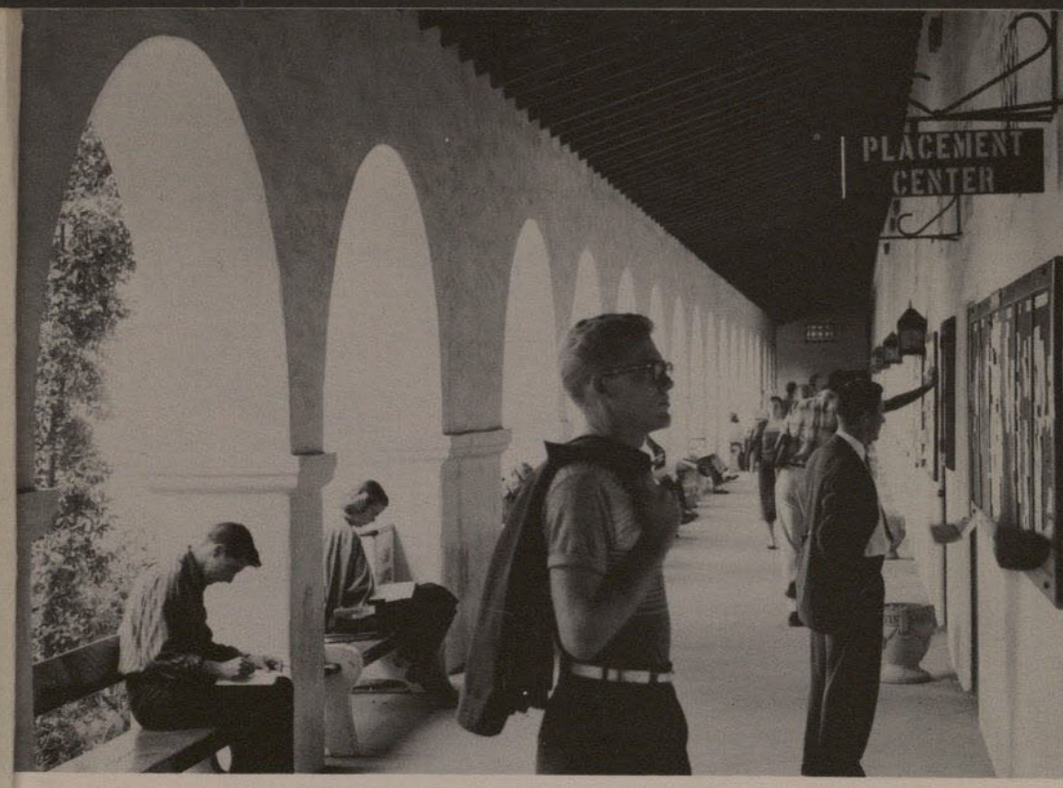
SAN DIEGO STATE COLLEGE

