or consent of instructor.
A study of the cultural development of the countries of northern and eastern Europe in relation to physical background and historical evolution.

119. Soviet Union (3) I
Prerequisite: Geography 1 or consent of instructor.
Geography 1 or consent of instructor.
An analysis of natural resources, agricultural production, industrial growth, and transportation.

120. Southern and Eastern Asia (3) II
Prerequisite: Geography 1 or consent of instructor.
The cultural regions of southern and eastern Asia, their physical environment and historical development.

121. Oceania (3) I
Prerequisite: Geography 1 or consent of instructor.
The physical geography, peoples, economies, and trade of Oceania, Australia, and New Zealand.

122. World Political Geography (3) I
Prerequisite: Geography 1 or consent of instructor.
A study of geography as it relates to the strength of nations and international relations. Not open for credit to AFROTC contract students.
151. Economic Geography; Primary Production (3) I
Prerequisite: Geography 1 or 12A-12B, or consent of instructor.
The geography of agricultural production and the extractive industries in relation to world commerce. A general education course in social science.

152. Industrial Geography (3) II
Prerequisite: Geography 1 or 12A-12B, or consent of instructor.
Principles of industrial location, with emphasis on the distribution of the world's major manufacturing regions, transportations and world trade. A general education course in social science.

155. Conservation of Natural Resources (3) I
Prerequisite: Geography 1 or consent of instructor.
Nature and extent of mineral, soil, water, forest, and wildlife resources and their conservation, with particular emphasis on the United States against background world resources. Conservation philosophy and practices and their geographic bases. A general education course in social science.

156. Urban Geography (3) I
Prerequisite: Six units of geography or related experience.
Description and analysis of geographic principles and characteristics related to the distribution of functions, structure, and regional setting of urban centers, with discussions of the growth, development, and problems of modern cities. Field reconnaissance in local urban areas.

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

160. Field Geography (3) II
Prerequisites: Junior, senior or graduate standing and the completion of at least 12 units in geography, including Geography 1 and 2, or 12A-12B, and consent of instructor.
Directed fieldwork in physical and cultural geography. May be repeated for a total of six units.

181. Maps and Graphic Methods (3) I
The use and evaluation of maps and graphic aids in the teaching of geography and other fields in the physical and social sciences. Practice in the use of lettering guides and reproducing maps and graphs.

182. Use and Interpretation of Aerial Photographs (2) II
One lecture and three hours of laboratory.
Prerequisites: Geography 1 and consent of instructor.
The planning of photo reconnaissance, correction of photo errors in the construction of base maps, and principles of stereoscopy. Emphasis on the use of standard photogrammetric instruments and the interpretation of aerial photographs.

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) I
Prerequisite: Approval of graduate adviser.
The evolution of concepts concerning the nature, scope, and methodology of geography.

220. Seminar in Regional Geography (2)
Prerequisite: Approval of departmental advisory committee.
In-depth study of a major world region, such as South America, Southeast Asia, and Northern Europe. May be repeated with new content to a maximum of four units.

250. Seminar in Systematic Geography (2)
Prerequisite: Approval of departmental advisory committee.
In-depth study of an aspect of systematic geography, such as climatology, economic geography, and graphic presentation. May be repeated with new content to a maximum of four units.
Plus requirements in one of the following options:

(a) General Physical or Economic Geology:
   Lower Division. Mathematics 12 or equivalent, 40 and 50; Physics 2A-B and 1A-3B; Chemistry 5A; Engineering 21 (28 units).
   Upper Division. Geology 106; and two of the following courses: Geology 104, 107, 110, 125; and electives approved by the departmental advisor to complete 36 upper division units.

(b) Paleontology and Stratigraphy:
   Lower Division. Biology 3 or 4 (take the course not previously completed), and Biology 15, or their equivalents; Mathematics 21 and 22; Physics 2A-B and 3A-B (20 units).
   Upper Division. Geology 106, 107, and 116; and three courses, one to be chosen from each of the following groups: Biology 155 or 160; Biology 110, Zoology 112, or Zoology 119-S; Zoology 114.

(c) Geophysics:
   Lower Division. Mathematics 50, 51, and 52; Physics 4A-4B-4C (25 units).
   Upper Division. Mathematics 118A; Physics 101, 103, 105, and 110; Geology 110 and 112 (21 units). Recommended: Mathematics 118B, Physics 114.

MINOR IN GEOLOGY

The minor in geology consists of 15 to 22 units in geology, six units of which must be in upper division courses.

LOWER DIVISION COURSES

1A. Physical (4) I
   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.
   Prerequisite: Geology 1A or equivalent.

1B. Historical (4) II
   Three lectures and three hours of laboratory. Arrangement for field study during the semester.
   Prerequisite: Geology 1A or equivalent.
   Theories of earth origin, and the evolutionary history of the earth as traced through rock and fossil records. Consideration of the Paleontologic Sequence.

2A. General Geology (3) I, II
   Earth materials and processes, the development of land forms, and a brief consideration of the history of the earth. Open to all students except those with previous credit in geology. No prerequisites. A physical science general education course in the area of the natural sciences.

2B. 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. A physical science general education course meeting the laboratory requirement in the area of the natural sciences.

3A. Mineralogy (4) II
   Two lectures and six hours of laboratory.
   Prerequisite: High school chemistry, or credit or registration in college chemistry.
   Practice in the determination of the common minerals; their geologic environment, utilization, and economic significance.

24. Petrology (3) I
   Two lectures and three hours of laboratory.
   Prerequisite: Geology 1A, or 2 and 3, and Geology 21.
   The origin, occurrence, identification, and classification of rocks and minerals with emphasis on hand specimen characteristics.

UPPER DIVISION COURSES

10A. Structural Geology (3) I
   Prerequisites: Geology 1A and 1B.
   The structural and major topographical features of the earth. Faulting, folding, and tectonic forces with practical problems and illustrations. Lectures, discussions, and occasional field trips.

10B. Geology of California (3) II
   Prerequisites: Geology 1A and 1B.
   Directed reading and group discussion of California geologic literature. Designed to acquaint students with the important structural, stratigraphic, and geomorphic units of the state with the great variety of source materials therein.

10C. Geomorphology (3) II
   Prerequisites: Geology 1B.
   Development and classification of land forms with consideration of processes involved.

10D. Paleontology (4) I
   Two lectures and six hours of laboratory.
   Prerequisites: Geology 1B and Biology 4, or their equivalents, or consent of instructor.
   Principles and methods, exemplified by a study of the morphology, classification, habitat, and geologic significance of fossil invertebrates.

10E. Principles of Stratigraphy (3) II
   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.

10F. 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.

10G. Field Geology (4) I
   Prerequisite: Geology 108A.
   Geologic investigation of an assigned area with preparation of an individual report and a geologic map.

10H. Introduction to Geophysics (3) I
   Two lectures and three hours of laboratory.
   Prerequisites: Mathematics 5A and 52, Physics 107 and 120, and Geology 100 or concurrent registration therein.
   Physics of the earth and its application to prospecting for oil, gas, and mineral deposits.

10I. Advanced Geophysics (3) II
   Offered in spring of odd-numbered years.
   Two lectures and three hours of laboratory.
   Prerequisites: Mathematics 52, Physics 107 and 120, and Geology 110.
   Theoretical principles underlying the physics of the earth and their application to the design and operation of geophysical instruments, and to the interpretation of the geophysical records.

10J. Micropaleontology (3) II
   Offered in spring of even-numbered years.
   Two lectures and three hours of laboratory.
   Prerequisite: Geology 106.
   A study of the morphology, classification and geologic significance of the various microfossils.

10K. Ore Deposits (3) I
   Offered in spring of odd-numbered years.
   Prerequisites: Completion of or concurrent registration in Geology 24 and 100.
   Geologic relations, origin, distribution, and economics of metallic and nonmetallic mineral deposits.
121. Petroleum Geology (3) I
Prerequisites: Completion or concurrent registration in Geology 24 and 100. Geologic occurrence, classification of petroleum and the application of geologic principles in its exploration and production.

124. Optical Mineralogy (3) II
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) I
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.

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.

198. Senior Roger (2) I, II
Six hours of laboratory and discussions.
Prerequisite: Senior standing within the department.
Individual project from selected fields of Geology with oral reports of progress to the class and a final written report of work accomplished. May be repeated for a total of four units.

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.

200. Seminar (2 or 3) I, II
Prerequisite: Bachelor's degree in geology or equivalent.
An intensive study of some phase of geology such as geophysics; ground water hydrology; geochronology, seismicity, vulcanology, or geomorphology. May be repeated with a new subject material for additional credit.

GERMAN IN THE DIVISION OF HUMANITIES

Faculty
Professor: Wolf
Assistant Professors: Dukas; Lawson, R. H.; Piffard

Offered by the Department of Foreign Languages
Major in German with the A.B. degree.
Minor in German.
Teaching major in German with the A.B. degree and junior high school certification.
Teaching major in German leading to the general secondary credential in the postgraduate year.
Teaching minor in German for the general elementary and Kindergarten-primary credentials.

MAJOR IN GERMAN WITH THE A.B. DEGREE
Courses in the major are in addition to 45 units in general education courses, except that six units in elementary French, Latin, Russian, or Spanish may be counted in general education. A minor to be approved by the departmental advisor in German is required of German majors for the bachelor's degree.

Lower Division Requirements: German 1 and 2 (or equivalents) and Course History 44A-4B.

High School Equivalents: Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated language work.

Upper Division Requirements: A minimum of 24 upper division units, at least 21 units of which must be in German, including German 198. With the approval of the departmental adviser, the remaining three units may be selected from the following courses: German 140, 141; Geography 126, History 121A-121B, 131A-131B, 14A, 14A-14B; and Comparative Literature 101A, 142, 152A-152B.

MINOR IN GERMAN
The minor consists of 15 to 22 units in German (exclusive of course equivalents), six units of which must be in upper division courses.

TEACHING MAJOR IN GERMAN WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL
Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 45 units in general education courses, (1) a teaching major in German, (2) a minor in home economics, industrial arts, or another minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. Twenty-four units in German, to include 18 units in upper division courses.

Proficiency Examination. Before taking a directed teaching assignment in the language (Education 180), the candidate for the credential must pass a proficiency examination, administered by the Department of Foreign Languages, in the language and area civilization. (German 40-41 or 140-141 prepare for this latter examination in the area civilization.)

Minor. For a description of the minor, refer to the section of this catalog on Home Economics and Industrial Arts.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 180, 121 (methods in the major and minor fields), and Health Education 151.

TEACHING MAJOR IN GERMAN FOR THE GENERAL SECONDARY CREDENTIAL
Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a teaching major. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in German is the same as the major for the bachelor's degree, except that the student must include German 101A-101B in the major and must complete at least 36 units of German (exclusive of course equivalents) by date of credential candidacy.

Proficiency Examination. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass a proficiency examination, administered by the Department of Foreign Languages, in the language and area civilization. (German 40-41 or 140-141 prepare for this latter examination in the area civilization.)

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. German majors must meet this requirement by completing six units in German 201 and 204.
TEACHING MINOR IN GERMAN FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in German for the general secondary credential may also be used as a minor for the bachelor's degree. This minor consists of a minimum of 21-22 units in German (exclusive of course equivalents) to include the following courses: German 1, 2, 3, 4 and German 101A-101B.

Proficiency Examination. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass a proficiency examination administered by the Department of Foreign Languages, in the language and its area civilization. (German 40-41 or 140-141 prepare for the latter examination in the area civilization.)

TEACHING MINOR IN GERMAN FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

A teaching minor in German is offered for the general elementary and kindergarten-primary credentials. This minor consists of 15 to 22 units in German, six units of which must be in upper division courses.

NOTE: The following sequence of courses and intermediate courses will be replaced by a new series of four-unit courses beginning with the fall semester, 1961.

2. Elementary (3) (I, II)
   (Will be discontinued after spring 1961)
   Three lectures and one hour of laboratory.
   Prerequisite: German 1 or one year of high school German.
   Continuation of German 1. A general education course in foreign language.

3. Intermediate (3) (I)
   (Will be discontinued after fall 1961)
   Prerequisite: German 2 or two years of high school German.
   Reading in German of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. A general education course in foreign language. Not open to students with credit for German 8A.

4. Intermediate (3) (II)
   (Will be discontinued after spring 1962)
   Prerequisite: German 3 or three years of high school German.
   Continuation of German 3. A general education course in foreign language. Not open to students with credit for German 8B.

5. Intermediate (2) (I)
   (Will be discontinued after fall 1961)
   Prerequisite: German 2 or two years of high school German.
   A practical application of the fundamental principles of grammar by means of oral and written work based on German texts.

6. Intermediate (2) (II)
   (Will be discontinued after spring 1962)
   Prerequisite: German 3 or three years of high school German.
   Continuation of German 5.

8A-B. Scientific Reading (3-5) (I)
   (Will be discontinued after 1961-62)
   Prerequisite: German 2 or two years of high school German.
   A scientific reading in German of moderately difficult English prose. First semester, readings in scientific text on chemistry, physics, etc., occasional seminars, readings in special scientific or technical subjects; weekly written reports. Not open to students with credit for German 3; and 8B is not open to students with credit for German 4.

#1. Elementary (4) (I)
   (To be offered in fall 1960)
   Four lectures and one hour of laboratory.
   Pronunciation, oral practice, reading; on German culture and civilization, minor essentials of grammar. A general education course in foreign language.

#2. Elementary (4) (II)
   (To be offered in spring 1961)
   Four lectures and one hour of laboratory.
   Prerequisite: German 1 or two years of high school German.
   Continuation of German 1. A general education course in foreign language.

#3. Intermediate (4) (I)
   (To be offered in the fall 1961)
   Prerequisite: German 2 or two 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; outside reading with oral and written reports. A general education course in foreign language. Not open to students with credit for German 8A.

#4. Intermediate (4) (II)
   (To be offered in spring 1962)
   Prerequisite: German 3 or four years of high school German.
   Continuation of German 3. A general education course in foreign language.

8A-B. Scientific Reading (2-2)
   (To be offered in 1961-62)
   Prerequisite: German 2 or three years of high school German.
   Readings taken from the fields of chemistry, physics, medicine, zoology, biology.
   Not open to students with credit for German 3.

10. Conversation (2) (I)
   (To be offered in 1961-62)
   Prerequisite: German 2 or three years of high school German.
   A practical use of the spoken language, oral proficiency. No open to students with credit for German 3.

11. Conversation (2) (II)
   (To be offered in 1961-62)
   Prerequisite: German 10 or German 3, or four years of high school German.
   Continuation of German 10. A general education course in foreign language. Not open to students with credit for German 3.

40. German Civilization (2) (I)
   (Same course as Humanities 44)
   Conducted in English. No prerequisite.
   The major currents and characteristics of German culture, as expressed through the centuries in literature, art, philosophy, music, and science. A general education course in the area of foreign languages. Not open to students with credit for German 40.

41. German Civilization (2) (II)
   (Same course as Humanities 45)
   Conducted in English. No prerequisite.
   Continuation of German 40. A general education course in the area of foreign languages. Not open to students with credit for German 40.

UPPER DIVISION COURSES

101A-101B. Conversation and Composition (3-5)
   (To be offered in 1961-62)
   Prerequisite: German 4 and 6 (old sequence) with a grade of C or better, or German 10A-101B.
   Translation into German of moderately difficult English prose. Free composition under the guidance of the instructor.
   Oral and written practice in persuasive German.
HEALTH EDUCATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty
Professors: Kittinger; Lauritsen (Chairman)
Assistant Professors: Grawunder; Harper, L.
Lecturer: Huff

Offered by the Department
Muster of arts degree for teaching service with a concentration in health education.
Minor in health education.
Teaching major in health education leading to the general secondary credential in the postgraduate year.
Teaching minor in health education for the general secondary credential.

THE MASTER'S DEGREE

The master of arts degree for teaching service with a concentration in health education is offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJOR IN HEALTH EDUCATION WITH THE B.S. DEGREE

Courses in the major are in addition to 45 units in general education courses, except that nine units in the natural sciences may be counted in general education. Students majoring in health education are not required to complete a minor for the B.S. degree.

Lower Division Requirements. Health Education 65, 90; Zoology 8 and 9; Chemistry 2A-2B; Home Economics 4A; and Psychology 12.

Upper Division Requirements. Thirty-six upper division units to include Health Education 145, 150 or 151, 153, 175, 181, 190, 191; Microbiology 101; Education 112 (or equivalent); Physical Education 161; Sociology 135; and five to seven units to be selected in consultation with the adviser in health education.

MINOR IN HEALTH EDUCATION

The minor consists of 15 to 22 units in health education, nine units of which must be in upper division courses. Courses will be determined in consultation with the departmental adviser.

TEACHING MAJOR IN HEALTH EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a minimum of six upper division units in the credential program, including teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in health education for the general secondary credential is the same as the major for the B.S. degree.

Postgraduate Year. In addition to other credential requirements in the postgraduate year, the credential candidate must complete a minimum of six upper division units in subject fields commonly taught in junior and senior division or graduate units in subject fields commonly taught in high schools. Students with the teaching major in health education must meet this requirement by completing six units selected from the following graduate courses:
Health Education 200, 202, 205, and 210.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.
TEACHING MINOR IN HEALTH EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in health education for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units to include, in the lower division, Health Education 45, 61, and 90; and in the upper division, 15 units to be selected from Health Education 145, 151, 153, 154, 175, 181, 190, 191, and Physical Education 161. Courses should be selected in consultation with departmental adviser.

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.

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.

590. 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. A general education course in family life education.

UPPER DIVISION COURSES

145. Safety Education and Accident Prevention (3) II
   Highway safety, the fundamentals of safety programs and techniques in home, school and industry. Partially satisfies the requirements for state credential in driver education.

151. Health Education for Elementary Teachers (2) I, II
   The teacher's role in the development of the different aspects of the school health program, with emphasis upon the planning and presentation of instructional materials and upon community resources and relationships. Not open to students with credit in Health Education 151.

151. Health Education for Secondary Teachers (2) I, II
   A study of the health status of adolescents and of the teacher's function in the secondary school health program. Emphasis is placed upon statutory requirements in stimulants and narcotics and upon safety and accident prevention. Not open to students with credit in Health Education 150.

152. School Health Instruction Programs (3) I
   The construction of the health education program, including objectives, sequence and selection of instruction, teaching methods, source materials, evaluation procedures, and instructional units.

153. Administration of the School Health Program (3) II
   Administrative responsibilities and procedures in organizing and conducting the school health program. Principles, policies, and practices involved in instruction, service, environment, and community relationships.

154. Workshop in Health 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.

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

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.

HISTORY

181. Health and Medical Care (3) II
   Prerequisites: Senior or graduate standing with a major or minor in health education or closely related areas.
   A study of health values, concepts, and attitudes; health products and facilities; hospital care and hospitalization plans; governmental health controls; economic and cultural influences upon health and medical care; professional contributions, relationships, and careers, national and international health programs. Not open to students with credit for Sociology 121.

190. Introduction to Public Health (3) I
   Philosophy, development, organization, administration, and legal aspects of public health in the United States. Disease prevention and control, health education, and the other functions and activities of official health departments, voluntary agencies, private physicians and others engaged in professional health work.

191. Supervised Field Experience (1-3) I, II
   Prerequisites: 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 departmental adviser.

GRADUATE COURSES

200. Evaluation Procedures in Physical Education, Health Education and Recreation (3) I (Same course as Physical Education 200)
   A study of tests and measurement in the profession with practice in their use, construction and interpretation of results. Not open to students with credit for Physical Education 200.

202. Problems in Health Education (3) (Alternate Years)
   Current problems in Health Education, studied through a review of the literature, discussion of trends, observation of school situations, together with the analysis and evaluation of actual problems. Written reports required.

205. Curriculum in Physical Education and Health Education (3)
   (Offered in alternate years) (Same course as Physical Education 205)
   Analysis of current curricula in physical education and health education, with special emphasis upon curriculum construction and evaluation. Not open to students with credit for Physical Education 205.

210. Seminar (3) I, II
   Prerequisites: Major or minor in health education, physical education, or a closely related area, or consent of instructor.
   Seminars are offered in the following areas of health education. None of the fields may be repeated for credit.
   A. Stimulants and depressants
   B. Communicable and noncommunicable disease
   C. Dental health

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

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

IN THE DIVISION OF HUMANITIES

Faculty

Professors: Johnson, A.; Nasair, Ragen; Ridgout (Chairman); Rohfleisch; Webb
Associate Professors: Merrill, J.; Pinetti; Rader
Assistant Professors: Hanchett, Ridge, Wineman
Offered by the Department

Master of arts degree with a major in history.
Master of arts degree for teaching service with a concentration in history.
Major in history with the A.B. degree.
Minor in history.
Teaching minor in history for the general secondary credential.

THE MASTER'S DEGREE

The master of arts degree with a major in history and the master of arts degree for teaching service with a concentration in history are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJOR IN HISTORY WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. Students majoring in history are not required to complete a minor for the degree. A reading knowledge of one foreign language is required.

Lower Division Requirements. History 4A-4B or 8A-8B. Recommended: Both 4A-4B and 8A-8B, and Political Science 1A-1B or 71A-71B, 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 departmental adviser.

Upper Division Requirements. 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) Pacific Asia and the Far East. These courses must be selected under the guidance of the chairman of the department.

Foreign Language Requirement. A reading knowledge of one foreign language. Proficiency may be demonstrated either by course work (ordinarily 12 units) or by examination administered by the History Department.

MINOR IN HISTORY

The minor consists of 15 to 22 units in history. Six sequence units must be in lower division courses. At least nine units must be in upper division courses, including a year course.

TEACHING MINOR IN HISTORY FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in history for the general secondary credential may also be used as a minor for the bachelor's degree. The teaching minor is not available to students with a major in social science. The teaching minor consists of a minimum of 30 units to include the following courses:

Social Science Electives to be chosen from anthropology, economics, geography (except Geography 101 and 103), political science, and sociology; and from three units of additional social science electives (15-18 units).

Upper Division Requirements. Six to nine upper division units in history to complete the 21-unit minor.

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:

- History 17A and 17B or 172A and 172B.
- History 8A and 8B plus an approved test or course on the U.S. Constitution.
- History 176A and 176B, or 176A and 179B, or 181A and 181B, or 190A and 190B plus approved tests or courses on (a) the U.S. Constitution and (b) California government.

Refer to the section of this catalog on General Requirements for the Bachelor of Arts and Bachelor of Science Degrees for a complete list of courses and tests approved for meeting the graduation requirement in American institutions.

EXPLANATION OF COURSES

Note: History 17A-17B does not count toward credit for a major in history.

LOWER DIVISION COURSES

4A-4B. Western Civilization (3-3)
Prerequisite: History 4A, or consent of instructor, is a prerequisite for 4B.
European institutions, culture, and thought from ancient times to the present. A general education course in the social sciences. (Formerly offered under the title, History of Europe.)

4A-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 requirements in American history, institutions and ideals. 8B meets the graduation requirement in California State and local government. A general education course in the social sciences.

17A-17B. American Civilization (3-3)
Prerequisite: History 17A is a prerequisite for 17B.
Survey of the political and social development of the United States, with emphasis placed 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 requirements in U.S. Constitution; and the second semester course, 17B, meets the requirement in California State and local government. This course is a general education course in the social sciences.

UPPER DIVISION COURSES

111A-111B. Ancient History (3-3)
Fall semester: Greece to the Roman Conquest.
Spring semester: Rome to the 5th century A.D.

121A-121B. Europe in the Middle Ages (3-3)
Prerequisite: History 121A, or consent of instructor, is a prerequisite for History 121B.
European social, cultural, and political development from the fall of Rome to the Renaissance. A general education course in the social sciences.

131A-131B. Renaissance and Reformation (3-3)
Personalities and events connected with the social, political, cultural, economic and religious changes between 1500 and 1650. Not open to students with credit for History 132A.

132S. Culture of the Renaissance (3) Summer
Development of art, literature, philosophy and social life between 1300 and 1600. Not open to students with credit for History 131A-131B.

141. Europe in the 17th and 18th Centuries (3)
This course is a prerequisite for History 142.
European thought, politics and international relations from the Thirty Years' War and Louis XIV to 1789.

142. The French Revolution and Napoleonic Era (3) II
Prerequisite: History 141 or consent of instructor.
The French on the eve of the Revolution; the Great Revolution, 1789-1799; the Napoleonic Era.

143A-143B. Europe in the 19th Century (3-3)
Prerequisite: History 144A, or consent of instructor, is a prerequisite for History 144B.
Political and social development from 1870 to the present.

145S. Diplomatic History of Europe, 1870-1920 (3) Summer
Survey of treaties, alliances and enemies leading up to World War I; World War I and the subsequent international settlements to 1920.
147A-147B. Expansion of Russia (3-3)
Political, social, and economic expansion of Russia in Europe and Asia from the earliest times to the present. Second semester: Emphasis on the twentieth century.
Prerequisite: History 151A, or consent of instructor, is a prerequisite for History 151B.

151A-151B. England (3-3)
Prerequisite: History 151A, or consent of instructor, is a prerequisite for History 151B.
Politicall, constitutional, and social developments since the Norman Conquest. Recommended for prelegal students and majors in English.

156A-156B. British and European Imperialism (3-3)
A comparative study of the growth and decline of modern empires with emphasis on the nineteenth and twentieth centuries. Special attention to relations between the United States and these countries and to recent developments in Mexico.

162. South America Since Independence (3-3)
Republics of South America. Development of national unity, struggles for political stability, exploitation, diplomatic and commercial relations with the United States, and other international problems of South America. Survey of present-day conditions.

165A-165B. Social and Intellectual History of Latin America (3-3)
A study of the development of culture and social life in Latin America, with special attention devoted to the relationship of political and social thought to the socio-economic problems of the area.

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

171A-171B. Rise of the American Nation (3-3)
Prerequisite: History 171A, or consent of instructor, is a prerequisite for History 171B.
A topical approach to the Colonial experience. The first semester stresses the European background and problems of transplantsing Old World Culture to the New World. The second semester focuses attention on contributions of the Colonial experience in literature, education, religion.

172A-172B. Development of the Federal Union (3-3)
Prerequisite: History 172A, or consent of instructor, is a prerequisite for 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 administrations of Washington through John Quincy Adams. This year-course meets the graduation requirements in American history, institutions and ideas, which meet the requirement in U. S. Constitution; and 172B includes material in general education course in the social sciences.

173A-173B. Expansion and Conflict: The United States from Jackson to the Age of Industry (3-3)
Prerequisite: History 173A, or consent of instructor, is a prerequisite for History 173B.
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 (3-3)
Postwar reconstruction and economic developments to the close of the nineteenth century.

175A-175B. The United States in the 20th Century (3-3)
The United States as a world power; social and economic problems posed by the machine age; political action and adjustment, actual and proposed, intended as solutions for these problems.

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 history, institutions and ideas.

177A-177B. 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 ideas. A general education course in the social sciences.

178A-178B. 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, finances, 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 ideas.

179. California (3) I, II
The economic, social, intellectual, and political development of California from the earliest times. Emphasis will be on the founding of California, international struggles for California; American conquest and Gold Rush Era; development of California as a state. This course meets the graduation requirement in American history and local government.

180A-180B. The Pacific Ocean Area (3-3)
A general survey of the history and civilization of the peoples of the Pacific, with special emphasis upon exploration, trade, international rivalries, and social evolution of the island areas.

181A-181B. The Far East (3-3)
Particular emphasis during the first semester upon the history, both internal and international, of the Far East through the 19th century. The second semester will be devoted to a consideration of developments in the 20th century.

182. China (3) I
A survey of Chinese history and institutions from antiquity to the present.

183. Japan (3) II
A general survey of the political, economic and social development from the foundation of the empire to contemporary times. Special attention will be given to religions, philosophy, literature, and the arts.

188. Introduction to Historiography and Historical Method (2) I
Prerequisite: Senior standing.

191. Historical Survey: History of Civilization (3-3)
Prerequisite: Consent of instructor. History 210A is a prerequisite for 211A.
Required of all applicants for advanced degrees. Open to social science majors.

201. Seminar in English History (3-3)
Prerequisite: Consent of instructor. History 21A is a prerequisite for 21B.
Directed research in selected aspects of English history.

270A-270B. Seminar in American History (3-3)
Prerequisite: Consent of instructor. History 270A is a prerequisite for 270B.
An introduction to intensive investigation of various phases of American history.

276A-276B. Seminar in Diplomatic History (3-3)
Prerequisite: Consent of instructor. History 276A is a prerequisite for 276B.
Selected topics in recent diplomatic relations.

281A-281B. Seminar in the History of the West and California (3-3)
Prerequisite: Consent of instructor. History 281A is a prerequisite for 281B.
Directed research in various topics in the History of the West and California.

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.
MINOR IN HOME ECONOMICS

The minor consists of 17 units in home economics to include Home Economics 115, 150, and six upper division units of electives in home economics.

TEACHING MAJOR IN HOMEMAKING EDUCATION WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must complete, in addition to 45 units in general education courses, (1) a teaching major in homemaking education and (2) the additional professional courses in teacher education. A minor is not required for the degree.

For additional information on the credential, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major in Homemaking Education

Lower Division Requirements. Home Economics 2, 3, 15, 30, 40, 41, 43, 70; Art 6A and Economics 1A (both of which may be counted in general education); Biology 1; Chemistry 2A-2B; and Physics 5. (Total, 34 units.) Twelve units in the natural sciences may be counted in general education.

Upper Division Requirements. A minimum of 24 upper division units in home economics to include Home Economics 100, 115, 131, 151, 152, 170, 171, 179, 180, and three units to be selected from Home Economics 102, 116, 117, or approved electives.

The student must include either in general education or in the major a course in courtship and marriage (Home Economics 35 or Sociology 35) or Sociology 135, Marriage and the Family, which may be taken in the major with approval of the adviser.

Professional Courses in Teacher Education

In addition to the teaching major in homemaking education, the student must complete 22 upper division units of professional courses in teacher education to include Education 100, 110, 120, 121C, 180, and Health Education 121.

TEACHING MAJOR IN HOMEMAKING EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher training program, completion of a bachelor's degree, completion of a teaching major, a year of related work, and additional requirements in the credential program, including teaching major, and additional requirement in the credential requirements, a postgraduate year. For a complete description of the requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in homemaking education may be completed in one of the following ways:

1. By completing the special secondary credential in homemaking education with the A.B. degree and the additional courses required in the postgraduate year, with emphasis in home economics.
2. By completing the home economics major for the A.B. degree, an emphasis in general home economics (without the special secondary credential), an additional 12 units in home economics, and the required courses in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division courses, including senior and junior division courses, in subject fields commonly taught as junior and senior high school, to include at least four upper division units in home economics courses approved by the departmental adviser in homemaking education.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of the approved curricula in Teacher Education for a list of the approved teaching minors for the credential.

TEACHING MINOR IN HOMEMAKING EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in homemaking education for the general secondary credential may also be used as a minor in home economics for the bachelor's degree. The minor consists of a minimum of 21 units, including the following courses: in
the lower division, Home Economics 3, 15, 70, and one to four units of electives in home economics (9-12 units); and in the upper division, Home Economics 150, 170, and seven to nine units of upper division electives in home economics (12-14 units).

TEACHING MINOR IN HOME ECONOMICS FOR THE JUNIOR HIGH SCHOOL CREDENTIAL

The teaching minor in home economics for the junior high school credential is the same as the minor for the bachelor's degree, except that the selection of elective courses must be made with approval of the home economics credential adviser.

LOWER DIVISION COURSES

*1. General Home Arts (3) I, II
Three lectures. No prerequisite.
A general education course in family life education. Consideration of necessary preparation for marriage with emphasis on a stable, happy, democratic family life, family budgeting and money management; finding a home to buy, build or rent; child care, proper training and guidance; home safety. Open to men and women.

2. Orientation to Home Economics as a Profession (1) I, II
One lecture. No prerequisite.
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. No prerequisite.
Selection, purchase, and serving of meals with a consideration of nutritional needs of the family groups, food habits, and social customs; management problems. A general education course in family life education or in practical arts in the area of literature, philosophy, and the arts.

4A. General Nutrition (2) I, II
Two lectures. No prerequisite.
Practical problems of nutrition, including food requirements, food selection, and food habits. The relation of nutrition to health. Open to both men and women, except home economics majors. Maximum credit in Home Economics 3 and 4A is four units. A general education course in family life education or in practical arts in the area of literature, philosophy, and the arts.

4B. Nutrition Laboratory (1) II
Three hours of laboratory. No prerequisite:
Prerequisite: Limited to students in the nursing program.
Principles of nutrition applied to food preparation, meal planning, and special diets.

14. Workshops 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.
No area may be repeated for credit, but credit may be earned in two areas concurrently. Maximum credit is five 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. No prerequisite.
Commercial patterns and their adaptation; fitting and construction, primarily with practice. Good grooming. A general education course in family life education and in practical arts in the area of literature, philosophy, and the arts.

30. Family Housing (2) I
One lecture and three hours of laboratory.
Prerequisite: Art 6A.
Choosing and furnishing a home from the standpoint of economy, comfort, and beauty. (Formerly Home Economics 130.)

131. Courtship and Marriage (3) I, II
(Same course as Sociology 35)
Emphasizes preparation for successful marital adjustment by presenting materials that will help students to solve their own courtship, marriage, and family problem. A general education course in family life education. Not open to students with credit for Sociology 35 or any course in marriage and the family.

40. Budgeting the Family Income (2) I, II
Two lectures. No prerequisite.
Family buying problems; finance planning, accounting; consumer credit, investments and control of property.

41. Home Care of the Sick. (1) II
One lecture. No prerequisite.
Family health, mother and baby care, safety in the home.

43. Household Equipment (2) I, II
Three hours. No prerequisite.
Selection, methods of operation, and care of household appliances. The testing of various types of equipment for safety, efficiency, and cost of operation. Efficient kitchen arrangement.

976. Children in the Home (2) I, II
Two lectures and one hour of observation. No prerequisite.
Development during the prenatal period, first 10 years. Nutrition, physical development, and family influences on the young child. A general education course in family life education.

UPPER DIVISION COURSES

100. Advanced Foods (3) I
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. No prerequisite.
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 and Dietetics (3) II
Two lectures and three hours of laboratory.
Prerequisite: Home Economics 100.
Principles of nutrition and dietetics as related to individuals and family groups.

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 dining. An experience is provided in the campus cafeteria, industrial food service. Laboratory experience is provided in the campus cafeteria, industrial food service and hospitals.

104. Institutional Food Organization and Management (3) II
Two lectures and three hours of laboratory.
Prerequisite: Home Economics 103.
Study of problems involved in the organization of food service units, problems of operation and control of employees and equipment; cost of food service, specifications, operation and care of equipment; organization of food service units, problems of operation and control of employees.

115. Advanced Clothing (3) I, II
Six hours.
Prerequisite: Home Economics 15.
Fitting and construction processes applied to wool, silk, and synthetic fabrics, emphasizing fundamental principles of construction.

116. Advanced Clothing Design (3) II
Six hours.
Prerequisite: Home Economics 115.
Principles of tailoring: planning and construction of coats and suits.
117. Clothing Selection (3) I
Three lectures. No prerequisite.
Appropriate clothing for the individual and the family. Basic art principles, fashion trends, history of costume, buying practices; current legislation in textiles and clothing.

131. Home Furnishing Laboratory (2) II
One lecture and three hours of laboratory.
Prerequisite: Home Economics 15 and credit or registration in 130. Available to nonmajors without prerequisite.
Simple upholstering techniques; finishing furniture and interior woodwork. Students supply their own tools, furniture, and fabrics.

150. Home Management (3) II
Open to both men and women, but not open to home economics majors.
Efficient management of the home, family co-operation, establishment of goals, and productive use of money, time and energy. A general education course in family living. Not open to students with credit for Home Economics 113, Management in Family Living.

151. Management in Family Living (3) I
Prerequisite: Home Economics 46. Open only to home economics majors.
Scope and meaning of management in the home, recognition and use of resources available; emphasis on time and energy; adaptation of work simplification techniques for use in studies of activities in homes and in home economics laboratories. May not be taken by students who have previously received credit for Home Economics 150.

152. Home Management Laboratory (5) I, II
Five weeks' residence in a family-size unit.
Prerequisite: Home Economics 100 and 150; consent of the instructor; and departmental approval.
Practical applications and evaluative experience in home management and family living. (Formerly numbered 151.)

160. Merchandise Analysis (3) II (Same course as Business Administration 160)
Three lectures. No prerequisite.
Characteristics, merits, limitations, care, and selling points of the more important textile and non-textile products. Stress on manufacturing processes as they affect consumer demands. Open only to home economics majors. Not open to students with credit for Business Administration 160.

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

176. Child Development Laboratory (2) I, II
One lecture and discussion and two hours of observation and participation.
Prerequisite: Home Economics 70 or consent of the instructor.
Observation of young children; participation in child and parent education.

177. Advanced Child Study (3) I
Prerequisites: Psychology 1 and Home Economics 170; or equivalents.
Readings, group discussions, and interpretations of scientific literature which contribute to understanding of child behavior. An advanced analysis of physical, social, and psychological factors which determine the direction of human development.

179. Problems of Family Living (2) II
Prerequisites: Psychology 1, Home Economics 35 and 70, or equivalents.
Dynamics of family living; attitudes, practices, social and psychological interaction, and family life patterns in different cultures, social classes and ethnic groups.
(formerly Home Economics 42; not open to students with credit in this course.)

180. Demonstration Methods (1) I
Two hours activity.
Prerequisite: Nine units in home economics courses.
Organizing materials and acquiring techniques for demonstrations; observation and evaluation of professional demonstrations.

111. Materials and Techniques for Teaching Home Economics (2) II
Two hours.
Prerequisites: Home Economics 121C, or concurrent registration.
Development and use of audio-visual and other instructional materials.

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

GRADUATE COURSES

200. Seminar (3) I, II
Prerequisite: Home economics major.
Seminars are often offered in each of the following fields of home economics. None of the fields may be repeated for credit.
A. Food and Nutrition
B. Home Management and Family Economics
C. Textiles and Clothing
D. Home Economics Education and Organization
E. Child Care and Development
F. Marriage and Family Relationships

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

HUMANITIES IN THE DIVISION OF HUMANITIES

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

Offered by the Division
Curriculum in American Studies.
Curriculum in European 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 related to the arts, music, and the sciences. The courses are designed to provide a more coherent and meaningful program of study for the student.

AMERICAN STUDIES CURRICULUM

The program in American Studies is designed for the undergraduate student who wishes to earn a liberal arts degree with a concentration in American Studies. The program stresses the American heritage, in both its uniqueness and its debts to other cultures. The curriculum centers in American History, literature, and related fields, outside as well as inside the Division of Humanities.

Major and Minor Combinations. A departmental major is required in history (with concentration in American history) or in English (with concentration in American literature). A minor, to be approved by the faculty adviser in American Studies, may be taken in any department of the college which offers an appropriate grouping of courses. Knowledge of one foreign language is required, as specified in the departmental major.

Within the scope of the American Studies program, the English-Social Science Social Science-English major-minor combination, as defined by the student, may be arranged in consultation with the general secondary teaching credential, may be arranged in consultation with the general secondary teaching credential, in consultation with the general secondary teaching credential.

Course Requirements and Recommendations. Arrangement of courses in the American Studies curriculum must conform to the following pattern: Units

1. Forty-two units in courses on American culture, with from 12 to 18
   units in each of the following fields:
   (a) History of the United States
   (b) American literature and philosophy
   (c) The United States in the social sciences of anthropology, economics, geography, political science, and sociology
Courses will be selected from approved lists, with approval of the adviser in American Studies.

II. Fifteen units of courses in the foreign backgrounds of American civilization, as recorded and interpreted by history, literature, philosophy, the arts, and the social sciences. Courses will be selected from approved lists, with approval of the faculty adviser in American Studies.

III. Humanities 198, Integration in the Humanities. Total course requirements 60 units.

The student will file with the Evaluations Office a master plan approved by the faculty adviser in American Studies.

EUROPEAN STUDIES CURRICULUM

Specialization in European Studies beyond the requirements for a departmental liberal arts degree is available within the Division of Humanities. The largest groupings of courses are in the departments of Foreign Languages and History, and in Comparative Literature, and supporting courses are offered regularly by other departments and other divisions of the college. The extended curriculum in civilization, a foundation for graduate work in the major departments, and preparation for residence in continental Europe.

Major and Minor Combinations. A departmental major is required in history (with a concentration upon European history), or in French, Spanish or Romance Languages. A minor is required in comparative literature, economics, English, French, geography, German, history, political science, or Spanish. The major and minor or at least one European language besides English is required.

Course Requirements

I. A minimum of 42 upper-division units, including a departmental major as explained above and one or two departmental minors, selected with the approval of a faculty adviser for the European Studies curriculum. 42 units.

II. Humanities 198, Integration in the Humanities 3 units.

III. A minimum of 70 units, in either the lower or upper division, distributed as follows: 70 units.

(a) Literature, philosophy, and the fine arts in continental Europe (no fewer than 12 units)
(b) European historical development (no fewer than 12 units)
(c) European geographical, governmental, and economic conditions (no fewer than 6 units)
(d) Foreign languages (no fewer than 16 units, or the equivalent in one language)

A list of approved courses, including options in general education, will be issued annually.

Total course requirements 70 units.

The student will file a master plan with the Evaluations Office approved by a faculty adviser in European Studies. In order to complete this curriculum, it is advisable that the master plan be made not later than the end of the freshman year.

HUMANITIES CURRICULUM

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 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 applicable.)

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.

LOWER DIVISION COURSES

42. French Civilization (2) I
   (Same course as French 40)
   Two lectures. No prerequisite.
   The major currents and characteristics of French culture, as expressed through the centuries in literature, art, philosophy, music, and science. Conducted in English. Not open to students with credit in French 40.

43. French Civilization (2) II
   (Same course as French 41)
   Two lectures. No prerequisite.
   Continuation of Humanities 42. Not open to students with credit in French 41.

44. German Civilization (2) I
   (Same course as German 40)
   Two lectures. No prerequisite.
   The major currents and characteristics of German culture, as expressed through the centuries in literature, art, philosophy, music, and science. Conducted in English. Not open to students with credit in German 40.

45. German Civilization (2) II
   (Same course as German 41)
   Two lectures. No prerequisite.
   Continuation of Humanities 44. Not open to students with credit in German 44.

46. Spanish Civilization (2) I
   (Same course as Spanish 40)
   Two lectures. No prerequisite.
   The major currents and characteristics of Spanish culture, as expressed through the centuries in literature, art, philosophy, music, and science. Conducted in English. Not open to students with credit in Spanish 40.

47. Spanish Civilization (2) II
   (Same course as Spanish 41)
   Two lectures. No prerequisite.
   Continuation of Humanities 46. Not open to students with credit in Spanish 46.

48-S. European Civilization. (3) Summer
   No prerequisite.
   A study of the civilization of Europe through a conducted travel tour. (Formerly offered as General Culture 17-S. Not open to students with credits in this course.)
138. Introduction to Aesthetic Appreciation (1) 1
   (Same course as Comparative Literature 138)
   One lecture. No prerequisite.
   Major forms of expressions and aesthetic experience in art, music, and literature,
   presented by an interdepartmental staff through lectures, demonstration, and panel
   discussions. Not open to students with credit in Comparative Literature 138 or the
   course of the same title offered as Aesthetics 138.

142. French Civilization (2) 1
   (Same course as French 140)
   Two lectures. 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. Conducted in English. Not open to students
   with credit in French 140.

142. French Civilization (2) 2
   (Same course as French 141)
   Two lectures. No prerequisite.
   Continuation of Humanities 142. Not open to students with credit in French
   141.

144. German Civilization (2) 1
   (Same course as German 140)
   Two lectures. No prerequisite.
   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. Conducted in English. Not open to students
   with credit in German 140.

145. German Civilization (2) 2
   (Same course as German 141)
   Two lectures. No prerequisite.
   Continuation of Humanities 144. Not open to students with credit in German
   141.

146. Spanish Civilization (2) 1
   (Same course as Spanish 140)
   Two lectures. 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. Conducted in English. Not open to students
   with credit in Spanish 140.

147. Spanish Civilization (2) 2
   (Same course as Spanish 141)
   Two lectures. No prerequisite.
   Continuation of Humanities 145. Not open to students with credit in Spanish
   141.

148. European Civilization (3) 1 Summer
   A study of the civilization of Europe through a conducted travel tour. (Formerly
   offered as General Culture 147-S. Not open to students with credit in this course.
   Refer to the Honors Program.

166. Honors Course (Credit to be arranged) 1, 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. Introduction to the Humanities (2) 1, II
   Three lectures.
   The investigation of topics common to two or more departments, with emphasis on
   humanities, and open to seniors with majors in English, foreign languages, history,
Teaching Major in Industrial Arts

The teaching major in industrial arts is the same as the major for the A.B. degree. Refer to the description above.

Professional Courses in Teacher Education

In addition to the teaching major in industrial arts, the student must complete 22 upper division units of professional education courses in teacher education to include Education 109, 110, 129, 121D, 180, and Health Education 151.

TEACHING MAJOR IN INDUSTRIAL ARTS FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor’s degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in industrial arts may be completed in one of the following ways:
1. By completing the special secondary credential in industrial arts with the A.B. degree and the additional courses required in the postgraduate year.
2. By completing the industrial arts major for the A.B. degree (without the credential) and the additional courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division units in subject fields commonly taught in junior and senior units in upper division courses selected with approval of the department chairman.

Teaching Minor. In the undergraduate program the student should include one catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

TEACHING MINOR IN INDUSTRIAL ARTS FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in industrial arts for the general secondary credential may consist of a minimum of 21 units to include, in the lower division, Industrial Arts 11, 21, and 51, 61, 71, and 81; and in the upper division, Industrial Arts 123 and four units of upper division elective courses in industrial arts.

TEACHING MINOR IN INDUSTRIAL ARTS FOR THE JUNIOR HIGH SCHOOL CREDENTIAL

The teaching minor for the junior high school credential is the same as the industrial arts minor for the A.B. degree. Refer to the description above.

TEACHING MINOR IN INDUSTRIAL ARTS FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor for the general elementary and kindergarten-primary credentials is the same as the industrial arts minor for the A.B. degree. Refer to the description above.

LOWER DIVISION COURSES

- General Education Shop (3) I, II
  One lecture and six hours of laboratory.
  A course in practical arts utilizing the tools and materials of the general metalworking area. Activities include individual projects, field trips, and audiovisual materials. May be counted toward general education requirements in the area of literature, philosophy, and the arts.

- Industrial Drawing (3) I, II
  One lecture and six hours of laboratory.
  Development of the skills of industrial drawing. Experience in sketching, architectural drafting, mechanical drawing, sheetmetal layout, design, planning, blackboard drawing, mapping, and other forms of graphic presentation.

- General Metalworking (3) I, II
  One lecture and six hours of laboratory.
  Development of the skills of general metalworking. Experience in machine shop practice, welding, bench metal, art metal, forge, foundry, and sheetmetal.

- General Woodworking (3) I, II
  One lecture and six hours of laboratory.
  Development of the skills of woodworking. Experience in cabinetmaking, woodturning, patternmaking, carpentry, boatbuilding, and finishing.

- Electricity-Radio (3) I, II
  One lecture and six hours of laboratory.
  Development of the skills of the electricity-radio area. Experience with electrical and radio principals and their application.

- Transportation (3) I, II
  One lecture and six hours of laboratory.
  Development of the skills of transportation machinery maintenance. Experience in the maintenance of equipment for land, sea, and air transportation and an understanding of the technical principles involved.

- Graphic Arts (3) I, II
  One lecture and six hours of laboratory.
  Development of the skills of graphic arts. Experience in hand composition, presswork, and other activities such as bookbinding, photography, silk screen, relief and reduction, and other duplicating processes. An understanding of the composition of papers and inks.

- Introduction to Photography (3) I, II
  One lecture and six hours of laboratory.
  A consideration of photographic optics and chemistry; nature of light and image formation; photographic emulsions, exposure and development. Composition and presentation. Introduction to photography. A course in practical arts which may be counted toward general education requirements. May be counted toward general education requirements in the area of literature, philosophy, and the arts. Not open to students with credit for Journalism 50.

UPPER DIVISION COURSES

- Handicrafts for Teachers (3) I, II
  One lecture and six hours of laboratory.
  Prerequisites: Consent of instructor and previous shop experience. Skills in handicrafts are emphasized and directed toward the instructional process.
102. Materials and Techniques for Teaching Handicrafts (3) I, II
Prerequisites: Industrial Arts 101.
More advanced techniques of handicrafts. Development of audiovisual aids, projects, and resource material for handicrafts. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

105-5. Construction Activities for Teachers (3) Summer
One lecture and six hours of laboratory.
Use of common hand tools in construction of teaching aids. Preparation of materials for classroom use in arithmetic, reading, science, social studies, and other curriculum areas. Not open to Industrial Arts majors.

111. General Shop for Teachers (5) I, II
One lecture and six hours of laboratory.
Prerequisite: Consent of the instructor and previous shop experience.
For industrial arts students who desire to teach general shop. Skill in the general shop is emphasized and directed toward the instructional process.

112. Materials and Techniques for Teaching General Shop (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 111.
More advanced techniques for the general shop. Development of audiovisual aids, projects, and resource material for teaching general shop. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

121. Industrial Drawing (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 114 or consent of instructor.
Further experience in sketching, architectural drafting, mechanical drawing, blueprinting, design, planning, blackboard drawing, mapping, and other forms of graphic representation. A high level of performance is expected.

122. Industrial Drawing for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 121 and Art 6A.
For industrial arts students who desire to teach industrial drawing. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

123. Materials and Techniques for Teaching Industrial Drawing (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Education 190, or consent of instructor.
More advanced techniques of industrial drawing. Development of audiovisual aids, projects, and resource material for industrial drawing. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

131. General Metalworking (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 31.
Further experience in machine shop practice, welding, bench metal, art metal, forge welding, and sheet metal. A high level of performance is expected.

132. General Metalworking for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 111 and Art 6A.
For industrial arts students who desire to teach metalworking. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

133. Materials and Techniques for Teaching General Metalworking (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 132 and Education 100.
More advanced techniques of metalworking. Development of audiovisual aids, projects, and resource material for metalworking. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

134. General Woodworking (3) I, II
One lecture and six hours of laboratory.
Further experience in cabinetmaking, woodworking, patternmaking, carpentry, bookbinding, and finishing. A high level of performance is expected.

135. General Woodworking for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 151 and Art 6A.
For industrial arts students who desire to teach woodworking. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

136. Materials and Techniques for Teaching General Woodworking (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 152 and Education 100.
More advanced techniques of woodworking. Development of audiovisual aids, projects, and resource material for woodworking. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

141. Electricity-Radio (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 61.
Further experience with electrical and radio principles and their applications. A high level of performance is expected.

142. Electricity-Radio for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 161 and Art 6A.
For industrial arts students who desire to teach electricity-radio. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

143. Materials and Techniques for Teaching Electricity-Radio (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 162 and Education 100.
More advanced techniques for electricity and radio. Development of audiovisual aids, projects, and resource material for electricity and radio. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

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

171. Transportation (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 71.
Further experience in the maintenance of equipment for land, sea, and air transportation, and development of an understanding of the mechanical principles involved. A high level of performance is expected.

172. Transportation for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 171 and Art 6A.
For industrial arts students who desire to teach transportation. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

173. Materials and Techniques for Teaching Transportation (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 172 and Education 100.
More advanced techniques of transportation machinery maintenance. Development of audiovisual aids, projects, and resource material for transportation. Physical setting, organization, and other pertinent problems are discussed. A course of instruction is prepared.

181. Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 81.
Further experience in hand composition, presswork, and other activities such as bookbinding, photography, silk screen, relief and intaglio printing, and other duplicating processes. A high level of performance is expected.
182. Graphic Arts for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 181 and Art 6A.
For industrial arts students who desire to teach graphic arts. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school programs.

183. Materials and Techniques for Teaching Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 182 and Education 100.
More advanced techniques of graphic arts. Development of audiovisual aids, projects, and resources material for graphic arts. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

185. Photography for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 85 or equivalent.
A consideration of advanced negative control, projection printing techniques, composition and editorial content, architectural and illustrative photography, and flood photoflash techniques.

190. Experimental Shop (1-2) I, II
Individual shopwork on complex projects on an experimental basis.
Prerequisite: Consent of the instructor. May be repeated with consent of the 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 shop 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 the 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 the instructor.

200. Seminar (5) I, II
Three hours of lecture. May be repeated with new materials for additional credit.
An intensive study of one phase of industrial education: (a) development of the industrial arts curriculum; (b) shop organization and management; (c) supervision philosophy of industrial education.

201. Advanced Teaching Problems (3) I, II
Prerequisite: Teaching experiences in areas selected and consent of the instructor.
May be repeated with new materials for additional credit.
Materials and advanced techniques of teaching specific activities areas, such as (a) electricity-radio, (b) general metalworking; (c) general woodworking; (d) comprehensive general shop. Stress on project design and visual materials.

267. Field Work in Industrial Arts (3) I, II
Prerequisites: Consent of the instructor, Industrial Arts 200 and Industrial Arts teaching experience. May be repeated with different material to a total of six units of credit.
Application of the principles of shop organization, management and planning in reference to the objectives of industrial arts in development of shop programs.

268. Bibliography (1) I, II
Exercise in the use of basic reference books, professional literature, and specialized bibliographies, preparatory to the writing of a master's thesis.

269. Thesis (3-6) I, II
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or a thesis for the master's degree.

JOURNALISM

IN THE DIVISION OF SOCIAL SCIENCES

Faculty

Professors: Julian (Chairman); Wimer
Assistant Professor: Brier
Lecturer: Harvey, W.

Offered by the Department

Major in journalism with the A.B. degree.
Minor in journalism.

MAJOR IN JOURNALISM WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. Journalism majors are not required to complete a minor for the degree; however, journalism minors are available to increase the scope of training for careers in jour- nalism. Minors are available for those interested in business administration or public relations. Minors are also available for those interested in radio and television. Courses in the major should be taken with the advice of their advisers and in consultation with the Department of Journalism.

LOWER DIVISION REQUIREMENTS

Journalism 50, 51A, and 51B (9 units)

UPPER DIVISION REQUIREMENTS

A minimum of 24 upper division units in journalism are required. Students planning to enter public relations must take Journalism 102, 117, 121, 151, and 152 in addition to Journalism 192 (or equivalent in professional experience). Students planning to enter public relations must take Journalism 102, 117, 121, 151, and 152 in addition to Journalism 192 (or equivalent in professional experience).

MINOR IN JOURNALISM

The minor consists of 15 to 22 units in journalism to include Journalism 49, 49A, 49B, 102, and 171.

LOWER DIVISION COURSES

49. Introduction to Mass Communications (3) I
A survey of the media and their impact on society. A comparison of the mass media; their role in the democratic process. A comparison of the mass media; their role in the democratic process.

50. News and Feature Photography (3) I
Two lectures and three hours of laboratory. An elementary course designed primarily for students of journalism and public relations work. Experience with professional photographic equipment, film processing, and reproduction. Emphasis on composition and news value of photography. Not open to students with credit for Industrial Arts 85.

51A. News Reporting (3) I
Two lectures and three hours of laboratory. Required for all majors and minors in journalism. This course is open to students with credit for Journalism 102 and 171.

51B. News Reporting (3) I
Two lectures and three hours of laboratory. Required for all majors and minors in journalism. This course is open to students with credit for Journalism 102 and 171.
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 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, and processing pictures, working with the printer, proofreading in production of The Aztec.

93. Yearbook and Magazine Production (1-3) I, II
Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.
Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on Del Sudeste and campus magazines.

UPPER DIVISION COURSES

101. Magazine Article Writing (3) II
Prerequisites: Junior standing and 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 guarantees affecting press, radio, television; rights and responsibilities of communicators in reporting public affairs.

103. Picture Editing (2) II
Editorial problems of newspaper and magazine illustration; picture selection, captioning, layout; the picture story; use of charts, diagrams, cartoons, caricatures. Students will receive credit for work on the student publications.

104. Radio and Television News (3) I (Same course as Speech Arts 187)
Television, processing wire service copy, television news, motion pictures, and kinescopes; filming, editing.
Not open to students with credit for Speech Arts 187.

105. Editorial Writing (3) II
Training in the principles and policies of editorial composition for mass communications media.

106. Technical Writing (3) II
Reporting technical developments in nontechnical language. A course in writing and editing primarily for nonmajors in journalism.

107. History of Mass Communications (3)
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.

112. Current Problems in Mass Communications (3) II
Economics, pressure groups, censorship, mechanical developments, interrelationships of the media and society; professional ethics.

113. Public Opinion Measurement (3) II
Prerequisites: Psychology 122, and consent of instructor.
Emphasis will be placed upon the processes of public opinion and the techniques of evaluation of the mass media.

114. Reporting of Public Affairs (3) II
Prerequisites: Journalism 51A, 51B, and 102.
Coverage of the city hall, courthouse, police headquarters, federal agencies, courts, and other public and political centers.

115. Comparative World Journalism (3) I
Prerequisites: Journalism 51A and 51B.
Problems and practices of world news coverage, establishing and maintaining channels of communication for the mass media, barriers to maintenance of freedom of information. Study of the responsibility of the mass media, particularly newspapers in international affairs.

116. Advanced News and Feature Photography (3) II
Prerequisites: Journalism 50 or equivalent.
Techniques for achieving the technical and story-telling qualities in photojournalism. Formerly Journalism 53; not open to students with credit for this course.

117. News Editing (3) I
Prerequisites: Journalism 51A and 51B.
News editing, writing headlines, making up pages, handling telegraph copy.

118. High School Journalism (3) II
Methods of conducting high school journalism classes. Editorial, business and administrative aspects of school publication work, with emphasis on copy editing, mechanical aspects of publication, and advertising.

119. Honors Course (Credit to be arranged) I, II
Special study open to members of the Honors Program in journalism. Refer to the Honors Program Circular.

120. Public Relations (3) I, II (Same course as Business Administration 135)
Prerequisites: Principles, methods, and objectives of the mass media. Study of the "publics" of institutions and industry; case studies of public relations problems. Not open to students with credit for Business Administration 135.

121. Problems in Public Relations (3) II
Prerequisites: Journalism 51A and 51B.
Current public relations problems of industry, public agencies, and other institutions.

122. Writing for Radio and Television (3) II (Same course as Speech Arts 184)
Prerequisites: Speech Arts 50 or equivalent.
Preparation of scripts, documentaries, and copy for radio and television programs. Not open to students with credit for Speech Arts 184.

123. Internship in Journalism (1-6) I, II
Prerequisites: Journalism 51A, 51B, and consent of instructor.
Internship in journalism by arrangement with the instructor. Includes reporting, editing, and processing pictures, working with the printer, proofreading in production of The Aztec.

124. 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.

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

IN THE DIVISION OF HUMANITIES

Offered by the Division of Humanities

Major in language arts with the A.B. degree (limited to students in teacher education).
Teaching major in language arts leading to the general secondary credential in the postgraduate year.

MAJOR IN LANGUAGE ARTS WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. The language arts major includes courses in the fields of composition, dramatics, journalism, language, literature, radio, television, and speech arts. It is primarily designed for students who plan to take the general secondary credential.

Students electing this major for the bachelor's degree must have completed the following requirements by date of degree candidacy:

1. Admission to teacher education.
2. At least eight units in professional education courses.
3. A teaching minor, other than in English or speech arts, selected from one of the teaching minors for the general secondary credential. At least 15 units in the minor must be in upper division courses, but may be completed for the degree. Students taking the general secondary credential may complete the remaining 15 units in this teaching minor in either the undergraduate or postgraduate program.

Requirements in the Major

Lower Division Requirements. Six units selected from English 50A, 50B, 52A, 52B, 60A, 60B (or a substitution of two upper division courses selected from English 116A, 116B, 118A, 118B, 119A, 119B, 120A, 120B, 126A, 126B, 143A, or 145B); Journalism 51A; Speech Arts 60A, 60B, 51A, or 51B; Speech Arts 81A or 81B (15 units).

Upper Division Requirements. Twenty-seven upper division units to include English 192; English 196 or 191; English 131, 132, 133, or 134; English 117A, 117B, 152A, or 152B; Journalism 152; Speech Arts 108A or 108B, 139 and 174; Speech in American literature, the upper division course work in literature should be taken in other areas.

TEACHING MAJOR IN LANGUAGE ARTS FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, and additional requirements in the credential program, including a complete description of the credential requirements.

Teaching Major. The teaching major in language arts for the A.B. degree.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division units in subject fields, including four units in junior and senior high schools, to include one course in one of the approved teaching minors for the credential (other than a minor in English Teacher Education) for a list of the approved teaching minors.

LATIN

IN THE DIVISION OF HUMANITIES

Faculty

Professor: Burnett

Offered by the Department of Foreign Languages

Courses in Latin.
Major or minor work in Latin is not offered.

LOWER DIVISION COURSES

NOTE: The following sequence of elementary and intermediate courses will be replaced by a new series of four-unit courses beginning with the fall semester, 1960.

1. Elementary (4) I
   (To be discontinued after spring 1961.)
   Three lectures and one hour of laboratory.
   Prerequisite: Latin 1 or one year of high school Latin.
   Continuation of Latin 1. A general education course in foreign language.

2. Intermediate (3) I
   (To be discontinued after fall 1961.)
   Reading of selected passages emphasizing the contribution of the ancient language to our own. A general education course in foreign language.

3. Intermediate (3) II
   (To be discontinued after spring 1962.)
   Continuation of Latin 3. A general education course in foreign language.

NOTE: The following sequence of courses will replace the series of courses listed above, beginning with the fall semester, 1960.

1. Elementary (4) I
   (To be offered in fall 1960.)
   Study of the language and Roman culture, with reading of selected prose passages. A general education course in foreign language.

2. Elementary (4) II
   (To be offered in spring 1961.)
   Prerequisite: Latin 1 or two years of high school Latin.
   Continuation of Latin 1. A general education course in foreign language.

3. Intermediate (4) I
   (To be offered in fall 1961.)
   Prerequisite: Latin 2 or three years of high school Latin.
   Reading of selected passages emphasizing the contribution of the ancient language to our own. A general education course in foreign language.

4. Intermediate (4) II
   (To be offered in spring 1962.)
   Continuation of Latin 3. A general education course in foreign language.

LATIN-AMERICAN STUDIES

IN THE DIVISION OF SOCIAL SCIENCES

Offered by the Division

Major in Latin-American studies with the A.B. degree.

MAJOR IN LATIN-AMERICAN STUDIES WITH THE A.B. DEGREE

This major in Latin-American studies 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 STATE COLLEGE

High School Preparation

High school students preparing to enter this program should include in the high school course of study 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 in the Major

Courses in the major are in addition to 45 units in general education courses except that 12 units in the social sciences may be counted as general education.

Students with this major are not required to complete a minor, but must have a reading and speaking knowledge of Spanish or Portuguese; their program is selected with the approval of the adviser.

Lower Division Requirements

Six units in each of the following groups of courses: Anthropology 2 and 3; Economics 1A-1B; Geography 1 and 2; History 84A; and Political Science 1A-1B (18 units).

Upper Division Requirements

Thirty upper division units from the fields named above, to include 12 units from one field, six units from each of two additional fields, and six units from any of the fields. Courses strongly recommended: Anthropology 173, 175, and 177; History 101 and 102, Political Science 172B, Economics 190, Geography 121, History 165A-165B, and Political Science 170A-170B and 171.

Requirements in Foreign Language and Area Studies

A reading and speaking knowledge of Spanish or Portuguese. Proficiency may be demonstrated either by course work (ordinarily 12 units) or by examination. Students are also urged to include the following courses within general education requirements: Art 51, Comparative Literature 10A-10B, and Spanish 141 or Humanities 147.

LIBRARY SCIENCE

IN THE DIVISION OF SOCIAL SCIENCES

Faculty

Professor: Stone, John Paul

Offered by the Division of the Social Sciences

Course in use of the library.

Major or minor work is not offered in Library science.

LOWER DIVISION COURSE

Use of the Library (2) I. II

The chief object is to give a working knowledge of some of the resources of the library which every teacher and student should understand—the decimal classification, the card catalog, periodical indexes, and the most important reference books; to prepare the student for the preparation of bibliographies. The course will also prepare the student to become a librarian. A general education course in practical arts, in the area of literature, philosophy, and the arts.

MATHEMATICS

IN THE DIVISION OF PHYSICAL SCIENCES

Faculty

Professors: Eagle, Harris, A.; Harvey, A.; Riggs (Chairman) Associate Professors: Brandt, N.; Smith, N.; Warren, L.; Willerding Assistant Professors: Becker, Bell; Bone, Burten, Clark, Emerson; Evans; Holm, C.; Hirsch, Mozer; Saltz, Shaw, Walters

Instructors: Alridge, Guidali; Hemming; MacDonald

Lecturers: Cochrane; Marosz; Schey; Simmons; Spangler, C.

Offered by the Department

Master of Arts degree with a major in mathematics.

Master of Science degree with a concentration in mathematics.

Major in mathematics with the A.B. degree.

Major in mathematics with the A.B. degree.

Teaching major in mathematics with the A.B. degree and junior high school credential.

Teaching major in mathematics leading to the general secondary credential in the postgraduate year.

Minor in mathematics for the general secondary credential.

Teaching minor in mathematics for the general elementary and kindergarten-primaryst credentials.

National Science Foundation Institute of Mathematics Teachers. Mathematics Placement examinations.

THE MASTER'S DEGREE

The master of arts degree with a major in mathematics, the master of arts degree in teaching service with a concentration in mathematics, and the master of science degree in applied mathematics are offered. For further information, see the Bulletin of the Graduate Division and the section of this catalog on the Graduate Division.

MAJOR IN MATHEMATICS WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. Students majoring in mathematics are not required to complete a minor for the degree.

Lower Division Requirements

Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. Recommended: Physics 4A-4B or 2A-2B-3A-3B, and French, German or Russian.

Upper Division Requirements

A minimum of 24 upper division units in mathematics subject to the approval of the departmental adviser. Six units may be selected from upper division courses in related areas with the approval of the adviser.

MINOR IN MATHEMATICS

The minor consists of 15 to 22 units in mathematics, six units of which must be in upper division courses. Courses should be selected in consultation with the departmental representative.

TEACHING MAJOR IN MATHEMATICS WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 45 units in general education courses, (1) a teaching major in mathematics, (2) a minor in home economics or industrial arts, or other minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in Teacher Education. It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. Twenty-four units in mathematics, at least 18 units of which must be in upper division courses.

Minor. For a description of the minor, refer to the section of this catalog on Home Economics or Industrial Arts.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 121 (methods in the major and minor fields), 130, and Health Education 131.

TEACHING MAJOR FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including special secondary credential, a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in mathematics is the same as that for the A.B. degree, except that the upper division courses must include an algebra course, a geometry course, a statistics course, history (130 or 131), a geometry course (105, 106 or 107), a statistics course, history (130 or 131), a geometry course (105, 106 or 107), and mathematical concepts (105).
Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include four units of 200-numbered courses in mathematics, selected with approval of the departmental adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

TEACHING MINOR IN MATHEMATICS FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in mathematics for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units, exclusive of course equivalents, to include the following courses:

**Lower Division Requirements.** Mathematics 40, or qualifying by examination, Mathematics 49 or 51; one course in related areas selected from Astronomy 1, Business Administration 2, Engineering 20 or 21, Physics 4A or 2A; and additional electives in mathematics for a total of 12 lower division units.

**Upper Division Requirements.** Nine upper division units in mathematics to include Mathematics 104 and six units of mathematics electives.

TEACHING MINOR IN MATHEMATICS FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in mathematics for the general elementary and kindergarten-primary credentials consists of 15 units in mathematics, not including Mathematics A.

NATIONAL SCIENCE FOUNDATION INSTITUTE FOR MATHEMATICS TEACHERS

During the academic year 1959-60, 48 mathematics teachers selected from high school and junior high schools throughout the United States will participate in a full-time program of studies at San Diego State under the auspices of the National Science Foundation. Twenty-four of these teachers will be selected from the programs of the State University of New York, Each will receive from the National Science Foundation a stipend of $3,000, plus substantial allowance for dependent travel, books, tuition and fees. The course work for these teachers will be very largely in mathematics, approximately half of it in regularly offered mathematics courses, and the rest of it in courses designed especially to meet the needs of this group. Special courses for participants in this program are listed at the end of the section on mathematics courses.

MATHEMATICS PLACEMENT EXAMINATIONS

All students who expect to enroll in Mathematics 3, 4, 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 exams will be posted on the mathematics bulletin board. Provision is also made for these examinations to be taken by the entering freshman or the transfer student prior to registration. Refer to the calendar.

LOWER DIVISION COURSES

A. Basic Mathematics (3) I, II

Fundamentals of mathematics with applications to everyday problems. Required of all students failing the competency examination in mathematics. Not open for credit to students passing this examination. May not be used in the major or minor.

B. Fundamentals of Algebra (3) I, II

General ideas and applications of algebra. A general education course in mathematics.

1. Plane Geometry (3) I, II

Prerequisite: Math 1. Fundamentals of plane Euclidean geometry developed by both inductive and deductive processes. A general education course in mathematics.

2. Intermediate Algebra (3) I, II

Prerequisite: Math 1 at this college or qualification by examination. Math 2 and 3 or Math 3 and 4 may be taken concurrently. Review of elementary algebra, exponents, radicals, logarithms, quadratic equations, arithmetic and geometric progressions.

3. Trigonometry (3) I, II

Prerequisites: Credit in plane geometry in either high school or college combined with either credit in Math 3 at this college or qualification by examination. Math 3 and 4 or Math 4 and 40 may be taken concurrently. Numerical and practical aspects of trigonometry.

4. Theory and Use of the Slide Rule (1) I, II

Prerequisites: Math 1 and 2. Practice in performing the fundamental operations of the slide rule.

5. Use of Desk Calculators (1) I, II

Prerequisites: Math 1 and 2. Techniques of computation with desk calculators with applications to the sciences.

6. Elementary Statistics (3) I, II

Prerequisite: Math 1. Tabular and graphical presentation, measures of central tendency and variability, probability, normal distribution, binomial theorem, correlation coefficient. Applications from the fields of biology, economics, etc.

7. Mathematical Analysis (3) I, II

Prerequisites: Mathematics 1 and 2, or equivalents. Concepts and applications of algebra; analytic geometry and the polynomial functions. Designed for students who do not plan to continue with emphasis on graphical methods. A general education course in mathematics.

8. Advanced Algebra and Trigonometry (3) I, II

Prerequisites: Credit in plane geometry in either high school or college combined with either Math 3 at this college or qualification by examination. A continuation of Mathematics 21 including concepts of trigonometry and the calculus of elementary transcendental functions. A general education course in mathematics. Not open to students with credit for Mathematics 50.

9. Analytic Geometry and Calculus (3) I, II

Prerequisite: Math 40 at this college with grade of C or better, or qualification by examination on subject matter of Math 40. Topics in analytic geometry, differentiation and integration of algebraic functions. A general education course.

10. Differential and Integral Calculus (4) I, II

Prerequisite: Math 50 with grade of C or better. A general education course.

11. Plane Geometry (3) I, II

Prerequisite: Math 1. Fundamentals of plane Euclidean geometry developed by both inductive and deductive processes. A general education course in mathematics.

12. Intermediate Algebra (3) I, II

Prerequisite: Math 1 at this college or qualification by examination. Math 2 and 3 or Math 3 and 4 may be taken concurrently. Review of elementary algebra, exponents, radicals, logarithms, quadratic equations, arithmetic and geometric progressions.
52. Differential and Integral Calculus (4) I, II
Prerequisite: Math 51 with grade of C or better.
Infinite series, partial differentiation, differential equations, multiple integrals, applications. Not open to students with credit for Math 117.

60. Introduction to Modern Mathematical Concepts (3) II
Prerequisite: Math 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: Math 50 or consent of instructor.
An examination of the concepts of secondary school mathematics from the teacher's point of view.

104. History of Mathematics (3) I, II
History of mathematics down to early modern times. A general education course in mathematics.

105. College Geometry (3) I, II
Prerequisite: Math 51 or 22.
A synthetic treatment of the points and lines associated with triangles and quadrilaterals, similarity, inversion, ruler and compass construction, etc. Highly recommended for all prospective teachers of high school geometry.

106. Projective Geometry (3) II
Prerequisites: Math 51 or 22 and consent of instructor.
A study of projective geometry, including collinearity, conic sections, and other properties of figures not altered by projections. Construction and study of ellipses, hyperbolas, and parabolas.

107. Non-Euclidean Geometry (3) I
Prerequisite: Math 51 or 22.
A study of attempts to prove the fifth postulate; emphasis on plane synthetic hyperbolic geometry, brief treatment of other types of non-Euclidean geometry.

111. Theory of Algebraic Equations (3) I, II
Prerequisite: Math 51 or 22.
Determinants, complex numbers, and theory of algebraic equations.

112. Intermediate Calculus (4) I, II
Prerequisite: Math 51 with grade of C or better.
Essentially the same as Math 52. Advanced students may be assigned special work. Not open to credit for students with credit for Math 52.

118A. Advanced Mathematics for Engineering Students (3) I, II
Prerequisite: Math 52 or equivalent.
Selected topics from ordinary differential equations, with applications; hyperbolic, elliptic, Bessel and gamma functions, Fourier series and integrals, electrodynamics, Laplace transforms, and partial differential equations.

118B. Advanced Mathematics for Engineering Students (3) I, II
Prerequisite: Math 118A.
A continuation of Mathematics 118A.

119. Differential Equations (3) I, II
Prerequisite: Math 52 or equivalent.
Ordinary differential equations with applications to geometry, physics, and chemistry.

121A. Advanced Calculus I (3) II
Prerequisite: Math 52 or equivalent.
The real number system, limits and other topics, with emphasis on functions of one variable.

121B. Advanced Calculus II (3) II
Prerequisite: Math 121A.
A continuation of Mathematics 121A with emphasis on functions of two or more variables.

124. Vector Analysis (3) I
Prerequisite: Math 52 or equivalent.
Vector algebra, differentiation of vectors, gradient, divergence, and curl. Applications to geometry and physics.

128A. Statistical Methods (3) I
Prerequisite: Math 12 or equivalent and Math 22 or 40.
Sampling and sampling distributions; normal distributions; F, T, Chi-square tests; confidence limits; analysis of variations.

128B. Statistical Methods (3) II
Prerequisite: Math 130A.
Correlation, regression, analysis of variance, nonparametric techniques, sensitivity experiments, design of experiments.

124. Probability (3) II
Prerequisite: Math 52 or equivalent.
Definitions, computation of probability by enumeration of cases, discrete and continuous chance variables, density functions, moments, limit theorems, selected distributions.

135. Numerical Analysis and Computation I (3) I
Prerequisite: Math 52 or equivalent.
Development of the classical polynomial interpolation formulas by finite differences; application to numerical differentiation and integration; programs will be prepared for and solved by an automatic digital computer.

135. Numerical Analysis and Computation II (3) II
Prerequisite: Math 119 and 135.
Use of classical polynomial interpolation formulas for the solutions of systems of linear equations and differential and difference equations; numerical methods of least squares; problems will be prepared for and solved by an automatic digital computer.

137. Introduction to Computer Programming (3) I
Prerequisite: Math 21 or 50.
Elementary computer programming techniques. Applications to mathematical problems.

140A. Mathematical Statistics (3) I
Prerequisite: Math 52 or equivalent.
Theoretical probability and continuous distributions, multiple and partial correlation, selected topics from modern algebra to include an introduction to the theory of groups, Boolean algebra, and finite mathematics.

140B. Mathematical Statistics (3) II
Prerequisite: Math 140A.
Theory of finite and continuous distributions, multiple and partial correlation, selected topics from modern algebra to include an introduction to the theory of groups, Boolean algebra, and finite mathematics.

146. Introduction to Modern Algebra (3) I, II
Prerequisite: Math 50 or consent of instructor.
Selected topics from modern algebra to include an introduction to the theory of groups, Boolean algebra, and finite mathematics.

155. Mathematical Logic (3) I
Prerequisite: Math 51 or 60, or Philosophy 121.
The logic of modern algebra to include an introduction to the theory of groups, Boolean algebra, and finite mathematics.

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

174. Partial Differential Equations (3) I
Prerequisite: Math 119 or equivalent.
A study of initial and boundary value problems using separation of variables methodology.
200. Seminar (2 or 3) I, II
An intensive study of one phase of mathematics, such as topology, integral equations, calculus of variations, tensor analysis, theory of numbers, ordinary differential equations, differential geometry, theoretical statistics. May be repeated with new subject matter for additional credit.
210A-210B. Mathematics of Physics (3-3)
(Same course as Physics 250A-250B.)
Prerequisite: Admission into a master's degree program.
Selected topics from matrix theory, vector and tensor analysis, orthogonal function theory, calculus of variations and probability theory with particular emphasis on applications to physical theory.
212. Advanced Ordinary Differential Equations (3) I
Prerequisite: Math. 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) II
Prerequisite: Math. 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.
224A-224B. Functions of a Complex Variable (3-3)
Prerequisites: Math. 119 and 121B. Math. 224A is a prerequisite for 224B.
Concept of analytic functions, complex integration, residues, power series, conformal mapping. (Mathematics 224 may be taken for a maximum of six units credit.)
226A-226B. Functions of a Real Variable (3-3)
Prerequisites: Math. 119 and 121B. Math. 226A is a prerequisite for 226B.
Point sets, functions and limits, continuity, differentiation, Riemann and Lebesgue integration. (Mathematics 226 may be taken for a maximum of six units credit.)
230A-230B. Abstract Algebra (3)
Prerequisite: Math. 121A. Math. 230A is a prerequisite for 230B.
Groups, rings, integral domains, fields, matrices and linear algebras. (Mathematics 230 may be taken for a maximum of six units credit.)
240A-240B. Advanced Mathematical Statistics (3-3)
Prerequisites: Math. 140B and 121A. Math. 240A is a prerequisite for 240B.
Theory of common distribution functions, derivation of sampling distributions of parametric hypotheses, general linear hypothesis theory.
290. Bibliography (1) I, II
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.
MICROBIOLOGY
IN THE DIVISION OF LIFE SCIENCES

Faculty
Professor: Myers
Assistant Professor: Walch (Chairman)

Offered by the Department
Master of arts degree with a major in biology and an emphasis in microbiology.
Master of arts degree for teaching service with a concentration in biology.
Master of science degree in applied biology.
Major in microbiology with the A.B. degree.
Minor in microbiology.
Curriculum in medical technology.

THE MASTER'S DEGREE
The master of arts degree with a major in biology and an emphasis in microbiology, the master of arts degree for teaching service with a concentration in biology, and the master of science degree in applied biology are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE
Courses in the major are in addition to 45 units in general education courses, unless otherwise specified. Students majoring in microbiology are not required to complete a minor for the bachelor's degree.

Major in Microbiology With the A.B. Degree
Lower Division Requirements. Microbiology 1 or 101; Biology 1 and 4, or Biology 5 (or equivalents); Chemistry 1A-1B and 5A; and Biology 15 or equivalent. Recommended: French or German, Mathematics 21 and 22, Physics 2A-2B-3A-3B, and Zoology 8 and 9, or Biology 101. Nine units in the natural sciences may be counted in general education.

Upper Division Requirements. A minimum of 24 upper division units in microbiology and approved related fields to include Microbiology 102, 103, 104, 107, 109, Chemistry 101A, and 115 or equivalent. Recommended: Zoology 128 and Microbiology 109.

Major in Microbiology With the B.S. Degree
Lower Division Requirements. Microbiology 1 or 101; Biology 3 and 4, or Biology 5 (or equivalents); Chemistry 1A-1B and 5A; and Biology 15 or equivalent. Recommended: French or German, Mathematics 21 and 22, Physics 2A-2B-3A-3B, and Zoology 8 and 9. Nine units in the natural sciences may be counted in general education.

Upper Division Requirements. A minimum of 36 upper division units in microbiology and approved related fields to include Microbiology 102, 103, 104, 107, 109, Zoology 128; Chemistry 101A and 115 or equivalent.

MINORS IN MICROBIOLOGY
The minor consists of 15 to 22 units in microbiology to include Microbiology 104, 105, 107, and 109, and the remainder of the units to be chosen from Microbiology 102, 103, 104, 107, 109, Zoology 101A, 107A, and 108 or equivalent.

MEDICAL TECHNOLOGY CURRICULUM
A student majoring in microbiology may also satisfy the curriculum in medical technology (formerly known as laboratory technique) by modifications in the requirements to qualify for the medical technology major. To fulfill the academic requirements for the medical technology major, the student should include Biology 104, Microbiology 109, and Zoology 128, in addition to the major in microbiology described above for the B.S. degree, except that he may choose from the following courses sufficient units to complete his major: Microbiology 101, 105, 107, and Zoology 109.

To fulfill the academic requirements to qualify for the licensing examination given by the State either for Clinical Technologist or Bioanalyst, the student should include Zoology 128, Biology 134, and Microbiology 109 and 189, in addition to the major in microbiology described above for the B.S. degree, except that he should substitute Chemistry 114A-114B for Chemistry 115, and he may choose from the following list, sufficient units to complete the major: Microbiology 105, Zoology 109, 112.

LOWER DIVISION COURSES
1. General Microbiology (Bacteriology) (4) I
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 1A or 2A (Chemistry 1A-1B for major or minor in microbiology.)
An introduction to microbiology. Effects of physical and chemical agencies upon bacteria; biochemical activities of bacteria; microscopic examination and cultivation of micro-organisms; the bacteria of air, water, soil, milk, and dairy products, other foods; industrial applications. Introduction to disease-producing micro-organisms.

UPPER DIVISION COURSES
101. General Microbiology (Bacteriology) (4) II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 1A or 2A. (Chemistry 1A-1B for major in microbiology.)
Some general areas covered as in Microbiology 1, but on more intensive upper division level.

102. Advanced Bacteriology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Microbiology 1 or 101. Recommended: Chemistry 101A, bioc hemistry, and physiology.
Agents of disease and methods of host resistance. Laboratory experience in diagnosis and control of bacterial pathogens and antibiotic sensitivity. Concepts of variance and pathogenicity, considering the host-parasite relationship.

103. Fundamentals of Immunology and Serology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 1 or 101, and consent of instructor. Antigen-antibody reactions, the immunology of protein and nonprotein cell substances, hemo-serology, and theoretical and pathologic aspects of hypersensitivity. Laboratory diagnosis by use of serological techniques.

104. Medical Mycology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 1 or 101.
A study of the mycotic agents of disease and methods of systematic identification. Concept of the mycologic agent, the pathogenesis and host response are considered.

105. Bacterial Physiology (2) II
Two lectures.
Prerequisite: Microbiology 1 or 101.
A study of the physiology and intermediary metabolism of micro-organisms. (Formerly offered under the title: Bacterial Metabolism.)

106. Bacterial Physiology Laboratory (2) II
Six hours of laboratory.
Prerequisites: Microbiology 105 or concurrent registration.
A study of bacterial growth and variation and the methods used to study and control these activities. Preparation of cellular extracts; determination of enzyme activity.

107. Virology (2) I
Two lectures.
Prerequisites: Microbiology 102 or equivalent, or consent of instructor.
A survey of viruses and Rickettsias as agents of disease. An introduction to virology, the diseases caused by viruses, and the methods used to control them. An introduction to virology, the diseases caused by viruses, and the methods used to control them.
109. Hematology (3) I
One lecture and six hours of laboratory.
Prerequisites: Biology 3 and 4, or Zoology 1.
Microscopic and chemical examination of blood. (Formerly Zoology 102.)

110. Microbiology and Man (2) I
Two lectures and demonstrations.
Prerequisite: A college course in biology.
A nontechnical course covering the nature of micro-organisms; their significance in infection, agriculture, sanitation, and industry. A general education course in the life sciences. Not open to students with credit for Microbiology 1 or 101.

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

189. Clinical Laboratory Procedures (4) II
One lecture and nine hours of laboratory.
Prerequisite: Microbiology 102, 103, 104, 109; and Chemistry 114A and 114B, taken concurrently or previously, or consent of instructor.
Experience in laboratory procedures in the college health services and science laboratories, with instruction in the appropriate fields of the licensing examinations. (Formerly Biology 109.)

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units of work in the life sciences (including courses in microbiology) with grades of A or B; and consent of the instructor.

GRADUATE COURSES

210. Seminar in Medical Bacteriology (2)
Prerequisite: Microbiology 102 or consent of instructor.

220. Seminar in Industrial and Agricultural Microbiology (2)
Prerequisite: Microbiology 101 or consent of instructor.

230. Seminar in Medical Mycology (2)
Prerequisite: Microbiology 104 or consent of instructor.

240. Seminar in General Microbiology (2)
Prerequisites: Microbiology 101 and 103, or consent of instructor.

250. Seminar in Virology (2)
Prerequisite: Microbiology 107 or consent of instructor.

260. Seminar in Immunology and Serology (2)
Prerequisite: Microbiology 103 or consent of instructor.

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

299. Thesis or Project (3) I, II
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 FINE ARTS

Faculty
Professors: Smith, J. D. (Chairman); Springfield
Associate Professors: Rost, Smith, D.; Snider
Assistant Professors: Anderson, R.; Biggs; Blyth; Fly; Ganzinger; Hard; Kemp
Lecturers: Back; Mullenix; Murray

Offered by the Department
Master of arts degree with a major in music.
Master of arts degree for teaching service with a concentration in music.
Minor in music.

Teaching major in music with the A.B. degree and special secondary credential.
Teaching major in music leading to the general secondary credential in the postgraduate year.
Teaching minor in music for the general secondary credential.
Elective courses for enrichment of cultural background.

THE MASTER'S DEGREE

The master of arts degree with a major in music and the master of arts degree for teaching service with a concentration in music are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

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 FOR ALL MAJORS

General basic requirements for the A.B. degree with a major in music in 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 therein 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 a laboratory experience, participation in two performing groups each semester, beginning with the first semester and continuing for eight semesters for majors in the major in arts and sciences, or for seven semesters for students in the special secondary credential program, one of which must be a major group (chorus, choir, glee club, orchestra, or band) in which the major instrument or voice is regularly used.

MAJOR IN MUSIC WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses, except that nine units of music courses in the performance groups may be counted.

Lower Division Requirements. Music 94A, 94B, 10ABC (may be waived in full or in part by examination), 52, 59A, 59B; eight units selected from courses numbered 70-78, 94A, and four units in the major instrument (27-31 units).

Upper Division Requirements.
Thirteen to 32 upper division units to include Music 102A, 102B, 102A, 103A, 103B, 103A, 103B, and the requirements in one of the following fields of emphasis.
(a) Performance. Four units from Music 105, 106, 153, 199.
(b) Music History and Literature. Six units from Music 102A, 102B, 103A, 103B, 199.
### Minor in Music

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. As laboratory experience, participation in one music performance group each semester for five semesters (may be waived in special cases by the department chairman).

The minor consists of 22 units in music to include the following requirements:

- In the lower division (equivalent to Music 10A/10C): Music 9A; six units selected from Music 9B, 9C, 9A; and four units selected from music courses numbered 70-88; and in the upper division, Music 125A, 125B, two units selected from Music 102A, 102B, 103A, 103B; and three units selected from courses numbered 170-188.

### Teaching Major in Music with the A.B. Degree and Special Secondary Credential

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) a teaching major in music and (2) the additional professional courses in teacher education. A minor is not required for the degree. For additional information on the credential, refer to the section of this catalog on Professional Curricula in Teacher Education.

### Minimum Basic and Credential Requirements

In addition to the general basic requirements for all majors, described above, and before recommendation for admission to directed teaching will be granted, and before recommendation for admission to the special secondary credential, candidates must have completed all lower division courses in beginning music education and have received 42 quarter units in music education courses and 60 quarter units in general education courses.

- **Music 10A/10C:** Three units in Music 10A/10C, the balance selected from Music 10B, 103A, 103B, 170-188.

- **General Education:**
  - Three units in English 1A/1B.
  - One unit in Social Science.
  - One unit in Physical Education.

- **Total:** 32 units

### Major in Music

#### Lower Division Requirements

- Music 10A/10C (may be waived in full or in part by examination), Music 9A; six units selected from Music 10A/10B, 103A, 103B, 170-188; and in the upper division, Music 102A, 102B, 103A, 103B; and three units selected from courses numbered 170-188.

### Upper Division Requirements

- Twenty-seven upper division units to include:
  - Six units in Music 170-188.
  - Three units in Music 135A, 135B, 135C, 135D, 135E, 135F, 135G.
  - Three units in Music 125A, 125B, 130, 135; six units selected from courses numbered 170-188.

### Professional Courses in Teacher Education

In addition to the teaching major in music, the student must complete 26 upper division units of professional courses in teacher education to include Education 100, 110, 120, 121G, 125, 130D, 180, and Health Education 151.

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**Outline of Specific Requirements**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Units</th>
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<tbody>
<tr>
<td>Music 9A</td>
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<td>*Psychology 1</td>
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<td>*English 1 and Speech Arts 3</td>
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<td>*Social Science</td>
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<td>Music 9B</td>
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<tbody>
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<td>Music 108</td>
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<tr>
<td>Music 146A</td>
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<td>*Electives</td>
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<tr>
<td>Music 109A</td>
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<tr>
<td>Four units selected from Music 102A, 103A, 103B</td>
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<td>Music organ courses numbered 170-188</td>
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</table>

- * General education courses. Nine units of music organization courses may be counted as general education in the area of literature, philosophy, and the arts.
- † May be waived in part or in full by examination.
- ‡ In addition to the upper division courses in the major, the student must have a sufficient number of upper division units to meet the minimum of 40 required for the A.B. degree.
### Outline of Special Secondary Credential Requirements

<table>
<thead>
<tr>
<th>First year</th>
<th>Second year</th>
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<tbody>
<tr>
<td><strong>Music 9AB</strong></td>
<td><strong>Music 9AB</strong></td>
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<tr>
<td><strong>Music 10AB</strong> (piano)</td>
<td><strong>Music 10AB</strong> (piano)</td>
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<tr>
<td><strong>Music 11AB</strong></td>
<td><strong>Music 52</strong></td>
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<td>Music organization (courses numbered 70-88)</td>
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<td>Music courses selected from 20, 25AB, 30, 35</td>
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<td>Major instrument</td>
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<td>U.S. History, Constitution, California Government</td>
</tr>
<tr>
<td>Health Education 21</td>
<td>Literature or philosophy</td>
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<td>Psychology 1</td>
<td>Natural Science</td>
</tr>
<tr>
<td>Social Science</td>
<td>Physical Education</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
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<tr>
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<table>
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<th>Fourth year</th>
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<tr>
<td><strong>Music 146AB</strong></td>
<td><strong>Music 108</strong></td>
</tr>
<tr>
<td><strong>Music 152AB</strong></td>
<td><strong>Upper division music electives</strong></td>
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<tr>
<td>Music courses selected from 120, 125AB, 130, 135</td>
<td>Music 109A</td>
</tr>
<tr>
<td>Music organization (courses numbered 170-188)</td>
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</tr>
<tr>
<td>Major instrument</td>
<td>Music organization (courses numbered 170-188)</td>
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<td><em>Natural Science</em></td>
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<td>Education 120</td>
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<tr>
<td>31</td>
<td>31</td>
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</tbody>
</table>

* General education courses. Nine units of music organization courses may be counted as general education in the area of literature, philosophy, and the arts.
* May be waived in part or in full by examination.

**TEACHING MAJOR IN MUSIC FOR THE GENERAL SECONDARY CREDENTIAL**

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, and additional requirements in the credential program, including the following:

1. **Teaching Major.** The teaching major in music may be completed in one of the following ways:
   1. By completing the special secondary credential in music with the A.B. degree and the additional courses required in the postgraduate year.
   2. By completing the music major for the A.B. degree (without the special secondary credential) and including in the major the following courses: Music 15A-15B (or equivalents); four units selected from Music 20, 25A, 25B, 30, 35; and major, the student must pass the Minimum State Credential Requirements in voice special secondary credential above. The required courses in the postgraduate year must also be completed.

**Postgraduate Year.** In addition to other credential requirements in the post-division of graduate units in subject fields commonly taught in junior and senior units to be selected from Music 200, 203, 207, 208, 209, 246, and 252.

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**Teaching Minor.** In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curriculum in Teacher Education for a list of the approved teaching minors.

**TEACHING MINOR IN MUSIC FOR THE GENERAL SECONDARY CREDENTIAL**

The teaching minor in music for the general secondary credential consists of (1) general basic requirements, and (2) course requirements in the minor.

1. **General Basic Requirements.** (1) Demonstration of vocal or instrumental proficiency for admission to the minor program may be granted; and (2) as a laboratory experience, participation in one music performance group each semester for seven semesters (may be waived in special cases by the department chairman).

2. **Course Requirements in the Minor.** Twenty-one units (exclusive of course equivalents) to include the following courses:

   **Lower Division.** Music 9A and 52; Music 10A-10B (which may be omitted in part or in full upon demonstration of proficiency); four units of performance group courses selected from courses numbered 70-88; and three to five units selected from Music 15A, 20, 25A, 25B, and 30.

   **Upper Division.** Music 146A and 146B; three units of performance group courses selected from courses numbered 170-188; and one unit selected from Music 11, 112, 116, 117, 121, 122, 126, 137, 138, 150. A student desiring to use music as a minor for the A.B. degree and at the same time meet the requirements for a teaching minor for the general secondary credential can do so by completing the music minor for the degree, to include Music 52 and the following additional courses: three units from Music 15A, 20, 25A, 25B, 30, Music 146A and 146B; and one unit from Music 11, 112, 116, 117, 121, 122, 126, 127, 131, 132, 130.

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**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. Courses are listed as elective study areas for the enrichment of their cultural background. Courses are particularly suited for these needs are Music 31 and 151 and the music courses numbered 70 to 88 and from 170 to 188; such course are designated as general education and may be taken as partial fulfillment of the literature, philosophy, and the arts requirement in general education.

Some students will be musically prepared to elect courses in music which may or may not be included in the general education requirements. Enrollment by qualified students who wish to elect these courses is encouraged.

**LOWER DIVISION COURSES**

1. **A. Music Theory—For General Elementary Teachers (3) I, II**

   **Course Hours.** No prerequisite.

   **Course Description.** Complete theory and skills including notation, meter, rhythm, scales, and melodic intervals, triads, sight singing, ear training, dictation, elementary keyboard facility, and music theory texts used. A general elementary music theory course may be substituted by candidates for the general elementary music theory course. A general education course in music theory, philosophy, and the arts.

2. **B. Music Materials for the Elementary School (3) I, II**

   **Course Hours.** Prerequisite: Music 7A or consent of instructor.

   **Course Description.** Music 7A for 7A; 9A or consent of instructor. Singing, listening, reading, sight-reading, and music projects. Creative music, instruments, repertoire of songs and records, music projects. A music course for all phases of elementary school music; music for the classroom. Not open to students with credit in these courses.

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**9A-9B. Elementary Harmony (3-3) I, II**

**Course Hours.** Prerequisite: Music 9A is a prerequisite for 9B.

**Course Description.** Music 9A is a prerequisite for 9B. Elementary Harmony, study of traditional distonies, and ear-training, keyboard harmony, study of traditional harmony, and writing exercises. A music course for all phases of elementary school music; music for the classroom. Not open to students with credit in these courses.
10A-10B. Piano—Elementary Class Instruction (1-1) I, II
Two hours. 
Prerequisite: Music 10A as a prerequisite for 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 for the kindergarten-primary credential and music majors and minors. A general education course in literature, philosophy, and the arts.

10C-10D. Piano—Elementary Class Instruction (1-1) I, II
Two hours. 
Prerequisite: Music 10B is a prerequisite for 10C; and 10C for 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 taking up the problems of breath control, tone placement, articulation and enunciation. Frequent classroom performance of simple songs.

15B. Class Voice—Continuation First Semester Voice (1) I, II
Two hours. 
Prerequisite: Music 15A or equivalent.
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.

20. Strings—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Open to all students but primarily for those whose major instrument is not one of the stringed instruments and who are preparing for a teaching credential in music. May be repeated to a maximum of two units of credit. A maximum of two units toward graduation allowed for Music 20 and/or 120.

21. Strings—Intermediate Class Instruction (1) I, II
Two hours. 
Prerequisite: Satisfactory audition before the instructor.
Material and techniques of intermediate level are studied in detail. Sections are offered in violin, viola, cello and bass. May be repeated to a maximum of four units of credit.

23A. Clarinet—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Open to all students but primarily for those whose major instrument is not clarinet and who are preparing for a teaching credential in music. Not open to students with credit for Music 125A.

25B. Oboe, Flute, and Bassoon—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Open to all students but primarily for those whose major instrument is not oboe, flute, or bassoon and who are preparing for a teaching credential in music. Not open to students with credit for 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 four units of credit.

30. Brass—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Open to all students but primarily for those whose major instrument is not one of the brass instruments and who are preparing for a teaching credential in music. May be repeated to a maximum of two units of credit. A maximum of two units toward graduation allowed for Music 30 and/or 130.

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.

33. Percussion—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Open to all students but primarily for those who are preparing for a teaching credential in music. Not open to students with credit for Music 135.

35. Percussion—Intermediate Class Instruction (1) I, II
Two hours. No prerequisite.
Open to all students but primarily for those who are preparing for a teaching credential in music. Not open to students with credit for Music 135.

41. 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 curricula leading to the A.B. degree with a major in music. See explanation below for conditions under which credit may be given for music study under private instructors. 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

41. 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 performances by great musicians and their art. Music correlated with other arts through lectures, recordings, and concerts. Closed to music majors and minors. A general education course in literature, philosophy, and the arts. (Formerly offered as Aesthetics 2. Not open to students with credit in this course.)

51. Orientation in Music Literature (3) I, II
Three 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 expression of phonograph recordings and musical scores.

51. Opera Technique (2) I, II
Three hours per week. No prerequisite.
Training in the interpretation and characterization of light and grand opera. Specific work in co-ordination of operatic ensemble.

59A. Intermediate Harmony and Two-part Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 9B.
Continuation of Music 9B. Harmonic alteration, two-voice counterpoint based on Baroque polyphonic technique, simple chorale figuration and the invention. (Music 59A was formerly offered under the number 9B and is not open to students with credit in this course.)

59B. Advanced Harmony and Three-part Counterpoint (3) I, II
Three lectures. 
Prerequisite: Music 59A.
Harmonic alteration, analysis and writing of the smaller homophonic forms, the Baroque polyphonic technique in three-voice technique, chorale figuration, the suite, the fugue in three-voice technique, chorale figuration, and the fugue. (Music 59B was formerly offered under the number 59A and is not open to students with credit in this course.)

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 music study.
ensemble and designed to provide students with practical experience in rehearsal techniques. Courses preceded by an asterisk (*) are general education courses in literature, philosophy, and the arts, unless used in the major (see the music major for specific information).

870. 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.

72A. Beginning Instrumental Ensemble (¾) I, II
Two hours.
Prerequisite: Music 20 or 25A or 30, or equivalent.
Open only to instrumental students. Group performance of simple orchestral and band scores.

72B. Intermediate Instrumental Ensemble (¾) I, II
Two hours.
Prerequisite: Music 72A or equivalent.
Group performance of orchestral and band scores of more advanced grade. Materials covered will prepare the student for minor parts in either the symphony orchestra or the symphony band.

875. 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.

876. 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.

60. Symphony Orchestra (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

885. Concert Choir (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

886. Treble Choir (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

887. Men's Glee Club (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

888. 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.

UPPER DIVISION COURSES

102A. Chamber Music Literature (2) I
Two lectures.
Prerequisites: Music 152A-152B.
Instrumental ensemble repertoire, including all ensemble combinations from sixteenth to twentieth centuries. Analysis by use of scores and recordings.

102B. Keyboard Literature (2) II
Two lectures.
Prerequisites: Music 152A-152B.
Piano, organ, and other clavier literature from the sixteenth to twentieth centuries. Recordings, scores, and guest performers.

103A. Symphonic Literature (2) I
Two lectures.
Prerequisites: Music 152A-152B.
A study of the symphony and symphonic poem; the evolution of their growth; an analysis with scores of the structure, harmonic content, and instrumentation of representative works of each period; an examination of their meaning and place in the history of music.

103B. Song Literature (2) II
Two lectures.
Prerequisites: Music 152A-152B.
Historical and musical development of the art song and of the folk song. Works of representative European and American composers in these media. Recordings and scores.

105. Modern Harmonic Practice and Four-part Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 59B.
Analysis and composition in modern idioms. Continuation of baroque polyphony into four-voice technique, writing of canons and fugues. (Music 105 was formerly offered in the lower division under the number 59B and with the same title. Not open to students with credit in this lower division course.)

106. Sixteenth Century Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 59B.
Study of the contrapuntal techniques of the sixteenth century, as revealed in the works of Palestrina, Lassus, and Ingegneri. Compositional exercise in setting parts of the Mass. Not open to students with credit in Music 106A-106B.

107. Composition (3) I, II
Three lectures.
Prerequisite: Music 59B.
Original writing in the larger homophonic and polyphonic forms, for various media. Opportunity for recital performance of original works.

108. Form and Analysis (3) I, II
Three lectures.
Prerequisite: Music 59B.
A study of structure and design as found in the traditional musical forms.

109A-109B. Instrumentation and Arranging (2-2)
Two lectures.
Prerequisites: Music 59B. Music 109A is a prerequisite for 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 repeated 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 repeated 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 repeated 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 repeated to a maximum of four units of credit.

118. **Workshop in Choral Art** (6) Summer
Prerequisite: Consent of the instructor.
An integrated course in choral and chamber music to be performed by workshop participants with the College Chorus and the San Diego Symphony Orchestra and in chamber music concerts. Development of analytical technique; study of vocal technique, of larger forms, and of styles, including performing practices of the baroque and later periods. May be taken twice for credit.

120. **Strings—Elementary Class Instruction** (1) I, II
Two hours.
Prerequisite: Junior standing.
Open to all students but primarily for those whose major instrument is not one of the stringed instruments and who are preparing for a teaching credential in music. May be repeated to a maximum of two units of credit. A maximum of two units toward graduation allowed for Music 120 and/or 20.

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 offered 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.
Open to all students but primarily for those whose major instrument is not one of the stringed instruments and who are preparing for a teaching credential in music. May be repeated to a maximum of four units of credit.

123. **Workshop in Instrumental Techniques and Chamber Music for String, Woodwind, and Brass Instruments** (2) Summer
Prerequisite: Consent of the instructor.
The analysis and interpretation of the literature for each instrument, with performance in various ensemble units; both group and individual instruction in class, under performing professional musicians.

123A. **Clarinet—Elementary Class Instruction** (1) I, II
Two hours.
Prerequisite: Junior standing.
Open to all students but primarily for those whose major instrument is not clarinet and who are preparing for a teaching credential in music. Not open to students with credit for Music 25A.

123B. **Oboe, Flute, and Bassoon—Elementary Class Instruction** (1) I, II
Two hours.
Prerequisite: Junior standing.
Open to all students but primarily for those whose major instrument is not oboe, flute, or bassoon and who are preparing for a teaching credential in music. Not open to students with credit for Music 25B.

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 offered 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, ensembles, and concerti. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

129. **Brass—Elementary Class Instruction** (1) I, II
Two hours.
Prerequisite: Junior standing.
Open to all students but primarily for those whose major instrument is not one of the brass instruments and who are preparing for a teaching credential in music. May be repeated to a maximum of two units of credit. A maximum of two units toward graduation allowed for Music 129 and/or 30.

130. **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 trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

131. **Brass—Advanced Class Instruction** (1) I, II
Two hours.
Prerequisite: Junior Standing.
Repertoire includes study of standard orchestral parts, solos, ensembles, 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.
Prerequisite: Junior standing.
Open to all students but primarily for those who are preparing for a teaching credential in music. Not open to students with credit for Music 35.

141. **Methods in Teaching Piano** (3) I, II
Three hours.
Prerequisite: Junior standing.
Teaching of beginning and intermediate piano. Survey of materials available for child and adult classes. Special consideration of the problems of the adult beginner. Supervised teaching of beginning students in individual lessons and class groups.

142. **Survey of Harmony and Musical Form** (2) Irregular
Two lectures.
Prerequisite: A minimum of four semesters of basic music theory.
A review of diatonic and chromatic harmony, modulation, and formal types. Theoretical and practical study of various genres and forms; emphasis on the principles of musical form. Not open to music majors or minors.

146A. **Sight Singing** (1) I, II
Three hours.
Prerequisite: Junior standing.
Study of music literature and composition. Emphasis on sight singing and rhythm, and preparation for the music major.

146B. **Choral Conducting** (1) I, II
Three hours.
Prerequisite: Music 146A.
Study of choral literature and techniques. Emphasis on sight singing and rhythm, and preparation for the music major.

147A. **Applied Piano** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of piano literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147B. **Applied Voice** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of voice literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147C. **Applied Flute** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of flute literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147D. **Applied Oboe** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of oboe literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147E. **Applied Saxophone** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of saxophone literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147F. **Applied Trumpet** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of trumpet literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147G. **Applied Trombone** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of trombone literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147H. **Applied Baritone Horn** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of baritone horn literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147I. **Applied French Horn** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of French horn literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147J. **Applied Tuba** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of tuba literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.

147K. **Applied Percussion** (1) I, II
Two hours.
Prerequisite: Junior standing.
Study of percussion literature suitable for the major and minor levels. Emphasis on sight singing and rhythm, and preparation for the music major.
151. Great Music (3) II
Three lectures. No prerequisite.
Instrumental and vocal music in the larger forms studied through directed listening. Artistic trends and their effect upon music composition and performance. Completion of Music 51 is recommended, but not required as a prerequisite. A general education course in literature, philosophy, and the arts. (Formerly offered as Aesthetics 102 and is not open to students with credit in this course.)
152A-152B, History of Music (2-2)
Two lectures.
Prerequisites: Music 52 and 59B, Music 152A is a prerequisite for 152B.
Detailed study of the chronological development of musical art and forms from the Middle Ages to the present. Analytical score study and assigned recordings. Familiarity with musicological resources through individual assignments. (Formerly offered as Music 152A-152B. Not open to students with credit in these courses.)
153. Opera Technique (3) I, II
Three hours. No prerequisite.
Training in interpretation and characterization of light and grand opera. Specific work in coordination of opera ensemble.
164. Honors Course I, II (Credit to be arranged)
To be arranged after consultation with the chairman of the department. Refer to Honors Program.
199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the department chairman.

PERFORMANCE ORGANIZATION COURSES

The performance group courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of technique. Courses preceded by an asterisk (*) are general education courses in literature, philosophy, and the arts, unless used in the major (see the music major for specific information).

*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.
172A. Beginning Instrumental Ensemble (1/2) I, II
Two hours.
Prerequisite: Music 20 or 25A or 30, or equivalent.
Open to all instrumental students. Group performance of simple orchestral and band scores.
172B. Intermediate Instrumental Ensemble (1/2) I, II
Two hours.
Prerequisite: Music 72A or equivalent. Group performance of orchestral and band scores of more advanced grade. Materials covered will prepare the student for minor parts in either the symphony orchestra or the symphony band.
175. Marching Band (1) I
Concurrent registration in Music 175 and 176 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
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.

GRADUATE COURSES

200. Seminar in Music Education (3) I, II
Prerequisite: Consent of instructor.
Seminars in music education are offered to provide an opportunity for concentrated study in the several areas listed.
A. Supervision of music education
B. Junior high school music
C. Marching band technique
D. Instrumental methods
E. Choral methods
203. Musicology (3) I, II
Prerequisites: Music 152A and 152B.
Principles and methods of research in aesthetics, acoustics, music history and problems. Advanced composition for various media, development of original idiom, intensive work in the practical scoring for modern music. Study of modern music. Public performance of an extended original work as a project.
204. Seminar: Music Theory (3) I, II
Prerequisite: Music 108.
Seminar in the history of theoretical materials and procedures from the twelfth century to the present with detailed analysis of selected major works.
209. Advanced Orchestration (2 to 3) I, II
Prerequisites: Music 102A, 103A, 109B.
Performance in the practical scoring for ensembles, full orchestra, and symphonies. Intensive work in the practical scoring for ensembles, full orchestra, and symphonies. Score analysis. Selected works of the class members will be performed. Conducting and scoring. Score analysis. Selected works of the class members will be performed.
218. Seminar in Choral Art (6) Summer
Prerequisite: Consent of instructor.
Study of choral and chamber music performed by seminar participants in the study of choral and chamber music performed by seminar participants. Conducting and scoring. Introduction to conducting and scoring. Conducting and scoring. Seminar conducted by Dr. A. Johnson.
246A. Advanced Choral Conducting (2) I, II
Prerequisites: 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) I, II
Prerequisite: Music 146B.
Course designed to develop skills at professional level; study of conducting style as related to band and orchestra literature, score analysis and experience in conducting.

250. Applied Music—Advanced Individual Study (1) I, II
For the graduate student who qualifies for advanced study through an audition before the Music Department faculty. See explanation below for conditions under which credit may be given for music study under private instructors. May be repeated to a maximum of two units.

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<th>Piano</th>
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252. Seminar: Music History (3) I, II
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 Baroque Era
B. Music of the eighteenth and nineteenth centuries
C. Twentieth century music

256. Bibliography (1) I, II
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

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

259. Thesis or Project (1) I, II
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

CONDITIONS UNDER WHICH CREDIT MAY BE GIVEN FOR MUSIC STUDY UNDER PRIVATE INSTRUCTORS
Credit may be allowed for private instruction in music under the following conditions:
1. The applicant for such credit must be either a regularly enrolled student in the Music Department of the college (that is, a music major or minor), or he must have as a prerequisite or be taking concurrently with his private study, three units chosen from these specific courses: Music 7A, 9A, 51, or 151.
2. The instructor giving such private work must be approved by the Music Department. All private work and names of all such teachers must be registered in the office of the Music Department chairman at the beginning of the semester.
3. Under no circumstances may a student change teachers in the middle of a semester without first notifying the chairman of the Music Department and securing his permission for this change.
4. In case of first semester of private study in San Diego State College, the student is required to take a placement examination conducted by the Music Department faculty at the beginning of the semester, which will show the status of the student at the beginning of his work.
5. Students who have dropped out of school, or have stopped taking Applied Music for credit for one semester or more, upon the resumption of that instruction for credit are required to take the placement examination. Evidence that the standards of the Music Department have been met will be shown by an examination conducted by the Music Department faculty at the end of the semester.
6. Ten clock hours of lessons and adequate preparation to pass the Applied Music examinations and the curriculum requirements of the department are required for one unit of credit.
LOWER DIVISION COURSES

1. Orientation to Nursing (1) I
   One lecture. No prerequisite.
   An introduction and orientation to the profession of nursing. Considers ethical principles, the nurses' code, and professional problems which will face the student nurse.

20A. Nursing Arts (5) II
   One lecture and six hours of laboratory.
   Prerequisite: Zoology 8, Psychology 1, Nursing 1.
   Individual hygiene and family health; orientation to the hospital as a community health agency and to the responsibilities of a nurse in providing good patient care.

20B. Nursing Arts (5) I
   Two lectures and nine hours of laboratory.
   Prerequisite: Nursing 20A; credit or registration in Zoology 9 and Microbiology 1.
   Introduction to the elements of observation and the records involved in patient care, and to the application of bacteriologic principles of asepsis and disinfection.

33A. Medical Nursing (5) I
   Three lectures and six hours of laboratory.
   Prerequisite: Credit or registration in Nursing 20B.
   Theory and practice of nursing care and medical therapy for the individual patient. Problems in total patient care.

33B. Medical Nursing (5) II
   One lecture and six hours of laboratory.
   Prerequisite: Nursing 33A.
   Continuation of Nursing 33A.

34. Surgical Nursing (5) II
   Two lectures and nine hours of laboratory.
   Prerequisite: Microbiology 1 and credit or registration in Nursing 33B.
   Theory and practice of nursing care and surgical therapy for the individual patient. Problems in total patient care.

NURSING

14. Community Nursing (2) I
   Two lectures.
   Prerequisite: Nursing 20A.
   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

Courses numbered 150 to 160 are open only to graduate nurses.

112. Obstetric Nursing (5) I, II
   Two lectures and nine hours of laboratory.
   Prerequisite: Nursing 34.
   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 34 and credit or registration in Psychology 106.
   Nursing care of infants and children; prevention and control of disease; and instruction of parents.

115. Advanced Surgical Nursing (3) I
   One lecture and six hours of laboratory.
   Prerequisite: Nursing 34.
   Methods and principles of surgical nursing in selected clinical areas. Emphasis on specialized therapeutic techniques.

118. Psychiatric Nursing (5) I, II
   Two lectures and nine hours of laboratory.
   Prerequisites: Nursing 34 and credit or 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.

124. Leadership Roles in Nursing (3) I, II
   Two lectures and three hours of laboratory.
   Prerequisite: Nursing 130.
   Professional and legal responsibilities of the nurse; selected practice activities in the role of team leader.

125. Public Health Nursing (4) I, II
   Four lectures.
   Prerequisite: Nursing 36.
   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: Nursing 36 and credit or concurrent registration in Nursing 125.
   Guided public health nursing practice in community health agencies, out-patient clinics, schools, and homes.

130. History of Nursing (2) II
   Two lectures.
   Prerequisite: Nursing 1.
   Nursing from earliest times; emphasis on the place of nursing in world history and the present social order.

Courses for Graduate Nurses

152. In-service Instruction (2) II
   Two lectures.
   Prerequisite: R.N. certificate.
   Application of the principles and methods of teaching in the various clinical services.

160. Nursing in School Health Services (3) II
   Three lectures.
   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.
Individual Study

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.
Prerequisite: Consent of the instructor.

OCEANOGRAPHY
IN THE DIVISION OF LIFE SCIENCES

Faculty
Assistant Professor: McBlair

UPPER DIVISION COURSES

*100. The Oceans (2) I
Biological and physical aspects of the oceans and their significance to man; problems of modern oceanography. One unit to apply as life science and one unit as physical science for general education in the area of natural sciences. Prerequisite: Introductory courses in life and physical sciences.

PERSONNEL MANAGEMENT CURRICULA
IN THE DIVISION OF BUSINESS ADMINISTRATION,
LIFE SCIENCES, SOCIAL SCIENCES

Personnel management curricula are offered by several departments under different academic majors. Descriptions of these majors may be found in this section of the catalog under the heading of the department offering the major.

Major in Personnel Management. This curriculum is offered by the Department of Management as a major with the B.S. degree. Refer to Business Administration, Department of Management for a description.

Major in Public Personnel Management. This curriculum is offered by the Department of Political Science as a major with the A.B. degree. Refer to Political Science for a description.

Major in Preindustrial and Personnel Psychology. This major is offered by the Department of Psychology as an area of emphasis in the psychology major with the A.B. degree. Refer to Psychology for a description.

M.A. Degree in Personnel Supervision and Training. The master of arts degree is offered in Personnel Supervision and Training. Refer to the Catalog of the Graduate Division and to the section of this catalog on the Graduate Division for further information.

PHILOSOPHY
IN THE DIVISION OF HUMANITIES

Faculty
Professors: Mendenhall; Ruja (Chairman); Searles; Shields
Assistant Professor: Nelson, S.

Offered by the Department
Major in philosophy with the A.B. degree.
Minor in philosophy.

MAJOR IN PHILOSOPHY WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. Students majoring in philosophy are not required to complete a minor for the degree. A reading knowledge of one foreign language, preferably French or German, is required.

Lower Division Requirements. Nine units in philosophy.
Upper Division Requirements. A minimum of 24 upper division units in philosophy, or 18 units in philosophy and six units selected from related fields with the approval of the departmental adviser.

PHILOSOPHY

Foreign Language Requirement. Twelve units of a foreign language or equivalent knowledge demonstrated by a test of reading knowledge (administered by the Department of Foreign Languages, in consultation with the Philosophy Department). Selection of French or German is strongly recommended.

MINOR IN PHILOSOPHY

The minor consists of 15 to 22 units in philosophy, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

1A. Introduction to Philosophy (3) I, II
The place of philosophy in intelligent living. The methods, values, and areas of philosophical inquiry. Through discussion procedures, each student is encouraged to think independently on issues in ethics and religion. A general education course in literature, philosophy, and the arts.

1B. Introduction to Philosophy (3) I, II
Prerequisite: Philosophy 1A.

10. 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. A general education course in literature, philosophy, and the arts.

UPPER DIVISION COURSES

Philosophy 1A is a prerequisite for all upper division courses except Philosophy 111A-111B and 130.

100A. Ancient and Medieval Philosophy (3) I
Prerequisite: Philosophy 1A.
Roots of Western science and philosophy, with special emphasis on Socrates, Plato, and Aristotle; philosophy in the Christian era. A general education course in literature, philosophy, and the arts.

100B. Modern Philosophy (3) II
Prerequisite: Philosophy 1A
Renaissance thought and the rise of modern empirical science; including the systematic thought of Descartes, Leibniz, Spinoza, Locke, Berkeley, Hume, and Kant; A general education course in literature, philosophy, and the arts.

101. Contemporary Philosophy (3) II
(Offered in 1960-61 and alternate years)
Prerequisite: Philosophy 1A.
The major philosophical issues, movements, and figures in American and European philosophy of the twentieth century. A general education course in literature, philosophy, and the arts.

111A-111B. Theory of the State (3-3)
(Same course as Political Science 111A-111B)
Prerequisite: Philosophy 111A is a prerequisite for 111B.
The nature of the state, its organization and activities, and its relation to the individual. The nature of the state, its organization and activities, and its relation to the individual. The nature of the state, its organization and activities, and its relation to the individual. The nature of the state, its organization and activities, and its relation to the individual. The nature of the state, its organization and activities, and its relation to the individual.

112. Deductive Logic (3) I
(Offered in 1960-61 and alternate years)
Prerequisite: Philosophy 1A.

113. Inductive Logic (3) II
(Offered in 1961-62 and alternate years)
Prerequisite: Philosophy 1A.
Definition, classification, and division. The logic of experimentation and statistics.

Formation and validation of hypotheses. Probability theories.
123. Theory of Knowledge (3) II
(Offered alternate years)
Prerequisite: Philosophy IB or equivalent.
A critical study of the major theories of human knowledge: mysticism, rationalism, empiricism, pragmatism.

125. Metaphysics (5) II
(Offered in 1961-62 and alternate years)
Prerequisite: Philosophy IB or equivalent.
Explorations of prominent theories of reality, e.g., realism and nonrealism, materialism and idealism, teleology and determinism.

128. Theory of Ethics (3) I
Prerequisite: Philosophy IA.
A study of significant and typical value theories and systems and of the current 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) II
Prerequisite: Philosophy IA.
Ethical issues of contemporary life. Individualism vs. collectivism; democracy vs. dictatorship; ethical problems arising in law, medicine, business, government, and interpersonal relationships. A general education course in literature, philosophy, and the arts.

130. Semantics (5) II (Same course as Speech Arts 130)
Recognition of various types of linguistic meaning; logical distinctions in discourse; distinction between real and verbal disagreement; recognition and correction of semantic fallacies. Not open to students with credit for Speech Arts 130.

134. Philosophy of Literature (3) I
Prerequisite: Philosophy IA.
Study of literature of philosophical significance, and of philosophical problem of literature. Representative works of rationalism, idealism, romanticism, existentialism and other modern directions of thought are considered with regard to both their intellectual and literary principles.

135. Philosophy of Religion (3) I, II
Prerequisite: Philosophy IA.
A critical survey of religious thought and practice in the major world religions; exploration of issues raised by the history, psychology, and sociology of religion. A general education course in literature, philosophy, and the arts.

136. Philosophy of Art (3) II
Prerequisite: Philosophy IA.
The nature of aesthetic experience. The principal theories of art, both traditional and contemporary, are studied in relation to actual artistic production and to the role of art in society. A general education course in literature, philosophy, and the arts.

137. Philosophy of Science (3) I
Prerequisite: Philosophy IA.
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.

162. Continental Rationalism (3) I
(Offered in 1961-62 and alternate years)
Prerequisite: Philosophy IA.
The origins, content, and contemporary significance of the rationalistic tradition with reference primarily to the philosophies of Descartes, Spinoza, and Leibniz.

163. British Empiricism (3) II
(Offered in 1960-61 and alternate years)
Prerequisite: Philosophy IA.
The origins, content, and contemporary significance of the empirical tradition with reference primarily to the philosophies of Locke, Berkeley, and Hume.
Physical Education Major for Women

Lower Division Requirements. Four units of physical education activity courses to include Physical Education 1A, 2A, 2B, 3A, 3B (two of these units may be counted in another major); Physical Education 56, 72, 74; and Zoology 8 and 22.

Upper Division Requirements. Twenty-seven upper division units to include Physical Education 151, 156A, 156B, 160, 167, 168, 170A or 170B; and nine units selected from courses in health education, physical education, or recreation.

MINOR IN PHYSICAL EDUCATION

The minor consists of 15 to 22 units in physical education, nine units of which must be in upper division courses. The minor should be planned in consultation with the departmental adviser in physical education.

TEACHING MAJOR IN PHYSICAL EDUCATION WITH THE A.B. DEGREE

AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) a teaching major in physical education and (2) the additional professional courses in teacher education. A minor is not required for the degree.

For additional information on the credential, refer to the section of this catalog on Professional Curricula in Teacher Education.

Lower Division Requirements. In addition to two units of physical education activity courses in general education, the student shall complete Physical Education 61, 63, 64, 72, 74, Health Education 65, and Zoology 8 and 22.

Upper Division Requirements. Twenty-six upper division units to include Physical Education 141, 142 or 122, 145, 146, 161, 167, 168, 169, 170A or 170B, 190, and two units of upper division electives.

Teaching Major for Men

Lower Division Requirements. Physical Education 1A or 4, 2A, 2B, 3A, 3B, 13A, 14A, 18A, 56, 72, 74, and Zoology 8 and 22. (Two units of physical education activity courses may be counted in general education.)

Upper Division Requirements. Twenty-nine upper division units to include Physical Education 142 or 122, 151, 154A, 154B, 155, 156A, 156B, 160, 161, 167, 168, 170A or 170B, and 190.

Teaching Major for Women

Lower Division Requirements. Physical Education 1A or 4, 2A, 2B, 3A, 3B, 13A, 14A, 18A, 56, 72, 74, and Zoology 8 and 22. (Two units of physical education activity courses may be counted in general education.)

Upper Division Requirements. Twenty-nine upper division units to include Physical Education 142 or 122, 151, 154A, 154B, 155, 156A, 156B, 160, 161, 167, 168, 170A or 170B, and 190.

TEACHING MAJOR IN PHYSICAL EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including the postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in physical education may be completed in one of the following ways:

1. By completing the special secondary credential in physical education with the A.B. degree and the additional courses required in the postgraduate year.

2. By completing the physical education major for the A.B. degree (without the special secondary credential) and including or adding the following courses:

   For Men. Health Education 65, Physical Education 141, 142 or 122, 145, 146, 151 and 190. The student must also complete the courses required in the postgraduate year.

   For Women. Physical Education 12A, 13A, 14A, 18A, and Physical Education 12A or 122, 145, 146, 151, 154B, 155, 161, and 190. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division units in subject fields commonly taught in junior and senior division or graduate units in subject fields commonly taught in junior and senior high schools. Physical education majors must meet this requirement by completing the courses required in the postgraduate year.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

TEACHING MINOR IN PHYSICAL EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in physical education for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units as follows:

Minor for Men. In the lower division, Physical Education 72, 74, and two to four units of physical education electives (other than general education courses) in the upper division, four units of professional activity courses to be selected and in the upper division, four units of professional activity courses to be selected.

Minor for Women. In the lower division, Physical Education 1A, 2A, 2B, 3A, 56, 74, and three to four units of physical education electives; and in the upper division, Physical Education 151, 156A, 156B, and five to six units from Physical Education 134A, 154B, 170A, 170B, and 190.

TEACHING MINOR IN PHYSICAL EDUCATION FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in physical education for the general elementary and kindergarten-primary credentials is the same as the minor for the degree. Courses should be selected in consultation with the departmental representative in physical education.

REQUERED ACTIVITY COURSES

To meet general education requirements, all lower division students must enroll in an activity course each semester. Four semester of activity courses are required. Two units are needed for general education and graduation, but no more than one.

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. All unit restrictions apply to the Chairmain of the Physical Education Department Department for a postponement. The Director of the physical education activity requirement. For reasons of health or religious objections, a student in a class may qualify for physical education. Permanent postponement from the activity requirement will be made and a postponement does not negate the graduation requirement.

Types of Activity Courses

A health history record is required of each student entering college. Individual physical education courses are assigned to meet the needs of each student. Courses are planned to give each student an opportunity to participate in the required courses. Opportunities are available for students to participate in sports, track and field, and intramural programs.
MEN'S ACTIVITY COURSES

General Education Activity Courses

Activity courses numbered 1-25 are general education courses. The courses offered for one-half unit credit meet two hours per week, or equivalent. An activity course may be taken for credit only once, except Physical Education I, which may be repeated to a total of two units with permission of the department.

1. Individual Adaptation (½) I, II
2. Basketball (½) I, II
3. Boxing (½) I, II
4. Gymnastics (⅓) I, II
5. Soccer (½) I, II
6. Softball (½) I, II
7. Touch Football (½) I, II
8. Track and Field (½) I, II
9. Volleyball (⅓) I, II
10. Wrassling (⅓) II
11. Ballroom Dancing (⅓) I, II
12. Archery (½) I, II
13. Badminton (½) I, II
14. Badminton (Intermediate) (½) I, II
15. Bowing (½) I, II
16. Golf (½) I, II
17. Tennis (Intermediate) (⅓) I, II
18. Touch Football (⅓) I, II
19. Track and Field (⅓) I, II
20. Life Saving (1) I, II
21. Hiking (⅓) I, II
22. Basketball (½) I, II
23. Cross Country (½) I, II
24. Track (⅓) I, II
25. Wrestling (⅓) II

Intercollegiate Sports

An intercollegiate sport is not a general education course and therefore does not satisfy the physical education requirement. Courses in intercollegiate sports meet 10 hours per week.

10. Baseball (½) II
31. Basketball (½) I
32. Cross Country (½) I
33. Football (½) I
34. Golf (⅓) II
35. Gymnastics (½) II
36. Tennis (⅓) II
37. Track (⅓) II
38. Wrestling (⅓) II
39. Swimming (⅓) II

WOMEN'S ACTIVITY COURSES

General Education Activity Courses

Freshmen may choose from courses numbered 1-11 or 20AB. Sophomores may choose from all courses offered. Courses offered for one-half unit credit meet two hours per week. An activity course may be taken for credit only once.

1A-1B. Fundamental Skills (½) I, II
2A-2B. Folk, Square, and Round Dancing (Men and Women) (½) I, II
2A is a prerequisite for 2B.
3A-3B. Modern Dance (Men and Women) (⅔) I, II
3A is a prerequisite for 3B.
4. Tumbling and Related Activities (½) I, II
5A. Soccer, Speedball, Hockey (⅔) I, II
5B. Softball, Volleyball (⅔) I, II
6. Basketball (⅔) I, II
11. Ballroom Dancing (Men and Women) (⅔) I, II
12A. Advanced Modern Dance (Men and Women) (1) I, II
Four hours.
Prerequisites: P.E. 3A and 3B (except for physical education majors who are not required to take 3B).
5. Tumbling and Related Activities (⅔) I, II
6. Basketball (⅔) I, II
11. Ballroom Dancing (Men and Women) (⅔) I, II
12A. Advanced Modern Dance (Men and Women) (1) I, II
Four hours.
Prerequisites: P.E. 12A
13A. Archery (Beginning) (⅔) I, II
13B. Archery (Intermediate) (⅔) I, II
14A. Badminton (Men and Women) (Beginning) (⅔) I, II
14B. Badminton (Men and Women) (Intermediate) (⅔) I, II
15. Fencing (Men and Women) (⅔) I, II
16. Golf (Beginning) (⅔) I, II
17. Golf (Intermediate) (⅔) I, II
18. Tennis (Beginning) (⅔) I, II
19. Tennis (Intermediate) (⅔) I, II
20. Swimming (For nonswimmers) (Men and Women) (⅔) I, II
21. Swimming (Intermediate) (Men and Women) (⅔) I, II
22. Life Saving (1) I, II
Three hours.
23. Hiking (Men and Women) (⅔) I, II
24. Hiking (Men and Women) (⅔) I, II

MEN AND WOMEN

PROFESSIONAL THEORY COURSES

LOWER DIVISION COURSES

15. Physical Education in the Elementary School (3) I, II
Two lectures and two hours of laboratory.
The basic program in physical education for the elementary school forms the basis for the course, including selection of materials, methods and techniques of teaching the course, and practice in skills. Candidates for the elementary certificate take this course. Not open to students with credit for Physical Education 74 or Recreation 74.

16. Professional Activities: Team Sports (women) (1) I
Four hours of lecture and laboratory.

17. Professional Activities, men (1) I, II
Required for the orientation and guidance of major students in physical education.

18. Professional Activities (men) (2) I
Same course as Recreation 63.

19. Professional Activities (men) (2) I
Same course as Recreation 63.

20. Physical Education in the Elementary School (3) I, II
Six hours of lecture and laboratory.
The acquisition of skills and teaching techniques, and the development of knowledge and interest in the competitive activities, primarily wrestling and boxing.

21. Physical Education in the Elementary School (3) I, II
Six hours of lecture and laboratory.
The acquisition of skills and teaching techniques, and the development of knowledge and interest in the competitive activities, primarily wrestling and boxing.

22. Physical Education in the Elementary School (3) I, II
Six hours of lecture and laboratory.
The acquisition of skills and teaching techniques, and the development of knowledge and interest in the competitive activities, primarily wrestling and boxing.

23. Physical Education in the Elementary School (3) I, II
Six hours of lecture and laboratory.
The acquisition of skills and teaching techniques, and the development of knowledge and interest in the competitive activities, primarily wrestling and boxing.

24. Physical Education in the Elementary School (3) I, II
Six hours of lecture and laboratory.
The acquisition of skills and teaching techniques, and the development of knowledge and interest in the competitive activities, primarily wrestling and boxing.

UPPER DIVISION COURSES

25. Water Safety Instruction (1) I
Four hours of lecture and laboratory.
Prerequisites: P.E. 20B or equivalent, and 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. A general education course in physical education.

141. Professional Activities: Gymnastics (men) (2) I
Six hours of lecture and laboratory.
Prerequisite: P.E. 4 or consent of instructor.
The development of skills and teaching techniques in gymnastics with emphasis on tumbling, apparatus activities, self-testing and calisthenics in the school program. Consideration of organizing, conducting, and officiating gymnastic meets.

142. Professional Activities: Swimming (men and women) (1) I, II
Four hours of lecture and laboratory.
Prerequisite: Intermediate swimming or consent of instructor.
The development of skills in swimming with emphasis on the teaching techniques. Scope of course is from beginning swimming to life saving techniques.

143. Professional Activities: Coaching Track (men) (1) I
Two hours of lecture and laboratory.
Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and meet strategy and organization.

144. Professional Activities: Coaching Baseball (men) (1) II
Two hours of lecture and laboratory.
Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and meet strategy and organization.

145. Professional Activities: Team Sports (men) (2) I
Six hours of lecture and laboratory.
The skills, rules, teaching techniques, officiating, and organization of materials in such sports as football, soccer, basketball, volleyball, and other sports.

146. Professional Activities: Individual Sports (men) (2) II
Six hours of lecture and laboratory.
The skills, rules, teaching techniques, officiating, and organization of materials in such sports as handball, tennis, badminton, archery, golf, and other sports.

147. Professional Activities: Coaching Football (men) (1) I
Two hours of lecture and laboratory.
Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy.

148. Professional Activities: Coaching Basketball (men) (1) I
Three hours of lecture and laboratory.
Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy.

151. Folk Dance Materials and Advanced Techniques (women) (2) I
Three hours of lecture and laboratory.
Prerequisite: P.E. 2B.
Folk customs, festivals, and costumes. Selection of dance materials for various age groups. Analysis of teaching techniques.

153A-153B. Problems in Modern Dance (men and women) (2-2)
Four hours of lecture and laboratory.
Prerequisite: P.E. 12B or consent of instructor. 153A is a prerequisite for 153B.
The construction and critical evaluation of the more complex forms of choreography.

154A-154B. Methods of Teaching Modern Dance (2-2)
Four hours of lecture and laboratory.
Prerequisite: P.E. 12A.
Advanced skill techniques with emphasis upon individual choreography. Selection of materials and course planning for the secondary school. Class teaching experience. Brief survey of basic literature and current readings in the field.

155. Techniques of Individual Sports (women) (1) II
Two hours of lecture and laboratory.
Review of individual playing techniques, knowledge, rules, and teaching methods in tennis, archery, badminton, and golf. Designed for senior majors in physical education, space permitting. May be repeated for a total of six units.

156A-156B. Methods of Teaching Team Sports (women) (2-2) I, II
Three hours of lecture and laboratory.
Prerequisite: P.E. 56 or equivalent.
Analysis of skills, teaching techniques, officiating, and the organization of materials in team sports for women.

157A-157B. Choreography in Contemporary Dance (men and women) (3-3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Consent of instructor.
Experiential study of dance, relating contemporary theories to other art forms. The study of force and time-space relationships as factors in choreography. Production problems.

160. Teaching of Body Mechanics (women) (3) II
Three hours of lecture and laboratory.
Prerequisite: P.E. 167.
Efficient use of the body in daily living; evaluation and classification of exercises, study of methods, and practice in planning and presenting material.

161. Instructors' Course in First Aid (2) I, II
Three hours of lecture and laboratory.
Instructor's course in first aid, as outlined by the American Red Cross. Standard first aid techniques, care of injured, certification and record keeping, and practical work in first aid.

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

167. Applied Anatomy and Kinesiology (3) I
Prerequisites: Zoology 8 and 22.
Anatomical and kinesiological analysis of human structure and movement. Application of analysis relative to mechanical principles as influenced by efficiency factors of body functions.

168. Physiology of Exercise (3) II
Prerequisites: Zoology 8 and 22.
A nonlaboratory course emphasizing the relation of physiology to muscular exercise in physical activities.

169. Adapted Activities (3) II
Three hours of lecture and laboratory.
Prerequisites: Zoology 8, 22, and P.E. 167.
The adaptation of programs for the physically challenged individual, including physical examination, nutrition, training and prescribed exercises, follow-up, instructional materials, and evaluation.

170A-170B. Recreation Leadership (3-3)
(Same course as Recreation Leadership 170A-170B)
Principles and practices in recreation leadership. Course content of 170A includes organization of competition, intramurals, playground practices; content of 170B includes organization of recreation arts and crafts, dramatics, social recreation, and music. Prerequisites: P.E. 12A, 12B, 12C, 12D, 12E, 12F, 12G, 12H, 12I, 12J, 12K, 12L, 12M, 12N, 12O, 12P, 12Q, 12R, 12S, 12T, 12U, 12V, 12W, 12X, 12Y, 12Z. May be repeated for a total of six units.

170. Administration of Physical Education in the Secondary School (3) I, II
Three lectures, two hours of lecture and laboratory.
199. Special Study (1-6) I, II
   Individual study. Six units maximum credit.
   Prerequisite: Consent of special study adviser.

**GRADUATE COURSES**

200. Evaluation Procedures in Physical Education, Health Education and Recreation (3) I (Same course as Health Education 200)
   A study of tests and measurements in the profession, with practice in their construction and use, and interpretation of results. Not open to students with credit for Health Education 200.

201. Developmental Physical Education (3)
   Prerequisite: P.E. 107.
   Intensive study of postural divergencies, lack of physical development, and methods of correcting such conditions through exercise. Practice in making physical examinations, constructing individual exercise programs, and teaching remedial exercises. Consideration of ethical procedures and limitations.

203. Problems in Physical Education (3)
   A survey of current problems facing the physical education profession, through a review of literature, discussion of trends, and observation of school situations. Analysis and evaluation of actual problems. Written reports required.

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 situations. Analysis and evaluation of actual problems. Written reports required. Not open to students with credit for Recreation 204.

205. Curriculum in Physical Education and Health Education (3)
   (Same course as Health Education 205)
   Analysis of current curricula in physical education and health education, with special emphasis upon curriculum construction and evaluation. Not open to students with credit for Health Education 205.

210. Seminar in Facilities for Physical Education (3)
   Prerequisite: Major or minor in physical education.
   Individual study of problems related to the planning, development and maintenance of physical education and athletic facilities.

211. Seminar in Competitive Athletics for Men (3)
   Prerequisite: Major or minor in physical education.
   Knowledge and appreciation of the skills, techniques and teaching methods involved with the coaching of athletics, and to study possible solutions to problems associated with the program of competitive school sports.

212. Seminar in 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.

213. Seminar 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 physical education.
   Procedures and evaluation of all forms of educational dance with implications for curriculum planning. Lectures and research. Completion of written project.

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

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.

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**PHYSICAL SCIENCE**

**IN THE DIVISION OF PHYSICAL SCIENCES**

**MAJOR IN PHYSICAL SCIENCE WITH THE A.B. DEGREE**

The major in physical science is available to students who have been admitted to teacher education and have completed at least eight units of professional education courses to include Education 100 and 110 by date of degree candidacy.

Courses in the major are in addition to 45 units in general education courses, except that 12 units of required lower division courses in biology, chemistry, geology, and physics may be counted in general education. A maximum of six units of mathematics taken in prerequisite to entrance in Mathematics 10 may be counted in general education. Students majoring in physical science are not required to complete a minor for the bachelor's degree.

**Lower Division Requirements**
- Astronomy 1 and 9; Chemistry 1A-1B, or equivalents; Biology 1A or 2; and 3; Mathematics 50 and 51; Physics 4A-4B-4C, Biology 1 and 4, or equivalents. (Total: 45 units.)

**Upper Division Requirements**
- Thirty-one units to include Chemistry 101A and 101B, or 101B or 105; six units chosen from Biology 110, 111, 115, 158, 161, Chemistry 115A, 115B, 117; Physics 112, 114, 119-S, Zoology 114, 117, 119-S; 121 or 165; Mathematics 121L, 121R; upper division courses in Astronomy 1 and 9; Biology 3 and 4, or Biology 5; Chemistry 2A-2B or 1A-1B; Geology 2 and 3 or 1A; Physics 2A-2B-3A-3B or 4A-4B-4C.

**TEACHING MAJOR IN PHYSICAL SCIENCE AND GENERAL SCIENCE FOR THE GENERAL SECONDARY CREDENTIAL**

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, minor, and additional requirements in the credential program, a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.
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UPPER DIVISION COURSES

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.

140. 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. A general education course in physical science. Not open to physics majors.

145. Contemporary Problems in Physical Science (1) Summer
A series of six weekly lectures on varied aspects of physical science by scientists engaged in research. 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 the Physical Sciences (3) I
Readings from selected materials with informal class discussion of topics. A general education course in physical science.

GRADUATE COURSES

200. Seminar (3) Open to students with an undergraduate major in chemistry, geology, physics, or physical science, or with consent of instructor.
An intensive study of some area of the physical sciences which is of direct interest and value to teachers in the physical sciences in the secondary schools. May be repeated with new content to a total of six units.

299. Thesis or Project (3) 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 PHYSICAL SCIENCES

Faculty
Professors: Moe, Skolii, Smith, L. E.
Associate Professors: Garrison, Teasdale (Chairman)
Assistant Professors: Clark, O.; Craig, Morris, G.; Morris, R.; Sogo, Terhune;
Wolter
Instructors: Ball; Gray, A.H.
Lecturers: Beauchamp; Ehrich; Halsey; Hansen; Kaestner; Snodgrass

Offered by the Department
Major of arts degree with a major in physics. Master of arts degree for teaching service with a concentration in mathematics. Master of science degree in applied physics. Master in physics with the A.B. degree. Master in physics with the B.S. degree. Minor in physics. Teaching major in physical science and general science, with a concentration in physics, leading to the general secondary credential in the postgraduate year.

THE MASTER'S DEGREE
The master of arts degree with a major in physics, the master of arts degree for teaching service with a concentration in physics, and the master of science degree in applied physics are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

Courses in the major are in addition to 45 units in general education courses except that nine units of required lower division courses in physics and chemistry may be counted in general education. A maximum of six units of mathematics taken in prerequisite to entrance in Mathematics 50 may be counted in general education. A minor in mathematics is required of physics majors for the A.B. degree. A minor is not required for the B.S. degree.
Lower Division Requirements. Physics 4A-4B-4C; Chemistry 1A-1B, or their equivalents. Recommended: a reading knowledge of French or German.

Upper Division Requirements. A minimum of 24 upper division units in physics to include Physics 101, 103, 107, 110, 198A, 198B, and either two units of Physics 120 or 148A. Students who plan to do advanced work in physics should include Physics 106, 112, 113, 170, and 175 to have minimum preparation acceptable at most graduate schools. Electives must be approved by the departmental advisor.

Minor in Mathematics Required. A minor in mathematics is required. The minor consists of Mathematics 50, 51, and 52, or their equivalents, Mathematics 18A, 18B, and three units from Mathematics 104, 111, 119, 121A, or 124.

Lower Division Requirements. Physics 4A-4B-4C; Chemistry 1A-1B; Mathematics 50, 51, and 52, or their equivalents.

Upper Division Requirements. A minimum of 36 upper division units to include Physics 101, 103, 107, 110, 198A, and 198B; Mathematics 18A and 18B. The program, planned in consultation with the departmental advisor, must be designed to provide either a four-year terminal program or preparation to enter the graduate program toward a master of science degree. The following courses are required as part of two options approved under this degree:

Applied Physics. Physics 106, 112, four units from Physics 120, or 148A, or 148B; and three units selected from Physics 114, 131, 170, and 180. Electives must be approved by the departmental advisor.


MINOR IN PHYSICS

The minor in physics consists of 15 to 22 units in physics, six units of which must be in upper division courses.

TEACHING MAJOR FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in physical science and general science may be completed in one of the following ways:

1. By completing the physical science major with the A.B. degree and the additional courses required in the postgraduate year.
2. By completing the major in physics or in chemistry with the A.B. or B.S. degree and the following additional courses, which may be counted in general education: Astronomy 1; Biology 3 and 4; or Biology 5; and Chemistry 101A, Geography 112, Physics 101, 120, and Zoology 119-S. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In the postgraduate program the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include four graduate units selected from Physics 200 (2-4 units) and Chemistry 200 (2-4 units), or appropriate 200-numbered courses selected with approval of the advisor.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

LOWER DIVISION COURSES

Note: A maximum of 12 units of lower division physics credit may be applied toward the A.B. or B.S. degrees.

2A-2B. General Physics (3-3) I, II
Lectures, demonstrations and discussions.
Prerequisites: Two years of high school mathematics. Physics 2A is a prerequisite for 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 extensive physics preparation. 2A: Properties of matter, mechanics, heat, and sound. 2B: Electricity, magnetism, and light. A physical science general education course in the area of natural science.

3A-3B. Physical Measurements (1-1) I, II
Three hours of laboratory.
Prerequisites for Physics 3A: Credit or concurrent registration in Physics 2A. Prerequisites for Physics 3B: Credit or concurrent registration in Physics 2B.
A laboratory course to accompany Physics 2A-2B. 3A: Properties of matter, heat, and sound. 3B: Electricity, magnetism, and light. A physical science general education course, either semester of which meets the laboratory requirement in natural science.

4A-4B-4C. Principles of Physics (4-4-4)
Three lectures and three hours of laboratory.
The following sequence of three courses is designed to give a thorough background in the fundamental principles of physics, with applications to practical problems.

4A. Mechanics and Sound (4) I, II
Prerequisite: Credit or concurrent registration in Mathematics 50.

4B. Electricity (4) I, II
Prerequisites: Physics 4A with a grade of C or better and credit or concurrent registration in Mathematics 51.

4C. Heat, Light and Introduction to Modern Physics (4) I, II
Prerequisites: Physics 4B with a grade of C or better and credit or concurrent registration in Mathematics 52.

5. Practical Physics (4) I, II
Three lectures and three hours of laboratory.

UPPER DIVISION COURSES

101. Modern Physics (3) I, II
Prerequisite: Physics 4C or equivalent.

102. Electric Circuits Theory (3-3) I, II
Prerequisites: Physics 4B; or 2B and 2A; and a working knowledge of the calculus.

104A-104B. Electronic Circuit Theory I-3) I, II
Prerequisites: Physics 110 and 111 with minimum grade of C, or consent of instructor. 104A is a prerequisite for 104B.
Analysis and design of transistor and vacuum tube circuits, including switches, modulators and detectors. Formerly offered under the title: Vacuum Tube Circuit Design.
105. **Analytical Mechanics** (3) I, II
Prerequisites: Physics 4C and Mathematics 118A.
Principles of Newtonian mechanics developed through the use of vector methods. Statics and dynamics of particles and rigid bodies.

106. **Optics** (3) II
Prerequisites: Physics 4C, or Physics 2B and 3B.
A study of reflection, refraction, dispersion, interference, diffraction, double refraction and polarization, with applications to optical instruments. Also wave propagation, radiation, spectra and the nature of light.

107. **Electrical Measurements** (2) I, II
One lecture and three hours of laboratory.
Prerequisite: Concurrent registration in Physics 110, or consent of instructor. (For physics students, concurrent registration in Mathematics 118A.)
Laboratory techniques in the measurement of current, voltage, resistance, capacitance, inductance, power, and magnetism. Solution of associated problems; data handling and error analysis.

110. **Electricity and Magnetism** (3) I, II
Prerequisites: Physics 4C and concurrent registration in Mathematics 118A; or consent of instructor.
Analysis of direct and alternating current circuits using the operator \( \hat{v} \) and circuit theorems; introduction to coupled circuits, resonance and transients. Electronics, dielectrics and conductors. Chemical, photo and thermal effects. Electromagnetism, and magnetic properties.

112. **Thermodynamics and Kinetic Theory** (3) I
Prerequisites: 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
Prerequisites: Physics 103, 105, and 110.

120. **Advanced Laboratory** (2-4) I, II
Prerequisite: Consent of instructor.
Advanced experimental measurements in the fields of classical and modern physics, such as: acoustics, optics, heat and thermodynamics, mechanics, electricity and magnetism, atomic and nuclear physics. With the consent of the instructor and the adviser the course may be repeated in the same subject but with new material for additional credit.

121. **Radiation Physics** (2) I, II
Two lectures and three hours of laboratory.
Prerequisites: Physics 2A-2B and 3A-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.

123. **Electronics Laboratory** (2) I, II
One lecture and three hours of laboratory.
Prerequisites: Physics 107 and concurrent registration in Physics 104A; or consent of instructor.
An experimental study of electron tubes and their associated circuits. Study of cathode-ray oscilloscope, vacuum tube voltmeter, characteristics of power supplies, amplifiers and filter systems.

124. **Radio Measurements** (2) I, II
One lecture and three hours of laboratory.
Prerequisites: Physics 123 and credit or concurrent registration in Physics 104B, or consent of instructor.
Laboratory measurements of the parameters of resonant circuits at radio frequencies. Study of the properties of oscillators, modulators, detectors and wave guides.

125. **Microwave Measurements** (2) I
One lecture and three hours of laboratory.
Prerequisites: Physics 107 and 160 or 170.
Propagation of microwaves on coaxial lines and in wave guides. Power and impedance measurements. Resonant cavities, Klystron and other oscillators. (Formerly Physics 171.)

126. **Solid State Devices Laboratory** (2) II
One lecture and three hours of laboratory.
Prerequisites: Physics 103, 107, and 110.
Experiments with diodes, crystal rectifiers, transistors, transistor amplifiers, oscillators, modulators, wave-shaping and control circuits, magnetic and dielectric amplifiers, photodetector and thermoelectric devices.

128. **Astronautics** (2) I
Prerequisites: Mathematics 118B and Physics 105 or their equivalents.
Applications of celestial mechanics to space flight with particular emphasis on calculations of celestial mechanics and position of the planets. An introduction to the use of nuclear physics and nuclear phenomena. (formerly Physics 148A.)

131. **Nuclear Physics** (3) I, II
Prerequisites: Physics 101 with a minimum grade of C and credit or concurrent registration in Physics 105.
Nuclear phenomena, theory of the nucleus, cosmic rays, and high-energy reactions of particles.

132. **Transients in Linear Systems** (3) I
Prerequisites: Physics 110 and Mathematics 118A.
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.

135. **Analogous Computation** (3) II
Prerequisites: Differential equations, Physics 101 and 152; or consent of instructor.
Regulatory systems, including servomechanisms by the Laplace Transform. Stability, practical examples and typical designs.

137. **Digital Computers** (3) I
Prerequisites: Physics 103 and Math 118B.
The binary number system; electronic and magnetic flip-flop circuits; memory devices; programming; complete computer system. Auxiliary equipment and limitations.

140. **Circuit Analysis** (3) I, II
Prerequisites: Physics 103 and 110 with minimum grades of C, or consent of instructor.
Filter design, transmission lines, and network analysis.

144. **Honors Course** (Credit to be arranged) I, II
An individual study arrangement for students admitted to the Honors Program.

157. **Transistor Circuits** (3) I
Prerequisite: Physics 104B or consent of instructor.
Properties of transistors and their application to amplifiers, oscillators and trigger circuits.
170. Electromagnetic Theory (3) II
Prerequisites: Physics 110 and credit or concurrent registration in Mathematics 118B, or consent of instructor.
Electromagnetism and magnetostatics treated by vector methods; Maxwell's equations, electromagnetic induction, radiation and wave propagation.

175. Advanced Mechanics (5) I
Prerequisites: Physics 105 and Mathematics 118B.
Special theory of relativity, generalized coordinates, Lagrangian and Hamiltonian formulations, normal coordinates and theory of vibrations.

180. Solid State Physics (3) II
Prerequisites: Physics 110, 112, and 190.
Elastic, thermal, electric, magnetic and optical properties of solids. Introduction to the energy band theory of solids, with applications to dielectrics, semiconductors, and metals.

190. Introductory Quantum Mechanics (3) I
Prerequisites: Physics 101, 102 and Mathematics 118B.
The physical basis of the quantum theory and its mathematical formulation in terms of Schroedinger's wave equation and Heisenberg's matrix mechanics. (Formerly offered under the title: Theoretical Physics.)

196. Advanced Physics (2 or 3) I, II
Prerequisite: Consent of instructor.
Selected topics in classical and modern physics. May be repeated with approval of the instructor for a total of six units.

198A. Senior Report (1) I, II
One discussion period.
Prerequisites: An acceptable master plan for graduation within one year.
Selection and design of individual project; oral and written progress reports.

198E. Senior Report (2) I, II
Prerequisite: Physics 198A.
Laboratory work, progress reports, oral and written final reports. Six hours of laboratory per week.

199. Special Study (1-6) I, II
Individual study or laboratory work on a special problem in physics selected by the student. Each student will be assigned a member of the staff who will supervise his work. Credit, hours and topics to be arranged in each case. Six units maximum credit.

GRADUATE COURSES

200. Seminar (2 or 3) I, II
An intensive study of one phase of physics, such as mechanics, heat and thermodynamics, acoustics, radio wave propagation, electronics, atomic nuclear and solid state physics. May be repeated with new subject matter for additional credit.

205. Theoretical Mechanics (3) II
Prerequisite: Physics 175 or consent of instructor.

210A-210B. Mathematics of Physics (3-3)
(Same course as Mathematics 210A-210B.)
Prerequisite: Admission into a master's degree program.
Selected topics from matrix theory, vector and tensor analysis, orthogonal function theory, calculus of variations and probability theory with particular emphasis on applications to physical theory. Not open to students with credit for Math 210A-210B.

214. Advanced Acoustics (2) II
Prerequisites: Mathematics 118B and Physics 114 or their equivalents.
An intensive study of the acoustic wave equation in two and three dimensions. Propagation of sound in bounded media and enclosures: Radiation and scattering. Electromechanical-oustical elements and circuits.

215. Statistical Mechanics (3) II
Prerequisites: Physics 112 and 175, or consent of instructor.

216. Microwaves (2) II
Prerequisites: Physics 125 or equivalent.
Generation and detection, propagation and attenuation in wave guides and ferromagnetic components. Nuclear resonance, radio and microwave spectroscopy, masers, atomic clock, radio astronomy.

217. Advanced Astronautics (2) II
Prerequisite: Physics 131 or consent of instructor.
Special emphasis on perturbations due to inhomogeneity of the central force field.

240A-240B. Reactor Materials Technology (3-3)
Prerequisites: Physics 180 and 190; Chemistry 161.
A study of certain engineering, chemical, and nuclear properties of materials used in reactors, and of the influence of the reactor environment on these properties.

245A-245B. Reactor Theory (3-3)
Prerequisite: Physics 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.

246. Problems in Reactor Design Parameters (3)
Prerequisites: Concurrent registration in Physics 240B, 245B, and 248B.
A combined seminar and group project course in which the class will be assigned a specific, detailed reactor problem. Subgroups will work on specific problems within the main reactor design program.

248A-248B. Reactor Laboratory (2-2)
Prerequisites: Chemistry 161, Physics 148B, and concurrent registration in Physics 248A.
Measurements of the static and dynamic characteristics of a reactor. Reactor operation, reactor radiations, neutron flux properties and temperature effects. Use of the reactor as an experimental tool.

251. Nuclear Physics (3) II
Prerequisites: Physics 151 and 190, or consent of instructor.
Applications of quantum theory to nuclear physics. Theory of nuclear forces, structure and reactions, interaction of radiation with matter, radioactivity, nuclear energy and high energy physics.

260. Advanced Electronics (3) II
Prerequisites: Physics 104B and 160; or consent of instructor.
Selected advanced topics in contemporary electronics.

261. Pulse and Digital Circuits (2) I
Prerequisites: Physics 104B and 160.
Analysis of multivibrators, time base generators, pulse transformers, blocking oscillators, delay lines, counting circuits, digital computer circuits, and transmission of pulse signals. Design of practical circuits.

270. Electromagnetic Theory (3) I
Prerequisite: Physics 170 or consent of instructor.
Principles of radiation; time varying electric and magnetic fields; propagation of electromagnetic waves in free space; transmission lines; antennas; wave guidance.

275. Quantum Mechanics (3) II
Prerequisites: Physics 151 and 190, or consent of instructor.
The physical basis of quantum mechanics. Schroedinger's wave equation, and the behavior of quantum states of molecular, atomic, and nuclear systems. Approximation methods.

380. Theory of the Solid State (3) I
Prerequisites: Physics 180 and 190.
The energy band theory of solids, with applications to the electrical and optical properties of dielectrics, semiconductors, and metals.
MAJOR IN POLITICAL SCIENCE WITH THE A.B. DEGREE

Lower Division Requirements. Political Science 1A-1B or 71A-71B.
Upper Division Requirements. A minimum of 24 upper division units to include (A) at least 11 units in Political Science 197 or 198 and (B) 21 upper division units in political science distributed among at least three of the groups listed below, provided that at least two units shall be taken in Group I.

Group I, Political Theory. Courses numbered 100 to 114.
Group II, Politics. Courses numbered 115 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. Courses numbered 180 to 197.

Students majoring in political science are advised to become as familiar as possible with related social science fields. It is recommended that majors have a reading knowledge of at least one foreign language.

MAJOR IN PUBLIC ADMINISTRATION WITH THE A.B. DEGREE

Lower Division Requirements. Political Science 71A-71B and Economics 1A-1B.
Upper Division Requirements. A minimum of 36 upper division units to include Political Science 140A, 140B, and 197 or 198, Economics 131, a three-unit upper Political Science 198 on the basis of individual counseling. Recommended in addition to the major: Business Administration 134, Economics 131, Political Science 142, 143, 155, and Psychology 131.

MINOR IN POLITICAL SCIENCE

The minor in political science consists of 15 to 22 units in political science, nine units of which must be in upper division courses.

MINOR IN PUBLIC ADMINISTRATION

The minor in public administration is available to students majoring in fields other than political science or public administration. This minor consists of Political Science 71A-71B, 140A-140B, and three units of upper division work selected from Political Science 197, 198, or other upper division political science courses approved by the adviser.

CERTIFICATE (NONDEGREE) PROGRAMS

Certificate in Public Administration. Admission to candidacy for the certificate in public administration is open to public service employees who are not eligible for regular admission to the college. Previous academic work is not required. The candidate must complete an approved pattern of eight courses, with a grade point average of 2.5 upon completion of the program.

Certificate in Public Welfare Administration. Admission to candidacy for the certificate in public welfare administration will be established by the candidate's preparation for advanced work, with a grade point average of 2.5 upon completion of the program.
Coordinator of Public Administration. To receive the certificate in public welfare administration, the candidate must complete an approved pattern of 30 units in courses at San Diego State College with a grade point average of 3.0. Prerequisites for admission to candidacy are 20 units in approved social sciences courses and eligibility to enroll in the college.

Candidates for these certificate programs may obtain further information on requirements by writing to the Coordinator of Public Administration, San Diego State College.

PUBLIC AFFAIRS RESEARCH INSTITUTE

The Public Affairs Research Institute is an agency of San Diego State College. It is organized 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 Laboratory, a specialized and growing collection of research materials. The Institute engages in cooperative research efforts with the various departments of instruction, institutes and research centers of the college. Administration of the Institute is under a director.

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 71A and 71B or 139A and 139B.
2. Political Science 107A and 107B plus approved tests or courses on U.S. history.
3. Political Science 115 and 142, 143, or 148 plus approved tests or courses on U.S. history.

Refer to the section of this catalog on General Requirements for the Bachelor of Arts and Bachelor of Science Degrees for a complete list of courses and tests approved for meeting the graduation requirement in American institutions.

LOWER DIVISION COURSES

*1A. Introduction to Government (3) I, II
   Principles and problems of government, with special attention to the problems created by modern industrialism and population pressures. A general education course in the social sciences.

*1B. Introduction to Government (3) I, II
   A comparative survey of selected foreign governments: their constitutional principles, political institutions, and governmental problems. A general education course in the social sciences.

*71A-71B. Introduction to American Government and Politics (3-3) I, II
   Semester I: Governmental organization in the United States; the federal system; the organization, powers and functions of the legislative, executive and judicial branches of the government; the relations between federal, state and local units of government.
   Semester II: Expansion of governmental functions and the development of means of democratic control; an examination of the increased use of government as an instrument of social control; the history, motivation, methods and control of political parties; nominations, elections and minority groups; pressure politics. This year course meets the graduation requirement in American institutions and ideals. The first semester course, 71A, also meets the requirement in United States Constitution; and the second semester course, 71B, meets the requirement in California state and local government. This course is a general education course in the social sciences.

UPPER DIVISION COURSES

Political Theory (Group I)

101. 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. A general education course in the social sciences.

107A-107B. Constitutional Government (2-2)
   Modern government and politics, its theoretical foundations, institutions and problem. Emphasis will be on American experience with useful comparisons with other countries. Either semester may be taken first. A general education course in the United States Constitution. This year course meets the graduation requirement in California state and local government.
   Second semester course, 107B, also meets the graduation requirement in California state and local government.

111A-111B. Theory of the State (3-3)
   (Same course as Philosophy 111A-111B)
   Prerequisite: Political Science 111A is a prerequisite for 111B.
   The nature of the State, its organization and activities, and its relation to the individual and other states. A general education course in social science. Not open to students with credit for Philosophy 111A-111B.

112. Modern Political Thought (3) I, II
   Concepts concerning the nature of the state from Burke to the present. A general education course in social science.

Politics (Group II)

113. American Institutions (3) I, II
   An analysis of the political parties as a part of the process of government; 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. Not open to students with credit for Journalism 132.

120. Political Parties (3) I
   A critical analysis of the political party as a part of the process of government; theories and party organization and activities; nominating and campaign methods; political parties and the public interest. Special emphasis will be placed on the function of the two-party system in American government.

121. Basic Factors in American Politics (3) I, II
   An analysis of American political, legal, economic, and social factors in their relation to our political system and the public interest.

122. Propaganda and Public Opinion (3) 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. Not open to students with credit for Journalism 132.

123-S. Contemporary American Politics (3) Summer
   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. Not open to students with credit for Journalism 132.

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.

Public Law (Group III)

134. Administrative Law (3) II
   The law of public office and public officials, powers of administrative authorities, the law of public office and public officials, powers of administrative authorities.

137. Introduction to Jurisprudence (3) I
   The development of legal systems and theories of the function of law. A general education course in social science.
139A-139B. American Constitutional Development (3-3)
A study of the work of the Convention of 1787 and of significant phases of American constitutional law. A general education course in social science which also meets the graduation requirement in American history, institutions and ideals, and United States Constitution; the second semester course, 139B, also meets the graduation requirement in California state and local government.

Public Administration (Group IV)

140A-140B. Principles of Public Administration (3-3)
Semester I: The administration of public services, staff and line functions, theories of organization and practices, and procedures of different types of governmental agencies.
Semester II: Principles and problems in governmental budgeting, performance and cost analysis, budget procedures, organization and administration of personnel programs, controls over administrative behavior, responsible bureaucracy and professionalism in the public services.

141. Government Report Writing (2) I
Actual writing problems in government, including surveys, recommendations, studies, analysis, progress reports, annual reports, etc., are discussed and their solutions analyzed. Attention to methods of collecting and organizing data, and practice in effective presentation of facts and ideas. Special consideration is given to problems of class members.

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 states; state-federal relations; state-local government relations; particular emphasis on California government. This course meets the graduation requirement in California state and local government.

143. Municipal and County Government (3) I
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.

144. Introduction to Public Personnel Administration (3) I, II
Prerequisite: Consent of instructor.
An introduction to the field, giving general coverage of the problems involved in recruitment, placement, supervision, etc., of public employees.

145. Human Relations in Management (3) I, II
(Same course as Business Administration 145)
Prerequisite: Political Science 144.
Problems of interpersonal relations and management. Problems of incentives, attitudes, communication, and other personal relations between employee and employer. Basis of effectiveness of various types of leadership. Discipline and grievance. Not open to students with credit for Business Administration 145.

146. Wage and Salary Administration (3) I
(Same course as Business Administration 146)
Prerequisite: Political Science 144.
Job analysis; major techniques of job evaluation; problems of wage and salary administration, incentive pay methods; merit rating plans. Not open to students with credit for Business Administration 146.

148. The Government of Metropolitan Areas (3) I, II
A study of the governmental problems of metropolitanism; overlapping of governments, services, planning and financing. 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.

151. California Law of Municipal Corporations (2) II
California law governing the nature, regulation and control of the counties, charter cities, sixth class cities, school districts and special districts. The creation, alteration, dissolution, legal actions by and against, powers and duties; rights and liabilities of local governments.

152. Administrative Management (3) I, II
Prerequisites: Political Science 144. Training as a management function and as an aspect of communication; operating methods and structure of training departments; types of training; evaluation of training results. Teaching methods and use of teaching aids. Not open to students with credit for Business Administration 147.

153. Case Studies in Public Administration (3) I, II
Prerequisites: One course in public administration or consent of instructor. Cases, by case studies, of management problems in public agencies and the organization and methods techniques used to solve them. Practical limitations upon the use of these techniques.

154. Supervisory Staff and Employee Training (3) II
Prerequisite: (Same course as Business Administration 147)
Prerequisite: Political Science 144. Training as a management function and as an aspect of communication; operating methods and structure of training departments; types of training; evaluation of training results. Teaching methods and use of teaching aids. Not open to students with credit for Business Administration 147.

X-157. Public Relations of Public Agencies (2 or 3) II (Extension)
The place and function of public relations in government. Historical development of public opinion relating to governmental agencies and employees. Current public relations practices in governmental agencies.

166. Principles of Planning (2 or 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 (5) II, Summer
Prerequisite: Consent of instructor.
Study of organization, policies and functions of selected government agencies. Discussion by responsible officers and inspectors of government operations. Not open to students with credit for Business Administration 145.

162. Finance Administration (2 or 3) II
Prerequisites: Administrative Principles 144. Principles and practices studied from the administrator's viewpoint. Problems of revenue, debt and treasury management, current and capital budget preparation, management and administration; purchasing and stores supervision; accounting and control and financial reporting.

X-165. Governmental Budgeting (2 or 3) III (Extension)
Procedures for budget preparation including expenditure and revenue estimating; capital budgeting; problems in administrative and legislative budgetary studies; budgetary analysis. Not open to students with credit for Business Administration 145.

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

165. International Relations (Group V)

International Relations (Group V)

164-S. Institute on World Affairs (3) Summer
Contemporary problems in international relations. May be repeated once for credit. Refer to the Honors Program.

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 international policies of the United States.

168. International Relations (3-3)
A historical and analytical consideration of the basic factors—historic, geographic, economic, ideological, and strategic—underlying and conditioning the relations between the United States and Europe, and the "community of nations". Spring semester: International relations and the twentieth century.
171. The Conduct of American Foreign Relations (3) I, 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; administration through commissions and unions; amicable procedures for settlement of disputes; 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.

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 Asian States (3) II
Foreign policies of the Asian states; relationships with the United Nations and the United States.

Comparative Government (Group VI)

180. Government of England (3) I
The structure and functioning of 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 Russian foreign affairs.

182. Government of Latin America (3) I
The governments of leading and representative Latin American states. Emphasis on the background and evolution of current political institutions and philosophies.

183. Government of Asia (3) I, II
Governments of leading and representative Asian states. Emphasis on current political institutions and philosophies.

185. Governments of Continental Europe (3) I, II
An analysis of the political systems of the countries of western continental Europe.

196-S. 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.

GRADUATE COURSES

200. The Scope and Method of Political Science (3) I, II
The discipline of political science and systematic training in its methodology. Required of all applicants for advanced degrees in political science.

210. Seminar in Political Theory (3) I, II
May be repeated with new content to a maximum of six units with consent of graduate adviser.

220. Seminar in Politics (3) I, II
May be repeated with new content to a maximum of six units with consent of graduate adviser.
THE MASTER’S DEGREE

The master of arts degree with a major in psychology, the master of arts degree for teaching service with a concentration in psychology, and the master of science degree in applied psychology are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

Undergraduate Preparation

Before beginning work which can count toward meeting requirements for a master’s degree in psychology, the student must

1. Have completed 24 units of upper division work in psychology, including Psychology 104A, 105, 160 or 161, and 178, or the equivalents.
2. Have an over-all grade point average of 3.0 in his last 60 units of work.
3. Have a percentile rank of 50 or higher on the psychology department comprehensive examination "total."

Students who plan to specialize in industrial or personnel psychology must complete satisfactorily the following courses (or their equivalents), either as a part of the undergraduate or graduate work: Psychology 104B.

Students who plan to specialize in another phase of psychology must complete satisfactorily the following courses (or their equivalents), either as a part of the undergraduate or graduate work: Psychology 104B, 175, 177, and two of the following: 160, 161, 162, 170. Transfer students from other colleges are also required to take Psychology 201, preferably during their first semester here.

MAJOR IN PSYCHOLOGY WITH THE A.B. DEGREE

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.

Courses in the major are in addition to 45 units in general education courses. A minor is not required of psychology majors for the bachelor's degree.

Plan A Major

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.

Lower Division Requirements. Psychology 5 and 6. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Upper Division Requirements. A minimum of 24 upper division units in psychology to include Psychology 106, 131, and 145. It is expected that each student under Plan A will select, with the assistance of his advisor, a pattern of courses in line with his particular objectives in pursuing Plan A. For most students in Plan A, the following courses will be found particularly helpful: Psychology 107, 107, 123, 150, and 152.

To facilitate the purpose of Plan A the following courses in other departments are recommended as electives: Anthropology 1, 2; Biology 1, 160; Economics 1A-1B, 102; Health Education 90; Philosophy 1A-1B; Zoology 165; and courses in home economics.

Plan B Major

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. To this end, three separate programs are suggested under Plan B to provide an undergraduate basic preparation for further study in these fields.

Lower Division Requirements. Psychology 5 and 6, and Zoology 22 and 23. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Upper Division Requirements. A minimum of 24 upper division units in psychology to include Psychology 104A, 105, 160 or 161, and 178; and 12 additional units selected from courses in one of the groups listed below. The Department of Psychology strongly recommends those courses listed in other departments to implement the program teaching service. A natural science minor is recommended.

Pre-clinical. 12 units to be selected from Psychology 106, 141, 142, 145, 150, 151, 162, 160, and 175. Recommended courses: Anthropology 1, 2; Biology 3 and 4; or Psychology 1A-1B, 10 and 102; Sociology 110 and 115; Speech Arts 174 or 175, and Zoology 1.

Pre-industrial and Personnel. 12 units to be selected from Psychology 104B, 121, 122, 124, 131, 141, 145, 161, and 162. Recommended courses: Business Administration 144 and 146; Economics 1A-1B, 100A, 130, 151, 170, and 185; Philosophy 20, Political Science 144 and 145; Sociology 1 and 10; six units selected from Sociology 135, 130, 139, 160; and Speech Arts 4. A minor in business administration, economics, political science, or sociology is recommended.

Theoretical-experimental. 12 units to be selected from Psychology 104B, 141, 142, 145, 150, 160, 161, 162, 170, 175, and 177. Recommended courses: Chemistry 2A-2B; 145, 150, 160, 161, 162, 170, 175, and 177. Recommended courses: Chemistry 2A-2B; Psychology 1A, 20, and 137; Physics 2A-2B and 3A-3B; Biology 3; and Zoology 8, 9, 100 and 165. A mathematics or natural science minor is recommended.

MINOR IN PSYCHOLOGY

The minor in psychology consists of 15 to 22 units in psychology, nine units of which must be in upper division courses.

PSYCHOLOGY MAJOR FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a non-teaching major in education, two psychology minors, and additional requirements in the credential program, including a postgraduate year. For a complete description of the program, refer to the section of this catalog on Professional Curricula in Teacher Education.

Psychology Major. Psychology may be used as a non-teaching major for the general secondary credential if accompanied by two teaching minors.

The major must include Psychology 5 and 6 in the lower division; and 24 upper division units to include Psychology 104A, 105, 110, 171, 160, and nine upper division units selected with approval of the departmental advisor. Students must complete psychology selected with approval of the departmental advisor. Students must complete psychology selected with approval of the departmental advisor. The requirements for the non-teaching major by including the courses listed above.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division units in subject fields commonly taught in junior and senior high schools. In addition, the student majoring in psychology must complete Psychology 201 (3 units).

Teaching Minors. In the undergraduate program the student should include two of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

LOWER DIVISION COURSES

1. General Psychology. 3 L, 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. Psychology Laboratory (1)
   One lecture and three hours of laboratory.
   Prerequisites: Psychology 1.
   Application of experimental methods to psychological problems. Includes research design and execution of experiments.

3. Principles of Psychology: Basic Organization of Behavior (3). L, II
   Prerequisites: Psychology 1 and sophomore standing.
   The basic sensory, neural, and motor mechanisms and their functions in human behavior.
6. Principles of Psychology: Learning and Integrated Behavior (3) I, II
Prerequisite: Psychology I and sophomore standing.
Attending, perceiving, and learning, including social learning, personality development, and conditions of learning work.

*11. Applied Psychology (3) I, II
Prerequisite: Psychology I.
A survey of the application of the basic principles of psychology to business, education, industry, government, law, medicine and related fields. A general education course in psychology.

12. Psychology of Individual Adjustment (3) I, II
Prerequisite: Psychology I.
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. A general education course in psychology.

Two lectures and four hours of laboratory.
Prerequisite: Psychology I.
Psychological analysis of group processes and training in the human relations skills necessary for effective participation in groups. A general education course in psychology.

UPPER DIVISION COURSES

104A. Statistical Methods in Psychology (3) I, II
Prerequisite: Psychology I.
An introduction to the use of quantitative methods in psychology, with emphasis upon measures of central tendency and variability, graphic methods and percentiles, linear correlation, and the applications of the normal probability curve. Not open to students with credit for another upper division course in statistical methods.

104B. Advanced Statistics (3) I, II
Prerequisite: Mathematics 3 and Psychology 104A, or consent of instructor.
A further study of quantitative methods in psychology with particular emphasis on methods of correlation, chi-square, and contingency, and in introduction to the analysis of variance.

105. Psychological Testing (3) I, II (Same course as Education 150)
Prerequisite: One of the following courses: Psychology 104A, Education 171, 152.
A course in the principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement. Not open for credit to students with credit for Education 150.

106. Developmental Psychology (3) I, II
Prerequisite: Psychology I.
A study of the psychological development of the normal individual from conception through childhood, adolescence, maturity, and old age. Stress is laid upon the independence of the various periods of the individual's life. A general education course in psychology or in family life education.

107. Psychology of Later Maturity (3) I, II
Prerequisite: Psychology I.
The psychological, physiological, and sociological factors influencing behavior in the later years of life. A general education course in psychology.

109. Mental Deficiency (3) I, II
Summer
Prerequisite: One of the following: Psychology 106, Education 110, 112, 113, or an equivalent.
The nature and causes of mental retardation, including the psychological effects of brain injury. Characteristics of the mentally defective.

111. Personnel and Industrial Psychology (3) I, II
Prerequisite: Psychology 104A, or Economics 140, or Sociology 160.
Psychological principles applied to problems of selection and assignment of personnel, employee training, and fatigue.

112. Public Opinion Measurement (3) I (Same course as Journalism 122)
The history, methods, and problem of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience. Not open to students with credit for Journalism 122.

113. Engineering Psychology (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Psychology I and upper division standing.
Psychological problems of man-machine systems. Visual, auditory, and other sensory factors involved in the inter-relations between man and machines. Motion study, work arrangement, fatigue, and environmental influences in relation to production.

116. Educational Psychology (2) I, II (Same course as Education 111)
Prerequisite: Psychology I.
To develop understanding of the applications of psychological research for effective classroom teaching. Observation and field work required. Not open to students with credit for Education 111.

117. Psychology of Personality (3) I, II
Prerequisite: One full year of psychology.
The principles of personality and their application to problems of adaptation and mental hygiene.

118. Principles of Interviewing (3) I, II
Prerequisites: Two courses in psychology. Psychology 112 is recommended.
An introduction to the basic principles of interviewing and counseling. Designed for students majoring in fields other than psychology.

119. Neural Bases of Behavior (3) I
Two lectures and two hours of activity periods.
Prerequisites: Psychology 3 and 6, or nine units in biological sciences.
Elements of neurology, with particular attention to the psycho-physiology of memory mechanisms and motor systems.

120. Physiological Psychology (3) I, II
Two lectures and two hours of activity periods.
Prerequisites: Psychology 3 and 6 and three hours of biology; or nine hours of biology.
The neurophysiology of emotion, sleep, bodily needs, instinctive patterns of behavior, and of learning, brain and behavior disorders.

122. Social Psychology (3) I, II
The major problems and findings concerning group behavior and group membership, the socialization of the individual, and processes of social interaction. A general education course in psychology. Not open to students with credit for Sociology 140.

130. Abnormal Psychology (3) I, II
Prerequisite: One full year of psychology.
The psychology of behavior disorders, with emphasis on the amnesias, neuroses, and psychoses.

131. Introduction to Clinical Appraisal (3) I, II
Prerequisites: Psychology 112 and 110, or Education 170 plus Education 151 or 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, and prediction of individual behavior.

132. Introduction to Methods of Counseling (3) I, II
Two lectures and two hours of activity periods.
Prerequisites: Senior standing in psychology or presocial work, and consent of instructor.
An introduction to problems and methods of counseling and adjustment. The utilization of psychological principles and techniques in dealing with various types of guidance situations. Not open to students with credit for Psychology 233.

133. 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 psycho-pharmacology.
169. Experimental Psychology: Learning and Cognition (3) I
One lecture and six hours of laboratory.
Prerequisites: Psychology 5, 6, and 104A.
Demonstrations of the principles and conditions of learning, perceiving, problem solving, and thinking. Methodology and design of experiments.

161. Experimental Psychology: Sensation and Perception (3) II
One lecture and six hours of laboratory.
Prerequisites: Psychology 5, 6, and 104A.
Demonstration of laws governing various sensory experience. Experiments in space perception and errors of judgment.

162. Experimental Psychology: Motor Processes and Fatigue (3) II
One lecture and six hours of laboratory.
Prerequisites: Psychology 5, 6, and 104A.
Demonstrations of the loss of control of motor integrations. Study of work of the integrated organism and fatigue. Emphasis upon motor processes.

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

170. Principles of Animal Behavior (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Psychology 5, 6, and one of the following: Psychology 160, 161, 175; or consent of instructor.
A study of the behavior of animals with a view to gaining a better understanding of the principles of behavioral patterns. Comparative information is included.

172. Theories of Learning (3) II
Prerequisites: Psychology 1, 5, 6, 104A; or consent of instructor.
A critical study of the facts, principles, and major theories of learning.

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: Major in psychology with senior or graduate standing.
Integration of the findings from perception, learning, motivation, and from psychophysiological and social psychology through a systematic treatment of personality theories and of related experimental data.

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.

199. Special Study (1-6) I, II
Individual study, including library or laboratory research and a written report. Six units maximum credit.
Prerequisites: Senior standing and consent of instructor.

GRADUATE COURSES

201. Seminar (3) I
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.

204. Individual Psychological Testing (3)
One lecture and six hours of laboratory.
Prerequisites: Psychology 104A and 105.
Principles of individual testing. Instruction and practice in the administration and scoring of the Stanford-Binet, Wechsler-Bellevue, and some similar tests.

205. Advanced Mental Testing (3) II
Two hours of lecture and three hours of laboratory.
Prerequisites: Psychology 104A, 105, 151, and 204.
This course is designed to present a comprehensive survey of various verbal and non-verbal individual mental tests. Supervised administration, scoring and interpretation is included. One of the Wechsler-Bellevue and the Stanford-Binet are stressed.

211. Advanced Clinical Psychology (3) I
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 included in clinical cases.

220. Seminar in Human Relations in Industry (3) II
Prerequisite: Psychology 121 or Business Administration 145.
Applications of psychological principles and methods of investigation to problems of individual and group behavior, including the development of attitudes, opinions, and stereotypes.

221. Seminar in Problems in Social Psychology (3) II
Prerequisites: Psychology 175 and 178.
Recent concepts and principles in the psychology of social relations, including emotion, motivation, personality, and social interaction. Relationships between research in social psychology and social interaction. Methods for the formulation and testing of hypotheses and other conceptualizations.

222. Experimental Design (3) I
Prerequisites: Psychology 104B and 160 or 161 or 162.
Principles and methods of planning and carrying out systematic investigations. Principles and methods of planning and carrying out systematic investigations of human behavior and related fields. Principles and methods of planning and carrying out systematic investigations of human behavior and related fields.

224. Advanced Experimental (3) II
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 the selection of appropriate apparatus and to the procedures for carrying out experiments in preparation for original investigations.

225. Principles of Test Construction (3) II
Prerequisites: Psychology 104B and 105.
A review of the principles of test construction and their application to the design and construction of tests.

226. Guidance Counseling Techniques (3) I, II
Prerequisite: Education 105 or 220, or Psychology 151.
A study of the principles and techniques of guidance counseling. Designed for school counselors. To stress the understanding and techniques of counseling in the public schools.

227. Projective Psychology (3) I
Prerequisites: Psychology 104A, 105, 151, 178, and 204.
An introduction to the theory and practice of the projective techniques. A review of the theory and practice of the projective techniques as interpreted by projective devices.

230. The Psychology of Perception (3) II
Prerequisites: Psychology 104A, 105, 151, 178, and 204.
An introduction to the theory and practice of the projective techniques. A review of the theory and practice of the projective techniques as interpreted by projective devices.
233. The Rorschach Method (2) II
Prerequisites: Psychology 104A, 105, 151, 178, 204, and 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.

290. Bibliography I (1) II
Exercises in the use of basic reference books, journals, and specialized bibliogra-
phies, preparatory to the writing of a master’s project or thesis.

296. Directed Field Experience I (1-6) II
Prerequisites: Limited to graduate students in psychology, with appropriate quali-
fications in a field of professional skill, and approved by the practicum committee
of the Psychology Department.
Meets the requirements of directed field experience for candidates of the master
of science degree, but is not limited to candidates for the degree. Required in addi-
tion to the 30-unit requirement for the degree.

298. Special Study I (1-6) II
Prerequisite: Consent of instructor.
Individual projects involving library research or laboratory research in physio-
logical, industrial, learning, clinical, and other areas of experimental psychology.
May be repeated to a maximum of six units.

299. Thesis I (3) II
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. Credit
is contingent upon acceptance of the completed thesis by the Department of
Psychology.

PUBLIC ADMINISTRATION
IN THE DIVISION OF SOCIAL SCIENCES

Offered by the Department of Political Science
Master of science degree in public administration.
Minor in public administration with the A.B. degree.
Minor in public administration.
Certificate (nondegree) in public administration.
Certificate (nondegree) in public welfare administration.

THE MASTER’S DEGREE

The master of science degree in public administration is offered for person-
interested in public service. For further information, refer to the Bulletin of the
Graduate Division and to the section of this catalog on the Graduate Division.

PROGRAMS

The program in public administration can be obtained by completion of the
major in public administration or by a major in political science. In either (1)
the philosophy, problems, and policies of government, and (2) direction and
related services.

This is an interdisciplinary program, with an emphasis in political science, de-
d of programs and policies of government at all levels, and in governmental research
or research activities. Working under the close supervision of public officials and
problems of government.

Two certificates (nondegree) programs are offered to public service employees.
These programs are described below.

RECREATION
IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL
EDUCATION, AND RECREATION

Faculty
Professor: Scott (Chairman)
Offered by the Department
Major in recreation with the A.B. degree.
Minor in recreation.

MAJOR IN RECREATION WITH THE A.B. DEGREE

The major in recreation is designed to provide a program of training for recrea-
tion and camp leadership work with youth groups, and related activities.

Lower Division Requirements: Recreation 21A, 5A, 5B, and 6.
Recreation 63 and women must complete Physical Education 2A, 5A, 5B, and 6.
Additional requirements in related fields for all recreation majors: 12 units selected
from the fields of art, music, physical education, and speech arts.

Additional requirements in related fields for all recreation majors: 12 units selected
from the fields of art, music, physical education, and speech arts.
Upper Division Requirements. Thirty-six upper division units distributed as follows: Recreation 165, 170A-170B, 184A-184B; Psychology 106 and 145; Education 140; Physical Education 161; Political Science 143; Sociology 148; and six units selected from Sociology 114, 125, 137, 180, 181, and 184. Students should consult with the adviser in the recreation curriculum for selection and arrangement of courses.

MINOR IN RECREATION

The minor in recreation consists of 15 to 22 units to include the following courses: Lower division: two units of physical education activity courses; Recreation 74; and two units chosen from the fields of art, dance, drama, or music. Upper division: Recreation 165, 170A-170B, and 184A or 184B. Recommended: Physical Education 161. Consultation with the departmental chairman in recreation is advised.

LOWER DIVISION COURSES

63. Professional Activity: Techniques of the Dance (2) II
   (Same course as Physical Education 63)
   Practice in the skills and techniques of the dance, and experience in the organization and presentation of dance materials. Not open to students with credit for Physical Education 65.

74. Elementary School Physical Education Activities (2) I, II
   (Same course as Physical Education 74)
   Physical education activities designed for the elementary school child; emphasis on the organization, supervision, and evaluation of the physical education program in the elementary school. Not open to students with credit for Physical Education 74.

80. Camp Leadership (2) II
   Consideration of camp administration and principles of good camp leadership. Lectures and practical sessions aimed at general training in all phases of outdoor education and camp leadership, including skills in axemanship, outdoor cooking, nature projects, camp crafts, campfire and special camp programs.

UPPER DIVISION COURSES

165. Administration of Community Recreation (3) II
   The principles of organization and promotion of leisure time and recreation activities. Course content covers growth of the recreation movement, administration of areas and facilities, program of activities, features, services, organization, and administration problems. A required course for recreation minors.

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

170A-170B. Recreation Leadership (3-3)
   (Same course as Physical Education 170A-170B)
   Principles and practices in recreation leadership. Course content of 170A includes organization of competition, intramurals, playground practices; content of 170B includes recreational arts and crafts, dramatics, social recreation, and music. Neither course is a prerequisite for the other. Not open to students with credit for Physical Education 170A-170B.

184A-184B. Field Work in Recreation (3-3)
   Prerequisite: For recreation majors and minors. Others only with consent of instructor.
   Observation and participation in supervised group activities in the field. Practical experience in the various public and semipublic community recreation agencies.

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

GRADUATE COURSES

204. Problems in Recreation (1) (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. Not open to students with credit for Physical Education 204.
Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 180, 121 (methods in the major and minor fields), and Health Education 151.

TEACHING MAJOR IN ROMANCE LANGUAGES FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major and teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major and Teaching Minor. The teaching major in Romance languages may be used for the bachelor's degree if the student also completes a minor in a field other than French or Spanish, selected with approval of the department advisor.

A student completing the teaching major in romance languages and the additional credential requirements, including the postgraduate year, will meet the credential requirements for a teaching major and a teaching minor in French and Spanish (or Spanish and French), provided that he has earned, by date of credential candidacy, at least 36 units in the language concentration (major field) and at least 20 units in the other language (minor field), exclusive of course equivalents.

Lower Division Requirements. French 1, 2, 3, 4 (or equivalents) and Spanish 1, 2, 3, 4 (or equivalents). Recommended: History 4A-4B, or for students emphasizing Spanish in the upper division, History 8A-8B.

Upper Division Requirements. Thirty-three upper division units to include French 101A-101B; Spanish 101A-101B; nine units from courses in French literature or Spanish-American literature selected with approval of the adviser, nine units from courses in Spanish literature or Spanish 198 (to be taken in the teaching major field of concentration), and upper division electives in French or Spanish to complete the major.

Proficiency Examination. Before taking a directed teaching assignment (Education 180 or 310), the candidate for the credential must pass a proficiency examination in their major field and in their area civilizations. (Courses numbered 40-41 or 140-141 in French and Spanish prepare for the area examinations.)

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division units in subject fields commonly taught in junior and senior high school. Students majoring in Romance languages must meet this requirement by completing six units in the major field of concentration selected from the following courses: French 220 and 201 or 214; Spanish 204 and 201 or 202.

GRADUATE COURSES

Romance Language Bibliography (2) I
Prerequisite: 18 units of upper division French or Spanish.
Exercises in the use of basic reference books, journals, and specialized bibliographies in the field of the Romance languages.

RUSSIAN

IN THE DIVISION OF HUMANITIES

Faculty
Assistant Professors: Dukas; Lawson, R. H.

Offered by the Department of Foreign Languages

Courses in Russian.

Major or minor work is not offered in Russian.

LOWER DIVISION COURSES

NOTE: The following sequence of elementary and intermediate courses will be replaced by a new series of four-unit courses beginning with the fall semester 1960.

1. Elementary (3) I
   (To be discontinued after spring 1961)
   Three lectures and one hour of laboratory.
   Prerequisite: Russian I.
   Continuation of Russian I.

2. Intermediate (3) I
   (To be discontinued after fall 1961)
   Prerequisite: Russian II.
   Reading in Russian of short stories, novels, or plays; oral practice.

3. Intermediate (3) II
   (To be discontinued after spring 1962)
   Prerequisite: Russian I.
   Continuation of Russian II.
   Outside reading and reports.

NOTE: The following sequence of courses will replace the series of courses listed above, beginning with the fall semester, 1960.

1. Elementary (4) I
   (To be offered in fall 1960)
   Four lectures and one hour of laboratory.
   Prerequisite: Two years of high school or one year of college foreign language.
   Continuation of Russian I. A general education course in foreign language.

2. Elementary (4) II
   (To be offered in fall 1960)
   Four lectures and one hour of laboratory.
   Prerequisite: Russian I.

3. Intermediate (4) I
   (To be offered in fall 1961)
   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, outside Russian of cultural material, short stories, novels or plays; oral practice.
   Continuation of Russian I.

4. Intermediate (4) II
   (To be offered in spring 1962)
   Prerequisite: Russian 3.

SOCIAL SCIENCE

IN THE DIVISION OF SOCIAL SCIENCES

Offered by the Division of the Social Sciences

Master of arts degree for teaching service with a concentration in social science with emphasis in economics, geography, political science, or sociology.

Major in social science with the A.B. degree.

Major in Latin-American studies with the A.B. degree.

Teaching major in social science with the A.B. degree and junior high school credential.

Teaching major in social science leading to the general secondary credential in the postgraduate year.

Teaching minor in social science for the general secondary credential.

Teaching minor in social science for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree for teaching service with a concentration in social science with emphases in economics, geography, political science, or sociology.
MAJORS FOR THE BACHELOR'S DEGREE

Courses in the social science major or the Latin-American studies major are in addition to 45 units in general education, except that 12 units in the social sciences may be counted in the general education in either major. Students with these majors are not required to complete a minor for the bachelor's degree.

Major in Social Science With the A.B. Degree

Lower Division Requirements. 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 1 and 2, Economics 1A-1B, Geography 1 and 2, History 4A-4B, and Political Science 1A-1B or 71A-71B, Sociology 1 and 3.

Upper Division Requirements. Thirty upper division units to include 12 units from any field named above; six units from each of two additional fields named above; and six 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.

Major in Latin-American Studies With the A.B. Degree

Lower Division Requirements. Six units in each of three of the following groups of courses: Anthropology 1 and 2, Economics 1A-1B, Geography 1 and 2, History 4A-4B, and Political Science 1A-1B (18 units).

Upper Division Requirements. Thirty upper division units from the fields named above, to include 12 units from one field; six units from each of two additional fields; and six units from any of the fields. Courses strongly recommended: Economics 190 and 195, Geography 123 and 124, History 161 and 162, Political Science 172 and 182. Recommended selection of courses: Anthropology 152A, Anthropology 152B, Geography 121, History 173A-173B, and Political Science 170A-170B and 171. Any variation in the student's program must be with the approval of the adviser.

Foreign Language and Area Studies Requirements. A reading and speaking knowledge of Spanish or Portuguese is required of students with the major in Latin-American studies. Proficiency may be demonstrated either by course work (ordinarily 12 units) or by examination. Students are also urged to include the following courses within general education requirements: Art 51, Comparative Literature 101A-101B and 102A-102B and Spanish 141 or 143.

TEACHING MAJOR IN SOCIAL SCIENCE WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 45 units in general education courses, (1) a teaching major in social science, (2) a minor in one of the following: economics, industrial arts, or another minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. Twenty-four units selected from courses in anthropology, economics, geography, history, political science, and sociology, 18 units of which must be in upper division courses. Twelve units in social science courses must be concentrated in one field, six units of which must be in upper division courses. Nine units of social science may be counted in general education.

Minor. For a description of the minor, refer to the section of this catalog on Home Economics or Industrial Arts.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 121 (methods in the major and minor fields), 180, and Health Education 151.

SOCIAL SCIENCE

TEACHING MAJOR IN SOCIAL SCIENCE FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teacher Major. The teaching major in social science is the same as that for the A.B. degree.

Postgraduate Year. In addition to other requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high school, including at least four units in the social sciences selected with approval of the adviser in social science.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential, other than a major in the social sciences. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

TEACHING MINOR IN SOCIAL SCIENCE FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in social science for the general secondary credential may also be used for the bachelor's degree by students who have been admitted to teacher education and have completed at least eight units of professional education courses by date of degree candidacy. This minor is not available to students with a social science major. The minor consists of 27 units distributed as follows:

Lower Division Requirements. A six-unit sequence from each of the following groups: Anthropology 1 and 2, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 1A-1B or 71A-71B, and Sociology 1 and 10.

Upper Division Requirements. Six units in an upper division sequence course in U.S. history and three upper division units of social science electives.

TEACHING MINOR IN SOCIAL SCIENCE FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in social science for the general elementary and kindergarten-primary credentials consists of a minimum of 15 units selected from anthropology, economics, history, political science, and sociology, except Geography 1 and 3. Courses in history, political science, and geography must be at the 100 level or above. Courses in social science, however, may be selected from any of the major fields of study in social science, including education, and must include at least six upper division units in history and/or geography.

SOCIAL WELFARE (PRESOCIAL WORK) IN THE DIVISION OF SOCIAL SCIENCES

Offered by the Department of Sociology

Major in social welfare with the A.B. degree.

Offered by the Department of Political Science

Certificate (nondegree) in public welfare administration.

CURRICULUM IN SOCIAL WELFARE

The professional curriculum in social welfare prepares for admission to graduate work in recognized American schools of social work. This curriculum should be pursued by those who plan careers in federal, state, and local welfare agencies, public agencies, work in public schools, Family and Child Welfare, Community Organization, and Social Work, and public institutions for the dependent and delinquent, medical and public agencies, work in public institutions for the dependent and delinquent, medical and public agencies, work in public institutions for the dependent and delinquent, medical and public agencies, work in public institutions for the dependent and delinquent, medical and public agencies.
MAJOR IN SOCIAL WELFARE WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses, except that 12 units of lower division social science courses and Psychology 12 may be counted in general education. Students majoring in social welfare are not required to complete a minor for the bachelor's degree.

**Lower Division Requirements.** Sociology 1 and 10; Economics 1A-1B; Political Science 71A-71B or 1A-1B; and Psychology 12. Recommended: Biology 3 and courses from anthropology, foreign languages, and speech arts.

**Upper Division Requirements.** Forty-two upper division units distributed as follows: Sociology 140, 160, 180, and 182; six units selected from Sociology 116, 183, 184, 185, 186, 187, and 189; three units from any upper division course in sociology; Psychology 150 and six units selected from Psychology 106, 107, 109, 131, 151 or 152; six units selected from Economics 102, 111, 131, 150 or 151, 170, 185, or 195; and six units from Political Science 105, 112, 122, 140A, 140B, 142, and 143. Recommended: Zoology 167. Students should consult with the adviser in the social welfare curriculum for selection and arrangement of courses.

CERTIFICATE IN PUBLIC WELFARE ADMINISTRATION

A certificate in public welfare administration is available to persons professionally engaged in the field of social work. This program is described under the Public Administration Curriculum.

SOCIOMETRY

IN THE DIVISION OF SOCIAL SCIENCES

Faculty

Professors: Barnhart, Klapp, Milne
Associate Professors: Kirby (Chairman, Sociology-Aanthropology); Wendling
Assistant Professors: Daniels, DeLora; MacCannel, McJunkes, Terb; Young
Lecturer: Stighet

Offered by the Department of Sociology-ANTHROPOLOGY

Master of arts degree with a major in sociology.

Master of arts degree for teaching service in social science (sociology).

Major in sociology.

Minor in sociology.

THE MASTER'S DEGREE

The master of arts degree with a major in sociology and the master of arts degree for teaching service in social science (sociology) are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJOR IN SOCIOLOGY WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses. Sociology majors are required to complete a minor for the bachelor's degree.

Lower Division Requirements. Sociology 1 and 10.

Upper Division Requirements. A minimum of 24 upper division units in sociology to include Sociology 100, 101, 110, 140, and 160.

MINOR IN SOCIOLOGY

The minor in sociology consists of 15 to 22 units in sociology, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

*1. Principles of Sociology (3) I, II

This course is a prerequisite for all upper division courses in sociology.

The 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. A general education course in the social sciences.

16. Contemporary Social Problems (3) I, II

May be taken before Sociology I.


35. Courtship and Marriage (3) I, II

Same course as Home Economics 35.

Emphasizes preparation for successful marital adjustment by presenting materials that will help students to solve their own courtship, marriage, and family problems. A general education course in family life education. Not open to students with credit for Home Economics 35 or any course in marriage and the family.

UPPER DIVISION COURSES

100. History of Social Thought (3) I

Prerequisite: Sociology 1 and 100, or consent of instructor.

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) II

Prerequisite: Sociology 1 and 100, or consent of instructor.

A study of theories basic to modern sociological research, including the viewpoints of European and American thinkers.

106. Social Disorganization (3) I

Prerequisite: Sociology 1.

Survey of many social phenomena in society as seen in society today, the origin and extent of deviant behavior, understanding in society and social and sociological causes of crime, study of methods of penal discipline, prison labor, parole, and probation; programs of prevention.

113. Criminology and Penology (3) I

Prerequisite: Sociology 1 or consent of instructor.

The study of criminal behavior and the development of theories of crime, the nature and extent of delinquency, the causative factors involved; methods of control and prevention of crime, the correction of communities, the proper role of criminal institutions and agencies in the economy of society, the nature and extent of social control; the correction and control of anti-social behavior.

116. Contemporary Correctional Administration (3) II

Prerequisite: Sociology 113 or 114, or consent of instructor.

A study of the problems encountered in administering modern correctional institutions, parole and road camps, detention homes, and jails.

120. Industrial Sociology (3) II

Prerequisite: Sociology 1.


121. Medical Sociology (3) I

Prerequisite: Sociology 1.


123. Race Relations (3) I

Prerequisite: Sociology 1.

A study of social groups, their relationships within society, their development, influence, and conflict. A study of the sociology of occupations and professions.
*135. Marriage and the Family (3) I, II
Background factors predictive of happy and successful marriages; principal areas of adjustment in marriage; parent-child problems; the changing adolescent; causes of family life education. Not open to students with credit for Sociology or Home Economics 35 or other course in marriage and the family.

136. Sociology of the Family (3) II
Prerequisite: Sociology 1. Recommended: Sociology 101 and 146
A comparative study of family systems in different societies. Changing role-structure and functions of the modern family, rural-urban, social class, racial and ethnic differences in family organization, marriage and family as a developing system of interpersonal relationships.

138. Sociology of Religion (3) II
Prerequisite: Sociology 1. Recommended: Sociology 101 and 146
The role of religion in society as cult and institution, including primitive religion, modern sects and churches, ritual, secularization, and religious movements.

140. Social-Psychological Foundations of Society (3) I, II
Prerequisites: Sociology 1 and Psychology 1.
The major problems and findings of social-psychological studies with reference to group behavior and group membership, the socialization of the individual, and processes of social interaction. A general education course in the social sciences. Not open to students with credit for Psychology 145.

144. Collective Behavior (3) II
Prerequisites: Sociology 1 and 140, or consent of instructor.
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
Prerequisite: Sociology 1 and 140, or consent of instructor.
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 consent of instructor.
Problems of population relative to age, sex, and racial distribution. Population practices and theories. Biological and geographical aspects of population problems. International population movements.

157. Urban Sociology (3) II
Prerequisite: Sociology 1 or consent of instructor.
A study of the structure and function of the modern city; types of neighborhood, forms of recreation, social forces in a metropolitan area; types of urban life required.

160. Elementary Social Statistics (3) I, II
Prerequisite: Sociology 1 and Math A (or pass mathematics competency test).
Recommended: Math 3 or 21.
Analysis and presentation of elementary materials in the fields of sociology and social work. Tabular and graphic presentation, analysis of frequency distribution, correlation, sampling and reliability techniques. This course recommended for most upper division sociology courses. Not open to students with credit for Economics 140 or Psychology 104A or 104B.

164. Methods of Social Research (3) II
Prerequisite: Sociology 1 and 160, or consent of instructor.
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.

180. Fields of Social Work (3) I
Prerequisite: Sociology 1.
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 various social agencies and their operations by use of readings, lectures and discussions.

182. Methods of Social Casework (3) I, II
Prerequisite: Sociology 180. Sociology 182 is designed to be taken prior to or concurrently with Sociology 189.
Introduction to the basic concepts and methods used in casework, group work, and community organization agencies, with emphasis on discussion of case materials. (Formerly offered under the title: Methods of Social Casework.)

183. Social Group Work (3) II
Prerequisite: Sociology 180 or consent of instructor.
The role of the social worker with the group and its individuals; understanding group processes; use of program media for the development of interpersonal relationships and group structure. Discussion includes process recording.

184. Community Welfare Organization (3) II
Prerequisite: Sociology 180 or consent of instructor.
The social structure of communities and processes of change as related to the community welfare programs; strategies of change; the role of the professional worker; public private relationships.

185. Public Welfare (3) I
Prerequisite: Sociology 180.
A historical and current perspective of public welfare. Analysis of current programs of social insurance, public assistance, general relief, and other public welfare programs. (Formerly offered under the title: Public Welfare Administration.)

186. Social Work and the Law (3) II
Prerequisite: Sociology 180 or consent of instructor.
Trends and current developments in social legislation, laws regarding public relief, adoption, guardianship.

187. Child Welfare (3) I
Prerequisite: Sociology 180.
An analysis of the development and current programs of child welfare on the local, state, and national levels; the relationship between private and public agencies; the financial administration; and the role of the public in promoting the welfare of children.

189. Field Assignment in Social Work (3) II
Prerequisite: Credit or registration in Sociology 182.
Approximately 10 hours weekly spent in an approved local social agency in the field of social casework, group work, or community organization, under the supervision of an experienced agency worker and including periodic consultations with the faculty advisor. (Formerly Sociology 196.)

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

GRADUATE COURSES

206. Seminar in Social Theory (3)
Prerequisite: Sociology 101 and 164, or consent of instructor.
Advanced study of social theory, its modern formulations and historical development, with emphasis on individual research and report of findings.

218. Seminar in Social Disorganization (3)
Prerequisite: Sociology 110 and 164, or consent of instructor.
Advanced study of the processes which contribute to and maintain social and personal disorganization. The relationship of sociological factors, including urban and rural disorganization. The relationship of sociological factors, including urban and rural disorganization to contemporary theory and research.
Teaching major in Spanish with the A.B. degree and junior high school credential.
Teaching major in Spanish leading to the general secondary credential in the postgraduate year.
Teaching minor in Spanish for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree with a major in Spanish and the master of arts degree for teaching service with a concentration in Spanish are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJOR IN SPANISH WITH THE A.B. DEGREE

Courses in the major are in addition to 45 units in general education courses, except that six units in elementary French, German, Latin, or Russian may be counted in general education. A minor to be approved by the department adviser in Spanish is required of Spanish majors for the bachelor's degree.

Lower Division Requirements. Spanish 1, 2, 3, 4 (or equivalents) and courses 1 and 2 (or equivalents) in French, German, Latin, or Russian. Recommended: History 4A-4B.

High School Equivalents. Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school with foreign language study may be repeated in college for graduation credit, not foreign language sequence may be repeated in college for graduation credit, not.

to exceed four units of repeated foreign language work.

Upper Division Requirements. A minimum of 24 upper division units, at least 2 units of which must be in Spanish, including Spanish 198. With the approval of the department adviser, the remaining three units may be selected from the upper division requirements in the area associated with the major.

Minor in Spanish

The minor consists of 15 to 22 units in Spanish (exclusive of course equivalents), six units of which must be in upper division courses.

TEACHING MAJOR IN SPANISH WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to student teaching and complete, in addition to 45 units in general education courses, (1) a teaching major in Spanish, (2) a minor in business economics or education courses, (3) a teaching major in Spanish, (4) a teaching minor in Spanish, and (5) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general education courses in the area of special secondary education. For a complete description of the general education courses in the area of special secondary education, refer to the section of this catalog on the Division of Humanities.

Teaching Major. Twenty-four units in Spanish, to include 18 units in upper division courses.

Minor. For a description of the minor, refer to the section of this catalog on the Division of Humanities.

Offered by the Department of Foreign Languages

Master of arts degree with a major in Spanish.
Master of arts degree for teaching service with a concentration in Spanish.
Minor in Spanish.

SPANISH IN THE DIVISION OF HUMANITIES

Faculty

Assistant Professors: Baker, C.; Freitas

Offered by the Department of Foreign Languages

Master of arts degree with a major in Spanish.
Master of arts degree for teaching service with a concentration in Spanish.
Minor in Spanish.

SPANISH
TEACHING MAJOR IN SPANISH FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Professional Curricula in Teacher Education.

Teaching Major. The teaching major in Spanish is the same as the major for the bachelor's degree, except that the student must include Spanish 101A-101B in the major and must complete at least 36 units of Spanish (exclusive of course equivalents) by date of credential candidacy.

Proficiency Examination. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass a proficiency examination, administered by the Department of Foreign Languages, in the language and its area civilization. (Spanish 40-41 or 140-141 prepare for this latter examination in the area civilization.)

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Spanish majors must meet this requirement by completing six units of Spanish 201 or 202.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Professional Curricula in Teacher Education for a list of the approved teaching minors.

TEACHING MAJOR IN SPANISH FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in Spanish for the general secondary credential may also be used as a minor for the bachelor's degree. This minor consists of a minimum of 21-22 units in Spanish (exclusive of course equivalents) to include the following courses: Spanish 1, 2, 3, 4, and Spanish 101A-101B.

Proficiency Examination. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass a proficiency examination, administered by the Department of Foreign Languages, in the language and its area civilization. (Spanish 40-41 or 140-141 prepare for this latter examination in the area civilization.)

TEACHING MINOR IN SPANISH FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

A teaching minor in Spanish is offered for the general elementary and kindergarten-primary credentials. This minor consists of 15 to 22 units in Spanish, six units of which must be in upper division courses.

LOWER DIVISION COURSES

NOTE: The following sequence of elementary and intermediate courses will be replaced by a new series of four-unit courses beginning with the fall semester, 1960.

2. Elementary (1) I, II
   (Will be discontinued after spring 1961)
   Three lectures and one hour of laboratory.
   Prerequisite: Spanish 1 or one year of high school Spanish.
   Continuation of Spanish 1. A general education course in foreign language.

3. Intermediate (1) I
   (Will be discontinued after fall 1961)
   Prerequisite: Spanish 2 or two years of high school Spanish.
   Reading in Spanish of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. A general education course in foreign language.

4. Intermediate (1) II
   (Will be discontinued after spring 1962)
   Prerequisite: Spanish 3 or three years of high school Spanish.
   Continuation of Spanish 3. A general education course in foreign language.

5. Intermediate (2) I
   (Will be discontinued after fall 1961)
   Prerequisite: Spanish 2 or two years of high school Spanish.
   A practical application of the fundamental principles of grammar by means of oral and written work based on Spanish texts.

6. Intermediate (2) II
   (Will be discontinued after spring 1962)
   Prerequisite: Spanish 3 or three years of high school Spanish.
   Continuation of Spanish 5.

NOTE: The following sequence of courses will replace the series of courses listed above, beginning with the fall semester, 1960.

1. Elementary (4) I
   (To be offered in fall 1960)
   Four lectures and one hour of laboratory.
   Prerequisite: Spanish 1 or two years of high school Spanish.
   Continuation of Spanish 1. A general education course in foreign language.

2. Elementary (4) II
   (To be offered in spring 1961)
   Four lectures and one hour of laboratory.
   Prerequisite: Spanish 1 or two years of high school Spanish.
   Continuation of Spanish 1. A general education course in foreign language.

3. Intermediate (4) I
   (To be offered in fall 1961)
   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. A general education course in foreign language.

4. Intermediate (4) II
   (To be offered in spring 1962)
   Prerequisite: Spanish 3 or four years of high school Spanish.
   Continuation of Spanish 3. A general education course in foreign language.

10. Conversation (2)
    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) 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 curricula and characteristics of Spanish culture, as expressed through the centuries in literature, art, philosophy, music, and science. A general education course in the area of foreign languages. Not open to students with credit in Humanities 46.

41. Spanish Civilization (2) II
    (Same course as Humanities 47)
    Conducted in English. No prerequisite.
    Continuation of Spanish 40. A general education course in the area of foreign languages. Not open to students with credit in Humanities 47.

UPPER DIVISION COURSES

101A-101B. Conversation and Composition (3-3)
   Prerequisite: Spanish 4 and 6 (old sequence) with a grade of C or better, or consent of instructor.
102A-102B. Introduction to Spanish Classics (3-3)  
(Offered in 1961-62)  
Prerequisites: Spanish 4 and 6 (old sequence) with a grade of C or better.  
Reading from several types of classical literature. Lazarillo de Tormes and other  
works of Raguett; selections from Don Quixote, and the Cien Mejores Poesias  
Castellanas; one or more from the works of Lope de Vega, Calderon, Alarcon,  
and Moreto; collateral reading and reports.

104A-104B. Spanish-American Literature (3-3)  
Prerequisites: Spanish 4 and 6 (old sequence) with a grade of C or better.  
Reading from representative Spanish-American authors during the colonial,  
revolutionary, and modern periods. Lectures, class reading, collateral reading  
and reports.

105A-105B. Modern Spanish Drama (3-3)  
(Offered in 1962-63)  
Prerequisites: Spanish 4 and 6 (old sequence) with a grade of C or better.  
The development of the drama of Spain from the beginning of the nineteenth  
century to the present time.

110A-110B. Novel and Short Story in Spain (3-3)  
Prerequisites: Spanish 4 with a grade of C or better.  
The development of the novel and short story in Spain from 1830 to the present  
time.

*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  
reading, written reports on individual topics. A general education course in the  
area of foreign languages. Not open to students with credit in Humanities 146.

*141. Spanish Civilization (2) II  
(Same course as Humanities 147.)  
Conducted in English. No prerequisite.  
Continuation of Spanish 140. A general education course in the area of foreign  
languages. Not open to students with credit in Humanities 147.

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

198. Comprehensive Reading and Survey Course (3) II  
Required of all seniors majoring in Spanish.  
A study of important movements, authors, and works in Spanish courses.

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 Spanish available in any given semester.  
Prerequisite: Consent of staff.

GRADUATE COURSES

201. Old Spanish (3) I  
Prerequisite: 18 units of upper division Spanish.  
A study of the language and literature of Spain from the 12th to the 16th  
centuries.

202. Cervantes (3) II  
Prerequisite: 18 units of upper division Spanish.  
A study of the principal works of Cervantes: The Novelas ejemplares and  
Don Quixote.

204. Seminar in Spanish-American Literature (3) II  
Prerequisite: 18 units of upper division Spanish.  
Intensive investigation of some phase of Spanish-American literature. A single  
country, an author, or some special problem will be studied and reported upon.  
May be repeated with new content for a total of six units.

290. Bibliography (2) See Romance Languages

SPEECH ARTS

178. Special Study (1-6) I, II  
Individual study. Six units maximum credit.  
Prerequisites: 16 units of upper division Spanish and consent of staff; to be  
arranged with department chairman and instructor.

199. Thesis  
Prerequisites: An officially appointed thesis committee and advancement to  
Candidacy.  
Guidance in the preparation of a project or thesis for the master's degree.  
Master's degree candidates in the general secondary credential program are  
expected to substitute a comprehensive examination for the thesis. In unusual  
cases a student may write a thesis with the permission of the department. Candidates  
in the liberal arts master's degree program are expected to write a thesis.

SPEECH ARTS IN THE DIVISION OF FINE ARTS

Faculty

Professors: Ackley; Earnest (Chairman); Pfaff; Sellman  
Associate Professors: Adams, W.; Benjamin; Jones, K.; Poynter; Powell  
Assistant Professors: Harris, R.; Lee, R.; Mills, Norwood; Rogers, W.  
Lecturer: Reed

Offered by the Department

Master of arts degree with a major in speech arts.  
Master of arts degree for teaching service with a concentration in speech arts.  
Major in speech arts with the A.B. degree.  
Major in radio and television broadcasting with the B.S. degree.  
Minor in speech arts.  
Minor in broadcasting.  
Teaching major in speech arts with the A.B. degree and special secondary  
credential.  
Teaching major in speech arts leading to the general secondary credential in  
the postgraduate year.  
Credentialed to teach exceptional children.  
Teaching minor for the general secondary credential in the area of speech  
correction and lip reading.  
Teaching minor for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree with a major in speech arts and the master of arts  
degrees for teaching service with a concentration in speech arts are offered. For  
degree for teaching service with a concentration in speech arts are offered. For  
the further information, refer to the Bulletin of the Graduate Division and to  
the section of this catalog on the Graduate Division.

MAJOR IN SPEECH ARTS WITH THE A.B. DEGREE

The major in speech arts is offered with the A.B. degree. Courses in the major  
are in addition to 45 units in general education courses. Students taking this major  
are not required to complete a minor for the bachelor's degree.  

Lower Division Requirements. In addition to Speech Arts 3, which is a general  
education requirement, a minimum of 13 units of lower division courses, including  
(1) theater, (2) broadcasting, or (3) public address. Courses should be selected  
from the areas of emphasis outlined below.

Upper Division Requirements. A minimum of 24 upper division units in speech  
arts, to include Speech Arts 100 and at least 12 units with emphasis in one of the  
courses recommended in the various areas of emphasis outlined below.

Areas of Emphasis

Theater. Lower division: Speech Arts 1, 5, 11A, 55A or 55B, 56, and 85. Upper  
division: 24 upper division units in speech arts to include Speech Arts 100, 11A,  
118A, 118B, 140A, 140B, 145, 152, 154A, 155, 159, and nine units from Speech Arts  
Design for Theater. Lower division: 13 units in speech arts including Speech Arts 34, 35A or B, 56, and 57. Upper division: 24 upper division units in speech arts to include Speech Arts 100, 140A, 140B, 145, 152, 154A, 154B, and 159.

Design for Television. Lower division: Speech Arts 56, 81A, 81A, Art 14B, and three units of speech arts electives. Upper division: 24 upper division units in speech arts to include Speech Arts 160A, 140B, 145, 156, 159, 183A or B, 186, 189, and one additional unit of upper division speech arts electives. Students with this area of emphasis are not required to take Speech Arts 100.

Broadcasting. Lower division: 13 units in speech arts to include six units from Speech Arts 81A, 81B, 81C; two units from Speech Arts 82A, 82B; and two units from Speech Arts 83A, 83B. Upper division: 24 upper division units in speech arts to include Speech Arts 100, 105, 106, 107, 119; three units from Speech Arts 181 or 184; and four units from Speech Arts 182A, 182B, 183A, 183B; and two units of upper division speech arts electives.

Public Address. Lower division: Speech Arts 1, 4, 60A-60B, and one unit of 61. Upper division: 24 upper division units in speech arts to include Speech Arts 100, 105, 106, 107, 119, and 122.

Speech Correction. Lower division: 13 units in speech arts to include Speech Arts 4. Upper division: 24 upper division units in speech arts to include Speech Arts 100, 105, 106, 107, 119, and 180.

MAJOR IN RADIO AND TELEVISION BROADCASTING WITH THE B.S. DEGREE

The major in radio and television broadcasting is offered with the B.S. degree. This major provides training in all phases of radio and television production, operation, and production in which the personnel of broadcasting stations and commercial organizations will be involved in providing a broadcast service. Courses in the major are in addition to 45 units in general education courses. Students taking this major are not required to complete a minor for the bachelor's degree.

Lower Division Requirements. Speech Arts 1 (which may be substituted for Speech Arts 3 in general education); Speech Arts 8B; six units from Speech Arts 81A, 81B, 81C; two units from Speech Arts 82A, 82B, two units from Speech Arts 83A, 83B, two units from General Language 30, 31, 32, 33; and Business Administration 71 or qualification by examination (18-21 units).

Upper Division Requirements. Thirty-eight to 41 units to include the following courses: Speech Arts 159, 162A or 162B, 183A or 183B, 185, 186, 187, 189; four units of 188; Political Science 122, and Psychology 122 (29 units); plus the requirements in one of the following areas of concentration:

Production. Choose one of the following:
(a) Programming: Speech Arts 118A, 145, 184 (9 units).
(b) Technical: Speech Arts 140A-140B, 145, 156 (12 units).

Writing. Speech Arts 118A-118B, 184, English 195 (12 units).

Business. Speech Arts 181, Business Administration 153, 155 or Journalism 180, and Journalism 102 (12 units).

MINOR IN SPEECH ARTS

The minor in speech arts consists of 15 to 22 units in one of the areas of emphasis, nine units of which must be in upper division courses.

MINOR IN BROADCASTING

The minor in broadcasting consists of a minimum of 17 units in speech arts to include the following courses: Lower division: Speech Arts 81A, 81B, and two units selected from Speech Arts 82A, 82B, 81A, 81B (8 units); and in the upper division, three units selected from Speech Arts 185 and 186; six units selected from Speech Arts 181, 182A or 182B, 183A or 183B, 184, 185, 186, 187, and 189 (9 units).
TEACHING MINOR IN SPEECH ARTS FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in speech arts for the general elementary and kindergarten-primary credentials consists of 15 to 22 units in speech arts, nine units of which must be in upper division courses. The student may emphasize speech correction by selecting courses in consultation with the advisor.

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. Speech for International Students (3)
   Training in production of American speech sounds, blending and assimilation, American prosody, rhythm and oral communication. Emphasis on clarity and intelligibility. Practical work in oral comprehension. Prerequisite: Designation by speech testing committee. (Two units of this course may be counted as fulfilling the general education requirement in Speech Arts 3.)

3. Oral Communication Laboratory (1) I, II
   Two hours of laboratory. The student who fails the speech test must take this course concurrently with Speech Arts 3. This course provides training in articulation, voice control, vocabulary, individual laboratory assistance on specific speech problems.

4. Extemporaneous Speaking (3) I, II
   Practice in extemporaneous speaking on subjects of current interest, both national and local, with stress on organization and delivery.

5. Introduction to the Theater (3)
   An introduction to theory and practice in the contemporary theater, including its literary, technical, and historical aspects. The student views the theater from the standpoint of the audience.

6. Speech Workshop for Stutterers (3)
   Practice in stuttering in various techniques designed to alleviate stuttering blocks. May be repeated to a maximum of six units.

7. Fundamentals of Interpretation (3)
   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.

8. Intermediate Interpretation (3)
   Prerequisite: Speech Arts 11A or 5SA.
   Oral reading of various types of material suitable for popular audiences: stories, humorous sketches, light and sentimental verse.

9. Stage Make-up (2) I, II
   One lecture and three hours of laboratory. Practice in the application of stage make-up including straight and character make-up.

10. Elementary Acting (3) I
   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.

11. Intermediate Acting (3) I
   Three lecture-demonstrations per week and an additional 32 hours of laboratory per semester.
   Prerequisite: Speech Arts 5SSA or consent of instructor.
   Continuation of 5SA, emphasizing the application of fundamental skills to the problems of emotion, timing, characterization, and ensemble acting.

12. Dramatic Production (3) I
    Two lectures and three hours of laboratory. Technical practices and organization of production for theater and television. Practice in drafting and construction of stage scenery for the college dramatic productions.

13. Elementary Stage Costume (3) I
    Two hours lecture-demonstration and three hours of laboratory. A study of pattern drafting, draping, color harmony and the use of fabrics for stage costume. Students will receive practical training in the construction of stage costumes.

14. Argumentation and Debate (3-3)
    Training and organizing of evidence and the construction and use of the brief. Study and discussion of current issues; the presentation of formal and informal debates. Participation in intercollegiate debate optional.

15. Intercollegiate Debate (1) I, II
    Two hours of activity. 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.

16. Verse Choir (1) I, II
    Two hours of practice in verse. Practice in verse is to develop quality, range of tone and ability in dramatic visualization of poetry. May be repeated to a total of four units, including lower division and upper division courses, 61 and 163.

17. 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.

18. Backgrounds in Broadcasting (3)
    The history of radio, the theory and operation of radio and television broadcasting, history of broadcasting, radio and television and computer. Includes the radio and television control room and studio techniques necessary to maintain the radio and television department. Includes the operation of the studio equipment, on-air techniques, video control, camera operation, recording, television production, i.e., microphone techniques, studio engineering, sound effects, and writing for programs produced for local radio and television stations. Four units maximum credit in 82A, 82B, 82C, 82D, 82E.

19. Radio Workshop (2-2)
    Prerequisite: Speech Arts 81A or 81B or concurrent registration with the workshop.
    Radio program production, with experience in announcing, recording, acting, and writing for programs produced over local radio and television stations. Four units maximum credit in 82A, 82B, 82C, 82D, 82E.

20. Television Workshop (2-2)
    Prerequisite: Speech Arts 81A or 81B or concurrent registration with the workshop.
    Television production, with experience in announcing, acting, producing, and writing for programs produced over local television stations. Four units maximum credit in 83A, 83B, 83C, 83D, 83E.

21. Programming and Production for Educational Broadcasting (3)
    The planning and production of educational radio and television broadcast. This course is designed for students interested in handling broadcast activities in speech arts. This course is offered to students in the occupational program with credit for Speech Arts 80 or 81A. Students in the occupational program should not enroll in this course.
104. Auditory Phonetics (3) I, II
Auditory and kinesthetic analysis of the sounds of the English language. Valuable as a pre-requisite course in pronunciation and articulation. Required of speech majors and those seeking the speech correction credential. (Formerly Speech Arts 150)

101. Management of Speech Arts Activities (1) 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. (Formerly Speech Arts 151)

108. Advanced Interpretation (3) I, II
Prerequisite: Speech Arts 11A or 11B, or consent of instructor.
Analysis of techniques of literary composition as guides to oral interpretation. Focus on achievements of the creative artist as they affect the interpretative artist.

110. Creative Dramatics (2) 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.

118A. Play Analysis (3) I
A study of 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 (Same course as Philosophy 130)
Recognition of various types of linguistic meaning; logical distinctions in discourse; distinction between real and verbal disagreement; recognition and correction of semantic fallacies. Not open to students with credit for Philosophy 130.

140A-140B. Scene Design for Stage and Television (3-3) I, II
Prerequisite: Speech Arts 56 or consent of instructor.
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. Theater Workshop (2) I, II, Summer (3 or 6)
Two hours of activity per unit.
A laboratory to give the student a variety of experience in the theater including acting, lighting, scenery, costumes and stage management. May be repeated for a maximum of six units.

143-S. Workshop in Educational Television (6) 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. Not open to students with credit for Education 143-S.

145. Stage and Television Lighting (3) I
Principles and practice of light, color, lighting instruments, and control equipment, including the design and planning of lighting for plays and television.
Students will serve as crew for departmental productions.

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.

154A-154B. History of the Theater (3-3)
A study of the theater from primitive times to the present. Special attention will be given to the theater 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
Prerequisite: Speech Arts 51A and 55B.
Problems in characterization: acting styles of the Elizabethan and Eighteenth Century periods.

156. Advanced Dramatic Production (3) II
Two lectures and three hours of laboratory.
Prerequisite: Speech Arts 56 or consent of instructor.
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
Planned for prospective directors of plays in schools, colleges and community theaters. Through lectures, discussions, and projects the student will become acquainted with the principles, procedures and methods of stage direction.

160. Stage Direction Laboratory (1) I, II
Prerequisite: Speech Arts 159 or concurrent registration.
This will consist of experience in directing a one-act play before a departmental or public audience. It may be taken with or it may be preceded by 159. May be repeated for a total of two units.

161. Advanced Intercollegiate Debate (1) I, II
Two hours of activity. 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.

162. Advanced Argumentation (3) I
Prerequisite: Consent of instructor.
Detailed study of analysis, preparation of briefs, types of reasoning and use of evidence, fallacies and techniques of refutation. Participation in intercollegiate debate optional.

163. Advanced Verse Choir (1) I, II
Two hours.
Participation in verse speaking chorus to develop quality of voice, style of presentation, understanding of poetic content and dramatic visualization of poetry. May be repeated to a total of four units, including lower division and upper division courses, 63 and 163.

164-S. Verse Choir Directing (2) Summer
Organizing a given group as a verse choir, considering age, voice quality, background, selection and arrangement of material, and techniques of directing. Demonstration, selection and arrangement of material, and techniques of directing.

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

170. Speech Development (3) I
Development of normal speech in children; typical and common speech defects in preschoo children; basic techniques for their prevention and correction.

172. Mechanics of Speech Production (3)
Prerequisite: Psychology 5.
Lectures, readings, discussions and demonstrations presenting the structure and function of the neuro-muscular system involved in respiration, phonation, resonance and articulation. Physiology of the speech mechanism and the acoustics of sound transmission. Recommended for speech majors.

173. Functional Problems of Speech and Hearing (3)
Prerequisite: Speech Arts 170.
The study of human communication; relation between disorders of personality and difficulties in communication.

174. Principles and Methods of Speech Correction (3) I
Prerequisites: Speech Arts 150 and 170, or consent of instructor.
(Same course as Education 174)
Prerequisites: Speech Arts 150 and 170, or consent of instructor.
Special study for nonparticipants in the clinical program. Not open to students with credit in Education 174.

176. Advanced Acting and Planning (3) II
Prerequisite: Speech Arts 51A and 55B.
Problems in characterization: acting styles of the Elizabethan and Eighteenth Century periods.
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.

176. Stuttering and Neurological Disorders (3) II
(Same course as Education 176)
Three lectures and 25 hours of clinical participation or a special study for non-
participants in the clinic.
Prerequisites: Speech Arts 150 and 170, or consent of instructor.
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. Not open to students with credit in Education 176.

177. Aural Rehabilitation (1) I
(Same course as Education 177)
The adjustment of the hard-of-hearing and the deaf, with emphasis on the
public school child. State and county hearing programs; audiometric techniques
with practice in educational, classroom, and social problems. Meets audiometric
certification requirement. Not open to students with credit in Education 177.

178. The Teaching of Lipreading (2) II
(Same course as Education 178)
History, theory, and methods of lipreading and language development for the
hard-of-hearing and the deaf. Aids for the classroom teacher; program and mate-
rials of instruction for the specialized teacher. Not open to students with credit in
Education 178.

179. Clinical Methods in Speech Correction (3) II
Prerequisites: Speech Arts 150, 170, 174, and 176, or consent of instructor.
Construction and use of materials and equipment applicable to speech therapy;
clinical techniques in speech correction, including case histories, interviews and
speech tests; parent and teacher counseling.

180. Field Work in Clinical Practice in Speech Correction (2) I, II
Field work. Maximum credit six units.
Prerequisites: Speech Arts 150, 170, 174, and 176, or consent of instructor.
Supervised work with representative speech problems in San Diego State College
children's clinic; recording; keeping.

181. Radio and Television Station Management and Advertising (3) I
(Same course as Business Administration 156)
Prerequisites: Speech Arts 81A and 81B, and consent of instructor.
Administrative and commercial methods of radio and television station operation.
Advertising trends in broadcasting-audience and program measurement; public-
ity and promotion; traffic. Not open to students with credit for Business Administra-
tion 156.

182A-182B. Radio Workshop (2-2)
Prerequisites: Speech Arts 81A or 81B. Speech Arts 81A or 81B may be taken
concurrently with the workshop.
Radio program production with experience in announcing, recording, acting,
engineering, sound effects, music and writing for programs produced on local
commercial radio stations. Four units maximum credit in 82A, 82B, 182A, 182B.

183A-183B. Television Workshop (2-2)
Prerequisites: Speech Arts 81A or 81B and 55A or 56, and consent of instructor.
Television program production, with experience in announcing, acting, produc-
tion, art, lighting, video and audio techniques, special effects, telecine, and writing
scripts. Four units maximum credit in 83A, 83B, 183A, 183B.

184. Writing for Radio and Television (3) II (Same course as Journalism 184)
Prerequisites: Speech Arts 81A and 81B, or equivalent, and consent of instruc-
tor.
Scripts, documentaries, music, continuity for each program type. Correlates writ-
ing with radio and television acting and announcing styles. Program formats. Not
open to students with credit for Journalism 184.

185. Radio Production Directing (3) I
Prerequisites: Speech Arts 81A and 81B, two units from 82A-82B-182A-182B,
and consent of instructor.
Directing procedure for all types of radio programs. Production of radio workshop
programs.

186. Television Production Directing (3) II
Prerequisites: Speech Arts 81A, 81B, 159, two units from 83A-83B-183A-183B,
and consent of instructor.
Directing procedure and analysis for all types of television programs. Production
of television workshop programs.

187. Radio and Television News (3) I (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
and televising; processing teleprint, and scripting news on motion pictures; using recorders to report special
news events. Not open to students with credit for Journalism 104.

188. Field Training in Radio and Television (2-4) I, II
Prerequisites: Senior standing and consent of instructor.
One unit maximum credit.
Six to twelve hours per week (2-4 units) on-the-job participation at radio and
television stations. Work done in the field of the student's emphasis, i.e., sales and
administration, writing, production, and programming.

189. Motion Picture Techniques for Television (3) I
The use of films in television production. Motion picture production techniques as
they apply to television. Kinescope recording and operation of the telecine
equipment.

190. Rhetorical Theory (3) II
An analysis of rhetorical theory with special attention to Plato, Aristotle, Cicero,
Quintilian, Cox, Wilson, Blair, Campbell, Whately, Bain, and modern authors on
public speaking. The development of a theory and rhetorical criticism, culminating in
a critical evaluation of contemporary public address.

191. Organized Discussion (3) I
Prerequisites: Speech Arts 81A or 60B, or consent of instructor.
Prerequisite: Speech Arts 81A or 60B, or consent of instructor.
A study of the principles of group discussion. Consideration of the symposium,
its panel, the open forum, the business session, and conference speaking. Emphasis
upon preparation and presentation.

192A-192B. Advanced Public Speaking (3-3)
Prerequisites: Speech Arts 94 and 159.
Emphasis upon the preparation and delivery of longer speeches. Study of classic
models of public address.

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

GRADUATE COURSES

243. Seminar in Staging Practices for Theater and Television (3)
An investigation of the recent developments of modern staging facilities. The
arts for theater and television.

244. Seminar in Stage Direction (3)
Prerequisite: Speech Arts 159.
A discussion of 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.
Discussion of principles concerned with the aesthetic and the technical problems
of lighting in stage and television.
246. Seminar in Design for Stage and Television (3)  
The principles of design in the theater 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 the Theater and Drama (3)  
Prerequisites: Speech Arts 154A and 154B.  
Detailed examination of the important periods, personalities, and theater structures in connection with this general field.

271. Seminar: Functional Problems of Speech (3) I  
Prerequisites: Speech Arts 174 and 176, or consent of instructor.  
Theoretical consideration of etiologies and symptomatology of speech disorders; principles of nonmedical therapy; survey of theories and experiments relating to functional speech disorders.

272. Seminar: Organic Speech Disorders (3) II  
Prerequisites: Speech Arts 174 and 176, or consent of instructor.
Survey of theories and experiments relating to organic speech disorders and their management.

280. Field Work in Clinical Practice in Speech Correction (2) I, II  
Prerequisites: Speech Arts 174 and 176, or consent of instructor.
Supervised work with representative advanced speech cases such as stuttering, aphasia, laryngeal anomalies, etc. May be repeated for a maximum of four units, only two of which may be used toward a graduate degree.

281. Seminar in Broadcasting (3)  
Reports and discussion involving research in some aspect or problem in radio and television broadcasting. This seminar analyzes procedures and trends in educational and commercial broadcasting. Two of the following seminar topics may be taken for a total of six units:
A. Management  
Prerequisites: Speech Arts 181, Psychology 122, Business Administration 153, Journalism 102 and 180.
B. Programming  
Prerequisites: Speech Arts 182, 183, 185, 186, and 189.
C. Research  
Prerequisites: Speech Arts 181, Political Science 122, and Psychology 122.
D. Writing  
Prerequisites: Speech Arts 118A, 118B, 184, and English 195.

292. Methods in Research and Bibliography (3)  
The use of basic reference books, journals, pertinent bibliographies, and other methods of research in the various areas of speech and theater.

293. Seminar: Greek and Roman Public Address (3)  
Prerequisites: Speech Arts 190 and 192A or 192B.

294. Seminar: 18th Century British Public Address (3)  
Prerequisites: Speech Arts 190 and 192A or 192B.

295. Seminar: 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) I, II  
Individual study. Six units maximum credit.  
Prerequisite: Consent of staff, to be arranged with department chairman and instructor.

299. Thesis or Project (3) I, II  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Guidance in the preparation of a project or thesis for the master's degree.
23. Human Physiology Laboratory (1) II
Three hours of laboratory.
Prerequisite: Zoology 22 or concurrent enrollment.
Laboratory work in human physiology. Not open to students with credit for Zoology 9.

50. Invertebrate Zoology (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
Structure, function, relationships and significance of invertebrate animals as shown through a study of selected invertebrate types.

51. Comparative Anatomy of the Vertebrates (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
Dissection, study and comparison of organ systems of typical vertebrates. (Formerly Zoology 106.)

UPPER DIVISION COURSES

100. Embryology (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 or Biology 3 and consent of instructor.
The development of vertebrates as illustrated by the frog, chick, and pig.

108. Histology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Either Biology 5 or 3 and 4. Recommended: Zoology 100.
A study of the microscopic structures and differentiation of tissues and organs of the vertebrates, especially mammals.

112. Marine Invertebrates (4) I
Two lectures and six hours of laboratory or field work.
Prerequisite: Biology 5, or Biology 4 and consent of instructor.
Identification and study of behavior and life histories of invertebrates of the San Diego region. Frequent collecting trips to the beaches required.

114. Natural History of the Vertebrates (4) II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5, or Biology 3 and 4.
Natural history, distribution, and classification of vertebrate animals, emphasis on local forms.

115. Ichthyology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Biology 15.
Evolution, interrelationships, structure, identification, habits, and ecology of fishes.

117. Ornithology (4) II
One lecture and six hours of laboratory or field excursions, and a field project.
Prerequisite: Biology 5, or Biology 4 and consent of instructor.
The study and identification of birds, especially those of the Pacific Coast and the San Diego region.

119-5. Field Zoology (4) Summer
Two lectures and six hours of laboratory.
Prerequisite: A course in college biological science or consent of instructor.
Observational methods; collecting techniques; identification, ecology, and behavior 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: Biology 5, or Biology 4. Recommended Biology 102.
Structure, physiology, natural history, and classification of insects.

122. Advanced Entomology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Zoology 121.
Intensive treatment of the areas introduced in Zoology 121.

123. Immature Insects (3) II
Two lectures and three hours of laboratory.
Prerequisite: Zoology 121.
Collection, preservation, identification, and biological study of the immature stages of the different insect orders. Course designed to meet the needs of students specializing in invertebrate zoology, agricultural and medical entomology, parasitology, and systematics.

125. Economic Entomology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5, or Biology 4 and consent of instructor.
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
(Not offered 1960-61.)
Two lectures and three hours of laboratory.
Prerequisite: Biology 5, or Biology 4 and consent of instructor.
The role of insects and other arthropods in transmission and causation of human diseases.

128. Parasitology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5, or Biology 4 and consent of instructor.
Study of animal parasites with special reference to those of man. Laboratory including identification of important parasites of man, and collection and preservation of local forms.

142. Comparative Animal Physiology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Biology 101 (Zoology 101), or consent of instructor.
The functional and phylogenetic aspects of responses and nutrition throughout the animal kingdom.

145. Human Heredity (2) I, II
Presentation of selected principles of heredity as related primarily to human inheritance. Designed primarily for non-science majors. Two lectures per week. A life science general education course in the area of the natural sciences.

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: 15 units in zoology with a grade of A or B and consent of instructor.

GRADUATE COURSES

298. Special Study (1-6) I, II
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.
SCHOLARSHIPS AND AWARDS

Selection of applicants is made on the basis of adequate scholarship, special skills and/or need. Request for an application form should be sent to the Office of the Dean of Activities, San Diego State College.

APPLICATION DEADLINES

Scholarship awards are announced in January and May of each year. New students planning to enter in the fall semester may file applications in the Office of the Dean of Activities until April 15, 1961. Students currently enrolled in San Diego State may apply during March for scholarships to be used in the following fall semester. Applications may be made during October for Scholarships to be used in the following spring semester.

SCHOLARSHIPS AND AWARDS GRANTED BY THE FACULTY COMMITTEE ON SCHOLARSHIPS

SCHOLARSHIPS AVAILABLE TO FRESHMEN

Scholarships listed below, for which freshmen may apply, are carefully described under the name of the scholarship. They are as follows:

- Athletic Scholarships
- Kiviani-Annies
- Kay Jewelers
- Hod Carriers and Common Laborers
- Percie Bell Senn Public Speaking
- DeWitt Bisbee Williams

ACCOUNTING

SAN DIEGO CHAPTER OF THE INSTITUTE OF INTERNAL AUDITORS. An annual $100 award to a student entering graduate work in the field of accounting. Nominations are to be made by the faculty of the Accounting Department.

ART

SPANISH VILLAGE ART ASSOCIATION, INC. A $75 scholarship each semester will be given an art major in senior year. Nominations are made by the Art Department.

ATHLETICS

ATHLETIC SCHOLARSHIPS. A number of scholarships, varying in amount to a maximum of $250 each, available each year to students participating in intercollegiate athletics. Scholarships are renewable annually for recipients who meet specified standards of scholarship and citizenship. Apply to Director of Athletics, San Diego State College.

M. H. GOLDEN CONSTRUCTION CO. $250 will be given annually to a student recommended by the football coach. The student must be regularly enrolled and contributing to the football program and meet the specified standards of scholarship and citizenship.

BUSINESS ADMINISTRATION

EXECUTIVES' SECRETARIES, INC., SAN DIEGO CHAPTER. Two annual $200 scholarships for upper division women students majoring in business education.

SAN DIEGO UNION-TRIBUNE CHARITIES. $100 a year to a junior and $200 to a senior in the field of accounting, business and general executive training.

EDUCATION

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN—SAN DIEGO BRANCH. A scholarship awarded annually by Mrs. W. G. Shackelford, a member of the San Diego Branch of the American Association of University Women, to encourage qualified and gifted women to enter the teaching profession. Sixty dollars a semester is given to an undergraduate woman student in her junior or senior year of college who is preparing for elementary or secondary school teaching. She must have a "B" average or better. The recipient is required to teach at least one year after graduation or repay the amount received from this award.

ART LINKLETTER (Scott Foundation). $500 awarded to a student in teacher education with preference given to an English major.

ASSOCIATION OF CHILD EDUCATION. A $75 scholarship given to a student in the Kindergarten-Primary program. The award is customarily made to an upper division student showing promise who is in need financially.

CAMPUSS LABORATORY SCHOOL PARENTS ORGANIZATION. A $50 scholarship to a student admitted to Elementary Teacher Training, showing need.

HORACE MANN JUNIOR HIGH SCHOOL. One $100 scholarship awarded to an upper division student majoring in teacher education who graduated from Horace Mann Jr. High School.

KAPPA BETA NU. A $100 scholarship offered annually to a junior or senior woman student in elementary teacher education. Applicant must be a resident of San Diego County who is in financial need.

KAPPA DELTA PI. Two $25 scholarships awarded annually by Kappa Delta Pi of San Diego State College for students in teacher education.

PACIFIC BEACH JUNIOR WOMEN'S CLUB. $150 will be awarded during the school year for person or persons preparing for credential to teach mentally retarded. Qualified applicants must have been admitted to the program for teacher education.

PHI EPSILON PHI—Alpha Chapter. One $50 scholarship awarded to a student majoring in education who is in need of financial assistance and who has sound scholastic standing.

PI LAMBDA THETA. One $50 scholarship awarded annually to a junior woman in field of education. Scholarship and need considered.

SAN DIEGO CITY TEACHERS ASSOCIATION. Two scholarships of $100 each presented each year to prospective teachers, with no restrictions as to college year.

SAN DIEGO COUNTY FEDERATION OF WOMEN'S CLUBS. Various amounts given to students in the education field.

SANTEE FACULTY CLUB. A $50 scholarship awarded annually to a senior in education who has attended Santee Elementary School.

TEACHER EDUCATION SCHOLARSHIP. $1,200 awarded by the California Congress of Parents and Teachers to three or more students. Selections are made upon the following conditions: (1) the recipient must have high qualifications and be in financial need; (2) the scholarship will be granted to students training to teach in the elementary or secondary public schools of California; and (3) the student must have a "B" average in major.

TEACHER EDUCATION SCHOLARSHIPS. $800 awarded by the California Congress of Parents and Teachers, Inc., to students in the junior and senior years.

ENGINEERING

MAJOR FRANK H. PAGE ENGINEERING. Donated by San Diego Chapter of the American Society for Metals. Five $50 scholarships to upper division students with interest in metals; engineering majors with "B" average in major are preferred.

SAN DIEGO STATE COLLEGE ALUMNI ENGINEERS ORGANIZATION. A $50 scholarship awarded annually to a student majoring in engineering. He must have a "C" grade average and completed between 30 and 89 units when he applies. He must have a "C" grade average.

SAN DIEGO UNION-TRIBUNE CHARITIES. $100 a year to a junior and $200 to a senior in the field of engineering.

WEST COAST ELECTRONIC MANUFACTURERS ASSOCIATION. Several scholarships of $250 awarded to juniors and seniors without discrimination as to race, creed or color. Students selected must be interested in electronic engineering or allied branches and be preparing for a technical education.

11—15682
FOREIGN LANGUAGES

LESLEY P. BROWN. $60 a semester awarded to a student majoring in any foreign language.

HISTORY

PHI ALPHA THETA (BETA KAPPA CHAPTER). A $50 scholarship awarded to a history major. Applications should be made during the last quarter of the junior year to the Chairman of the History Department.

JOURNALISM

SAN DIEGO UNION-TRIBUNE CHARITIES. $100 a year to a junior and $200 to a senior in the field of journalism.

MUSIC

MUSIC DEPARTMENT SCHOLARSHIPS. A limited number of Music Department scholarships covering the costs of tuition, books, and other supplies available to regular course music majors. The awards of these scholarships are based upon financial need, scholarship, and performing talent as demonstrated in auditions before a scholarship committee of the Music Department. Application may be made directly to the Music Department, San Diego State College.

JULIUS LEIB MEMORIAL MUSIC SCHOLARSHIP. $100 to student regularly enrolled with major in music, and interest in string instruments, cello, viola, violin.

SIGMA ALPHA IOTA ALUMNAE MARGARET SWOPE SCOTT MEMORIAL SCHOLARSHIP. A $50 scholarship awarded to a deserving woman majoring in music. Special consideration will be given to one specially gifted in some phase of musical performance.

NURSING

SAN DIEGO AND IMPERIAL COUNTIES SECTION CALIFORNIA SCHOOL NURSE ORGANIZATION. $100. $50 a semester to a sophomore, junior, or senior in the Nursing Program. Must be recommended by Chairman of Nursing Department.

SAN DIEGO COUNTY TUBERCULOSIS AND HEALTH ASSOCIATION. Two $100 scholarships awarded in field of nursing. Students must have completed at least one year in nursing education.

PHYSICS

KIWANIS CLUB OF HILLCREST—NUCLEAR PHYSICS. $300 a year to a junior and a senior student interested in nuclear physics, renewable for second year. Nominations for awards are made by Physics Department.

SAN DIEGO UNION-TRIBUNE CHARITIES. $100 a year to a junior and $200 a year to a senior in the field of electronics.

WEST COAST ELECTRONIC MANUFACTURERS ASSOCIATION. Several scholarships of $250 awarded to juniors and seniors without discrimination as to race, creed or color. Students selected must be interested in electronic engineering and may be physics majors.

SPEECH ARTS

ART LINNERT (Scott Foundation). $500 scholarship awarded to student majoring in Radio and TV.

BURGNER, CLAIR W., SPEECH SCHOLARSHIP. A four-year scholarship of $50 per semester awarded to an entering freshman or advanced standing student who is outstanding in public speaking and general scholarship. Recommendations will be made by the Speech Arts Department with final selection by the Committee on Scholarships.

SAN DIEGO WOMAN'S CLUB. An annual award of $50 given to a student who is a speech arts major.

SENN, PERRIE BELL, SCHOLARSHIP IN PUBLIC SPEAKING. An annual scholarship of $50 to $100 made possible by Admiral Elliott Senn for the purpose of assisting students in public speaking. This is awarded to an entering freshman or any qualified student in the field of debate.

SCHOLARSHIPS AND AWARDS

SIGMA ALPHA SORORITY. $50 a semester to a major in speech correction recommended by Speech Arts Department. Recipient must spend three hours per week in clinical work of the Speech Arts Department.

SIGMA ALPHA SORORITY. Zeta Theta Chapter, $50 a semester awarded to a student who is majoring in speech correction and is recommended by Speech Arts Department.

GENERAL

(Several majors may qualify for some of these scholarships. No specified major is required for others.)

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN—SAN DIEGO BRANCH. A $50 scholarship given annually to a woman student majoring in English, Psychology or Education.

CAP AND GOWN. One $50 scholarship awarded each semester to one of the upper division woman student who has attended San Diego State College for at least one semester and who has maintained at least a "B" average in scholarship for her entire college career.

CHI OMEGA SORORITY. A $50 scholarship awarded annually to a student outstanding in the Sociology or Psychology Department.

FACULTY DAMES. Two scholarships of $50 each given annually to deserving women students.

FLEISCHNER, ANNA S., SCHOLARSHIP, given by Dr. and Mrs. Charles A. Fleischner. An award of $500 given annually to a needy, physically handicapped student, irrespective of race, color or creed.

HOD CARRIERS AND COMMON LABORERS. Four $100 scholarships available annually. One is awarded to a girl and one to a boy graduating from high school. Another is awarded to a sophomore, junior or senior woman at San Diego State College and one to a sophomore, junior or senior man at San Diego State College.

KAY JEWELERS SCHOLARSHIP. $50 a semester for eight semesters awarded an entering freshman. This scholarship is to be given alternating years to men and women students. In the fall semester, 1959, the scholarship will be awarded to a young woman. Selection is made from applications received from high schools. Consult your senior counselor in high school.

KIWANI-ANNES (College Area). A $50 scholarship awarded annually.

LADIES AUXILIARY CALIF. STATE FIREMEN'S ASSOCIATION. One $300 scholarship available to son or daughter of fireman. B average required.

LINKLETTER, ART. Four $50 scholarships made available each June to students graduating from San Diego City and County high schools: (1) to one girl and one boy graduating from high schools with enrollment under 1,500; (2) to one boy graduating from high schools with enrollment under 1,000. Selection is based on scholarship, citizenship, and need. Applications should be made through the high school counselor.

LIONESS CLUB, EAST SAN DIEGO. $50 annually to a student in financial need, who is selected by the San Diego State College Committee on Scholarships.

NATIONAL LEAGUE OF AMERICAN PEN WOMEN—SAN DIEGO BRANCH. A scholarship of $50 awarded annually to an outstanding woman student. Selection will be made from students in the fields of art, music, and creative writing.

SOPHOMORIST INTERNATIONAL OF SAN DIEGO. A $200 scholarship to a senior or graduate woman student regularly enrolled in the division of Physical Education. Sciences with preference given to a student enrolled in engineering, chemistry, physics, or in selecting the student particular weight will be given to leader- ship qualities, scholarship, and attainments.

WILMIA TYLER-TROTT. Annual scholarships of from $50 to $100 made possible by Wilmia Tyler-Trott. These scholarships will be awarded to deserving students selected by the San Diego State College Committee on Scholarships.
SOUTHLAND CLUB SCHOLARSHIP, $30 a semester made available by the Southland Club for Business and Professional Women to a junior or senior woman student who plans to enter business or a profession. The student must have at least a “B” average; she must have been graduated from a San Diego City or County high school and must be of good moral character and in financial need.

DEWITT BISBEE WILLIAMS MEMORIAL SCHOLARSHIP. $100 or more will be awarded to a worthy student or students already enrolled in college. Application forms may be obtained from the Office of the Dean of Activities.

SCHOLARSHIPS AND AWARDS FOR WHICH RECIPIENTS ARE CHOSEN BY DONORS OR PRIVATE COMMITTEES

An application form should be secured from the place designated in the scholarship description. Additional information may be secured from the Office of the Dean of Activities.

SCHOLARSHIPS AVAILABLE TO FRESHMEN

Alpha Kappa Alpha
American Association of University Women (Coronado)
American Legion Auxiliary
Blue Key
Convair Management Club
Kiwanis Club of San Diego
La Mesa Junior Woman's Club
La Mesa Woman's Club
Rotary Club
Sears Roebuck Foundation
Ann Downie Scott, Walter Scott Co.
DeWitt Bisbee Williams
Union-Tribune Charities

BUSINESS ADMINISTRATION

HASKINS AND SELLS FOUNDATION. $500 annual award given to a junior who is an outstanding student majoring in accounting. Nominations are made by the faculty of the Department of Accounting.

PALMER AND URNER PROFESSIONAL ACCOUNTING AWARD. $100 awarded each spring to an outstanding graduating senior with a major in accounting. Nominations are made by the faculty of the Department of Accounting.

SAN DIEGO RETAIL GROCERS ASSOCIATION. $720 scholarship to sophomore or beginning junior who is majoring in marketing. Final selection of candidate to be made by San Diego Retail Grocers Association. Apply to donor.

EDUCATION

ANONYMOUS "E." A $50 scholarship awarded each semester to male student majoring in education.

MERCHANTISING

THE MARSTON COMPANY SCHOLARSHIP. Awarded annually, $75 a semester, to student attending San Diego State College interested in a retailing future in San Diego. Award is based on average academic scholarship, interest in working part time at The Marston Company while attending college. Student must be enrolled in full time program and in some marketing department courses, although he need not be a marketing major.

MUSIC

SIGMA ALPHA IOTA, San Diego State College Chapter. $50 a semester will be given to a student majoring in music. Must be a student who is not a member of the Dean of Activities.

NURSING

AMERICAN LEGION AUXILIARY. Scholarships of various amounts given to students in Nursing. Apply to American Legion in your region.

UNION-TRIBUNE CHARITIES. Two $150 scholarships to students in Nursing program. Applications made to the San Diego County Medical Auxiliary.

SCHOLARSHIPS AND AWARDS

WIVES OF NAVY DOCTORS. One $150 scholarship awarded to a high school senior planning to go into nursing. The scholarship is maintained annually throughout the recipient's nursing program. Applications should be made to the counselors in San Diego City-County high schools.

WOMEN’S AUXILIARY SAN DIEGO COUNTY MEDICAL SOCIETY. Scholarships of $150 awarded annually to students in nursing. Applications made to S. D. County Medical Auxiliary.

PREPROFESSIONAL CURRICULA

ANONYMOUS “E.” $100 award made to a male student in premedical program. Applications made to the Faculty Scholarships Committee.

WOMEN’S AUXILIARY OF SAN DIEGO DENTAL SOCIETY. An annual award of $500 made in June to an outstanding male student in dentistry and $250 to a young woman preparing to become a dental hygienist. Apply directly to donor.

WOMEN’S AUXILIARY TO THE SAN DIEGO COUNTY OPTOMETRIC SOCIETY. One $100 scholarship to a sophomore preoptometric student who has a 2.5 grade point average, or better, in financial need, and has qualities of character indicating high moral integrity.

PSYCHOLOGY

SAN DIEGO HUMAN ENGINEERING SOCIETY. $50 annual scholarship to psychology major in area of experimental or engineering psychology; graduate student. Final selection of the recipient is made by the San Diego Human Engineering Society.

GENERAL

(Scholarships and awards for which no specified major is required.)

ALPHA GAMMA DELTA. An annual $60 award to the student in Alpha Gamma Delta sorority with the highest grade point average.

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN—EL CAJON VALLEY BRANCH. An annual scholarship of $50 presented to a young woman entering San Diego State College. Apply directly to donor.

ARNOLD AIR SOCIETY SCHOLARSHIP. $50 awarded annually to any Air Science III student who is offered and accepts a contract in the semester in which the scholarship is offered. Qualifications: 1. Must be in top 20 percent of air science class; 2. Must have displayed outstanding leadership ability in the air program; 3. Must have desire to participate in the flight training program of Air Force; 4. Must have overall scholarship equal to or above all men’s average.

BLUE KEY. A scholarship of $50 is given annually to a junior division male student preferably from San Diego County. Secure application forms from the Office of the Dean of Activities.

CONVAIR—A DIVISION OF GENERAL DYNAMICS CORPORATION. A number of scholarships each year for students from the fields of accounting, chemistry, engineering, mathematics, physics, business, personnel and industrial management. Apply to donor through Office of Dean of Activities.

CONVAIR MANAGEMENT CLUB. Three awards offered to seniors graduating from high school who are sons or daughters of Convair employees. These scholarships are available only to San Diego County high school graduates. For applications, consult your senior counselor in high school.

DANCE CLUB OF SAN DIEGO STATE COLLEGE. A $50 scholarship awarded to the outstanding dancer from the club to be used for tuition at a recognized college. Applications should be made to the Women’s Physical Education Department, San Diego State College.

DELTA DELTA DELTA ALUMNAE. $50 a semester is to be awarded to a single woman student having a B average. She must have been admitted to the teacher education curriculum and have good recommendations.
DRESSER, ELIZABETH. A $100 scholarship given annually to a member of the Christian Science Organization at San Diego State College, who is also a member of The Mother Church, The First Church of Christ, Scientist, in Boston. Must be an education major.

KAPPA ALPHA THETA MOTHERS CLUB. A scholarship of $50 awarded annually to the member in the local chapter who has made the highest grade point average for the school year.

KIWANIS CLUB, SAN DIEGO. Two $100 scholarships given annually to a male student graduate of San Diego High School and a male student graduate of Lincoln High School in San Diego County. For applications, consult your senior counselor in high school.

KIWANIS CLUBS. Many students have secured scholarships from Kiwanis Clubs in their communities. Apply directly to Kiwanis Club in your city.

LA MESA WOMAN'S CLUB—EVENING DIVISION. Scholarships awarded annually to seniors graduating from Grossmont and Helix High Schools who are entering San Diego State College. Apply directly to donor.

LA MESA JUNIOR WOMAN'S CLUB. Two $100 awards made to graduates of Grossmont and Helix high schools. Apply directly to donor.

LIONS CLUBS. Scholarships of varying amounts have been given students. Applications should be made to the Lions Club in your vicinity.

PANHELLENIC OF SAN DIEGO STATE COLLEGE. $50 given biannually to the sorority member who has made the highest grade point average in the semester previous to the making of the award.

P.E.O. SCHOLARSHIPS. Various chapters of this organization assist worthy students in amounts ranging from $15 a month to $250 a semester. Apply directly to donor.

PRESBYTERIAN WESTMINSTER FOUNDATION. A scholarship of $70 awarded each year at the end of the spring semester to a student of any religious faith enrolled at San Diego State College on the basis of contribution of time and energy to campus religious ideals and activities, and liaison with nonreligious groups, stimulating them to religious thought and activities. This scholarship is made available by the Presbyterian Westminster Foundation Committee of the San Diego area.

PSI CHI. $50 awarded annually to a student with overall average of 2.5; must have completed six units in psychology at San Diego State College with a 3.5 grade average; must submit a one-page paper telling of interest in psychology. Applicants do not have to be psychology majors.

ROTARY INTERNATIONAL CLUB. Scholarships of various amounts have been awarded students by El Cajon, Escondido, Old Mission, San Diego, Oceanside, and Vista Rotary Clubs. Apply directly to donor.

SAN DIEGO CITY PANHELLENIC. $100 scholarship awarded annually to an upper division woman student.

SAN DIEGO INSURANCE ADJUSTERS SCHOLARSHIPS FUND. This award does not become available until 1962. It is established for the higher education of one, student chosen by the above association each year from the ranks of the Junior Patrol boys from the schools of the City of San Diego. This award is for $100 per year for a four-year period.

DAVID AND ANNA SILVERMAN. The interest from a fund of $5,000 awarded annually, preferably to a man interested in a career in medicine or teaching. Final selection will be made by a three-member board of trustees empowered to invest the sum.

ANN DOWNIE SCOTT SCHOLARSHIP. Awarded by the Scott Foundation to sons and daughters of employees of Walker Scott Company for tuition and books. Applications should be made to the Personnel Office of Walker Scott Company.

STEINMAN INTERFAITH AWARD. $50 awarded annually to a student at San Diego State who has promoted interfaith co-operation on the campus. Selection of the student is made by three faculty members who have served as advisors to the Interfaith Council. The award is contributed by Mr. Lou Steinman, member of the Henry Weinberger Lodge, B'nai B'rith, and by Mrs. Steinman.

WEINBERGER, HENRY, MEMORIAL INTERFAITH AWARD. $100 awarded annually to a student at San Diego State who has promoted interfaith co-operation on the campus. Selection of the student is made by three faculty members who have served as advisors to the Interfaith Council. The award is contributed by Mrs. Rose Weinberger, widow of the late Henry Weinberger, past president of the Henry Weinberger Lodge, B'nai B'rith, and by his daughters, Mrs. Ted Rosenfeld and Mrs. Harry Epstein.

DEWITT BISBEE WILLIAMS MEMORIAL. One $100 scholarship is made available to each secondary school in San Diego County having a chapter of the California Scholarship Federation. Selection is made by the high school faculty from students who have been members of CSF for at least two semesters and have qualifications for admission to San Diego State.

WOMEN'S ASSOCIATION OF ALLIED BEVERAGE INDUSTRIES, INC.—San Diego Chapter. $150 scholarship, woman student, upper division, resident San Diego City or County. Apply at the Office of the Dean of Activities, San Diego State College. Final selection by donor.

SCHOLARSHIPS AVAILABLE TO GRADUATE STUDENTS

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN. One scholarship of $100 given each year in June to a graduating senior woman who will begin work in an accredited college or university toward a higher degree or credential. The scholarship is made available by the San Diego Branch of the American Association of University Women. Interviews with representatives of that organization are arranged.

CALIFORNIA CONGRESS OF PARENTS AND TEACHERS, INC. Two Secondary Teacher Education Scholarships of $400 each to be granted only to fifth year students training to teach in the public secondary schools of California on a general secondary credential. These may be divided into $200 awards if, in the judgment of the Scholarships Committee, this would be a wise procedure.

INSTITUTE ON GOVERNMENT SAN DIEGO COUNTY. A $200 scholarship awarded a graduate student enrolled full time, candidate for M.S. degree in public administration. Selection by Political Science Department.

SOROPTIST INTERNATIONAL OF SAN DIEGO. A $200 scholarship to a senior or graduate woman student regularly enrolled in the division of Physical Sciences with preference being given to a student enrolled in engineering, chemistry, or physics. In selecting the student, particular weight will be given to leadership qualities, scholastic ability and attainment.

STOTT, DOROTHY CRANSTON. A scholarship of $100 awarded each June to a student who has attended the San Diego State College for at least two years and who is being graduated or has been graduated from the San Diego State College with a major in English. The recipient must continue work in the San Diego State College or in any other accredited college or university, towards a higher degree or credential. The selection is made by the Department of English with approval by the Committee on Scholarships.

STOTT, K. W. A scholarship of $100 awarded each June to a student who has attended the San Diego State College for at least two years and who is being graduated or has been graduated by the San Diego State College with a major in history.
DAUGHERTY, JACK V. (1959)
Activities Adviser
B.S., San Diego State College.

DAVIS, ALICE L. (Mrs. M. H.) (1959)
Librarian II
B.S., Alabama State College; M.A., Columbia University; additional graduate study, Simmons College.

DeLORO, JACK J. (1955)
Assistant Professor of Sociology
B.S., Bowling Green State University; M.A., Western Reserve University; Ph.D., Michigan State University.

DIEDERICH, JOHN H. (1954)
Associate Professor of Art
A.B., San Diego State College. Graduate study at University of Southern California.

DOOD, ROBERT J. (1957)
Assistant Professor of Accounting
A.B., University of Nebraska; M.B.A., University of Denver. Certified Public Accountant.

DORR, ROBERT D. (1958)
Assistant Professor of Physics
A.B., Oberlin College; M.S., Ph.D., University of Michigan.

DOUGLAS, HELEN L. (1952)
Associate Professor of Home Economics
B.S., Southern Illinois University; M.S., and additional graduate study, University of Illinois.

DUKAS, VITAS (1959)
Assistant Professor of Foreign Languages
A.B., A.M. (Russian), M.A. (German), and additional graduate study, University of Michigan.

EAGLE, JOHN E. (1946)
Professor of Mathematics
B.S., Montana State College; M.A., Ed.D., Stanford University.

EARNST, SUE W. (Mrs. L. E.) (1947)
Assistant Professor of Speech Arts
A.B., San Diego State College; M.A., University of Southern California.

EDMUND, JOHN W. (1956)
Assistant Professor of Geography
B.A., San Diego State College; M.A., University of California; Ph.D., Indiana University.

EMERSON, ARTHUR T. (1952)
B.S., U.S. Naval Academy; additional graduate study at Naval War College.

EVERETT, WILLIS F. (1960)
Assistant Professor of Mathematics
Study at Universities of Cologne, Innsbruck, Goettingen and Vienna.

EZZELL, PAUL H. (1956)
Associate Professor of Anthropology
B.A., M.A., Ph.D., University of Arizona.

FALK, CHARLES I. (1957)
Assistant Professor of Business Law
S.T.B., S.T.L., S.T.D., Urban University, Rome, Italy; additional graduate study at Claremont Graduate School.

FEIFER, IVO K. (1959)
Assistant Professor of Political Science
B.A., San Diego State College; M.A., University of California; Ph.D., Indiana University.

FERREL, DAVE W. (1957)
Assistant Professor of Accounting
B.S., M.B.A., University of Denver. Certified Public Accountant.

FISHER, CLARENCE E. (1955)
Assistant Professor of Education

FISHER, J. SHERTICK (1953)
Associate Professor of Education
B.S., Bethany College; M.A., Teachers College, Columbia University; Ph.D., University of Arizona.

FITZ, RICHARD A. (1959)
Assistant Professor of Engineering
B.S., Baldwin-Wallace College; M.S. (Ch.E.), Ph.D., Ohio State University.

FLAGLER, DENNIS A. (1955)
Assistant Professor of Economics
B.A., Harvard College; Ph.D., University of California.

FLY, RICHARD J. (1950)
Assistant Professor of Music
B.A., University of Virginia; M.A., and Professional Diploma, Columbia University.

FORD, ARTHUR B. (1954)
Assistant Professor of Geology
B.S., M.S., Ph.D., University of Washington.

FORD, WALTER B. (1953)
Assistant Professor of Industrial Arts
B.S., Santa Barbara State College; graduate study at Claremont Graduate School.

FREITAS, WILLIAM J. (1959)
Assistant Professor of Foreign Languages
B.A., Son Jose State College; M.A., Ph.D, Stanford University.

FREY, LEONARD H. (1936)
Assistant Professor of English
A.B., Dartmouth College; M.A., Ph.D., University of Oregon.

FRIEDRIC, KURT (1949)
Professor of Education
A.B., Columbia College; M.A., Columbia University; Ed.D, Columbia Teachers College.

FRIEDERSON, L. GLEN (1954)
Assistant Professor of Education
B.S., Southern Illinois University; M.A., Ed.D., University of California at Los Angeles.

GALBRAITH, OLIVER, III (1955)
Assistant Professor of Management
B.S., M.B.A., Northwestern University; additional graduate study at University of Southern California.

GALLOWAY, CAROLYN (1954)
Assistant Professor of Botany
B.S., University of Minnesota; M.A., San Diego State College.

GARRISON, JOHN D. (1956)
Assistant Professor of Physics
B.A., M.A., University of California at Los Angeles; Ph.D., University of California.
GASTIL, RUSSELL G. (1959), Assistant Professor of Geology  
A.B., Ph.D., University of California.

GATES, GERALD F. (1955), Associate Professor of Education  
B.F.A., Syracuse University; M.F.A., University of Colorado; M.A., Ed.D., University of Denver.

GERR, OREN C. (1958), Assistant Professor of Education  
M.A., University of Redlands Ed.D., Stanford University.

GEGA, PETER C. (1955), Assistant Professor of Education  
A.B., M.S., Ed.D., University of Southern California.

GETZ, DORIS A. (1957), Assistant Professor of Nursing  
B.A., University of Toledo; R.N., Los Angeles County Hospital School of Nursing; M.S., Immaculate Heart College, Los Angeles.

GELDREICH, EDWARD W. (1947), Professor of Psychology  
A.B., M.A., University of Cincinnati; Ph.D., University of Chicago.

GENRALES, MINOS D. (1949), Professor of Political Science  
B.A., University of Chicago; M.A., Ph.D., University of Southern California; University of Athens; additional graduate study at the Graduate School of International Studies, Paris and Geneva.

GENZLINGER, CLEVE K. (1957), Assistant Professor of Music  
B.M., M.M., University of Nebraska; additional graduate study at Teachers College, Columbia University.

GIBSON, ERNEST DANA (1947), Professor of Business Education  
B.S., University of Minnesota; M.A., Colorado State College of Education; Ed.D., New York University.

GIFFORD, ADAM (1954), Associate Professor of Economics  
B.A., Portland University; M.A., Stanford University; Ph.D., University of Washington.

GILBERT, MARGARET L. (Mrs. A. V.) (1958), Registrar  
A.B., San Diego State College.

GJERDE, CLAYTON M. (1948), Professor of Education  
A.B., Augsburg College; B.A., University of Minnesota.

GONZALEZ, ALFONSO (1957), Assistant Professor of Geography  
B.A., Clark University; M.A., Northwestern University; additional graduate study at the University of Texas.

GOVERNAL, PAUL (1958), Professor of Physical Education  

GRAWUND, RALPH M. (1955), Assistant Professor of Health Education  

GRAY, AUGUSTINE H., JR. (1939), Instructor in Physics  
S.B., M.S., Massachusetts Institute of Technology.

GRAY, ROBERT T. (1956), Dean of Counseling and Testing  
A.B., M.Ed., M.D., University of Kansas.

GREENE, JOANNE H. (1958), Librarian  
B.A., Cornell University; M.S., in L.S., University of Southern California.

GRIPP, RICHARD C. (1958), Assistant Professor of Political Science  
A.B., Whittier College; A.M., Ph.D., University of Southern California.

GRISIER, DONALD W. (1951), Professor of Education  
B.S., Bowling Green State University; M.A., Ed.D., Teachers College, Columbia University.

GRIFF, WANDA G. (Mrs. N.) (1960), Assistant Professor of Nursing  
B.S., University of California at Los Angeles; M.S., University of Alabama.

GROFF, PATRICK J. (1955), Assistant Professor of Education  
B.S., M.S., University of Oregon; Ed.D., University of California.

GROTE, ELISABETH M. (1958), Assistant Professor of Education  
B.Ed., Illinois State Normal; M.P.H., Ph.D., University of Wisconsin.

GUIDAL, RONALD A. (1958), Instructor in Mathematics  
S.B., Brown University; M.S., University of California at Los Angeles.

GULICK, SIDNEY L. (1945), Assistant Professor of English  
B.A., M.A., Oberlin College; Ph.D., Yale University.

HALE, E. ALAN (1957), Assistant Professor of Marketing  
B.A., University of California at Los Angeles; M.A., Ph.D., University of Illinois; Assistant Professor of Marketing  
B.A., University of California at Los Angeles; M.A., Ph.D., University of Illinois.

HANCHETT, WILLIAM F., JR. (1956), Assistant Professor of History  
A.B., Southern Methodist University; M.A., University of Southern California.

HARPER, LEROY A. (1959), Assistant Professor of Health Education  
B.S., University of Colorado; M.A., Teachers College; Ed.D., Teachers College, Columbia University.

HARRINGTON, AWONA W. (1949), Assistant Professor of Education  
B.S., University of California; M.S. in L.S., University of Southern California; additional graduate study at DePaul University.

HARRINGTON, NEIL J. (1948), Assistant Professor of Chemistry  
B.S., Montana College; M.A., San Diego State College; additional graduate study at DePaul University.

HARRIS, MARY B. (Mrs. H. P.) (1959), Assistant Professor of Chemistry  
B.S., San Diego State College; B.A. in L.S., University of Oklahoma; M.S. in L.S., University of Southern California.

HARRIS, RICHARD A. (1959), Assistant Professor of Speech Arts  
B.A., College of Wooster; M.A., Indiana University.

HARRIS, VINCENT C. (1950), Professor of Mathematics  
B.A., M.A., Ph.D., Northwestern University.

HARDSON, ROBERT C. (1953), Associate Professor of Psychology  
B.S., M.A., Ph.D., University of Washington.

HARTIGAN, SELWYN C. (1946), Business Manager  
A.B., San Diego State College.

HARVEY, A. R. (1949), Professor of Mathematics  
B.S., Bates College; A.M., Harvard University.

HARVEY, DOROTHY R. (Mrs. F. A.) (1924), Assistant Professor of Botany  
B.A., St. Diego State College; M.A., University of Southern California; additional graduate study at University of California and University of Chicago.

HARWOOD, ROBERT D. (1928), Chairman, Division of Life Sciences  
B.A., Pomona College; Ph.D., Cornell University.

HASKELL, HARRIETTE (1940), Assistant Professor of English  
B.A., Mills College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.

HAYNES, GERALDINE K. (Mrs. L.) (1931), Supervising Librarian, Technical Processes  
A.B., Indiana Central College; B.S. in L.S., University of Illinois.

HELLBERG, LARS H. (1956), Assistant Professor of Chemistry  
B.S., Northwestern University; Ph.D., University of California at Los Angeles.

HEMMINGER, ROBERT L. (1959), Instructor in Mathematics  
B.S., University of Illinois; M.S., San Diego State College.

HILL, EDWARD L. (1957), Professor of Business Administration  
B.A., Nebraska State Teachers College; M.A., M.S., University of Southern California.


HIPPAKA, WILLIAM H. (1957), Assistant Professor of Business Law and Real Estate  
B.S.C., J.D., State University of Iowa.

HODGES, GLENN L. (1953), Associate Professor of Management  
B.B., Kansas State Teachers College; M.S., University of Denver; Ph.D., Louisiana State University.

HOLMES, CALVIN V. (1938), Assistant Professor of Mathematics  
B.A., M.A., University of Mississippi; M.S., University of Illinois; Ph.D., University of Kansas.

HOLMES, DARRELL (1952), Executive Dean, Professor of Education  
B.A., M.A., Ohio State University.

HOLMES, VERA B. (Mrs. J.) (1959), Visiting Professor of History  
B.A., M.A., University of Michigan; Ph.D., Bryn Mawr College.

HOOVER, GRACE V. (1956), Librarian  
B.A., University of Nebraska; B.S. in L.S., University of Denver.

HOUSERMAN, RICHARD A. (1948), Professor of Education  
B.S., Central Michigan College; M.A., Ph.D., University of Michigan.

HUFFMAN, EDWARD W. (1955), Assistant Professor of Zoology  
B.S., M.S., University of Illinois; Ph.D., Ohio State University.

HUNDRICH, WILLIAM A. (1957), Professor of Education  
B.A., M.A., Ph.D., Stanford University.

HUNTER, JAMES F. (1955), Assistant Professor of Music  
B.A., Cornell University; M.S., Ph.D., Syracuse University.

HURD, LYMAN C. III (1958), Assistant Professor of Science  
A.B., M.M., Syracuse University.

HURST, JOHN T. (1949), Assistant Professor of Industrial Arts  
B.A., M.A., University of Denver; additional graduate study at University of California.

IRGANG, FRANK F. (1956), Assistant Professor of Chemistry  
B.S., Central Michigan College; M.A., Ph.D., University of Michigan.

JENSEN, ROBERT W. (1949), Assistant Professor of Chemistry  
B.S., M.S., University of Nevada; Ph.D., University of Washington.
LEKTURERS

ABOUD, REUBEN W. (1959)  Lecturer in Engineering
Ph.D., University of Illinois

ANDERSON, VERA L. C. (Mrs. P. S.) (1959)  Lecturer in Education
Ph.D., Teachers College, Columbia University

ARGOW, DOROTHY L. (Mrs. W. W.) (1959)  Lecturer in Political Science
M.S.G.M., University of Denver

BACK, CECILEE (1959)  Lecturer in Music
Professional musician

BAUMGARTNER, MARGERY B. (Mrs. R. N.) (1956)  Lecturer in Education
M.S., Bank Street College of Education

DIRECTORY

BEAN, GEORGE E. (1959)  Lecturer in Political Science
B.S.E.E., University of Wisconsin. City Manager, City of San Diego

BEAUCHAMP, I. L. (1959)  Lecturer in Physics
M.Phil., University of California. Convair, Division of General Dynamics Corporation

BEHRENS, CARL F. (1959)  Lecturer in Economics
M.S., Iowa State College

BENNETT, CLAYTON L. (1959)  Lecturer in Education
Ph.D., University of Southern California. San Diego County Schools

BERLIN, ABRAHAM L. (1959)  Lecturer in Physics
Ph.D., Ohio State University. Convair, Division of General Dynamics Corporation

BLACK, NATHALIA C. (Mrs. V. G.) (1958)  Lecturer in English

BRADFIELD, WALTER S. (1958)  Lecturer in Engineering
Ph.D., University of Minnesota. Convair, Division of General Dynamics Corporation

COCHRAN, FRANCIS L. (1959)  Lecturer in Mathematics
M.A., San Diego State College. Convair, Division of General Dynamics Corporation

COLE, WILLIAM S. (1959)  Lecturer in Accounting
B.S., San Diego State College. Certified Public Accountant. Haskins and Sells

CRANE, CLARE B. (Mrs. L.) (1959)  Lecturer in English
M.A., University of California at Los Angeles

DABROW, HELEN F. (Mrs. D.) (1959)  Lecturer in Education
Ed.D., Columbia University. San Diego County Schools

DARLING, LORENZ F. (1959)  Lecturer in Marketing
M.B.A., Chard Graduate School. Self-employed

DYKE, DOROTHY L. (Mrs. D.) (1959)  Lecturer in Political Science
M.A., University of Texas

EASTMAN, RICHARD O. (1956)  Lecturer in Physics
M.S., San Diego State College. U. S. Navy Electronics Laboratory

EHRLICK, KRAFFT A. (1958)  Lecturer in Physics
M.S., Technical University, Berlin. Convair, Division of General Dynamics Corporation

ELLENDE, R. BRAVES, JR. (1959)  Lecturer in Business Law
AB., San Diego State College. San Diego City Schools

EULOW, HOWARD W. (1958)  Lecturer in Physics
M.S., Virginia Polytechnic Institute. Convair, Division of General Dynamics Corporation

HAMMOND, JOHN C. (1959)  Lecturer in Education
Ph.D., Ohio State University. Imperial Valley College

HANSEN, HAROLD J. JR. (1956)  Lecturer in Physics
M.E., University of Michigan. Ryan Aeronautical Company

HARMER, WILLIAM J. (1957)  Lecturer in Accounting
M.A., Ball State Teachers College. Certified Public Accountant. Ryan Aeronautical Company

HARMON, JAMES E. (1958)  Lecturer in Political Science
M.A., San Diego State College

HARPER, FRANKLIN S. (1959)  Lecturer in English
M.F.A., State University of Iowa

HARVEY, WALTER E. (1957)  Lecturer in Journalism
Adult Education Division, San Diego City Schools

HAYES, JUDE R. (1959)  Lecturer in Political Science
M.D., University of Washington. U. S. Naval Hospital

HOUSE, HERSHEL A. (1959)  Lecturer in Education
B.S., U. S. Naval Academy. U. S. Navy (Retired)

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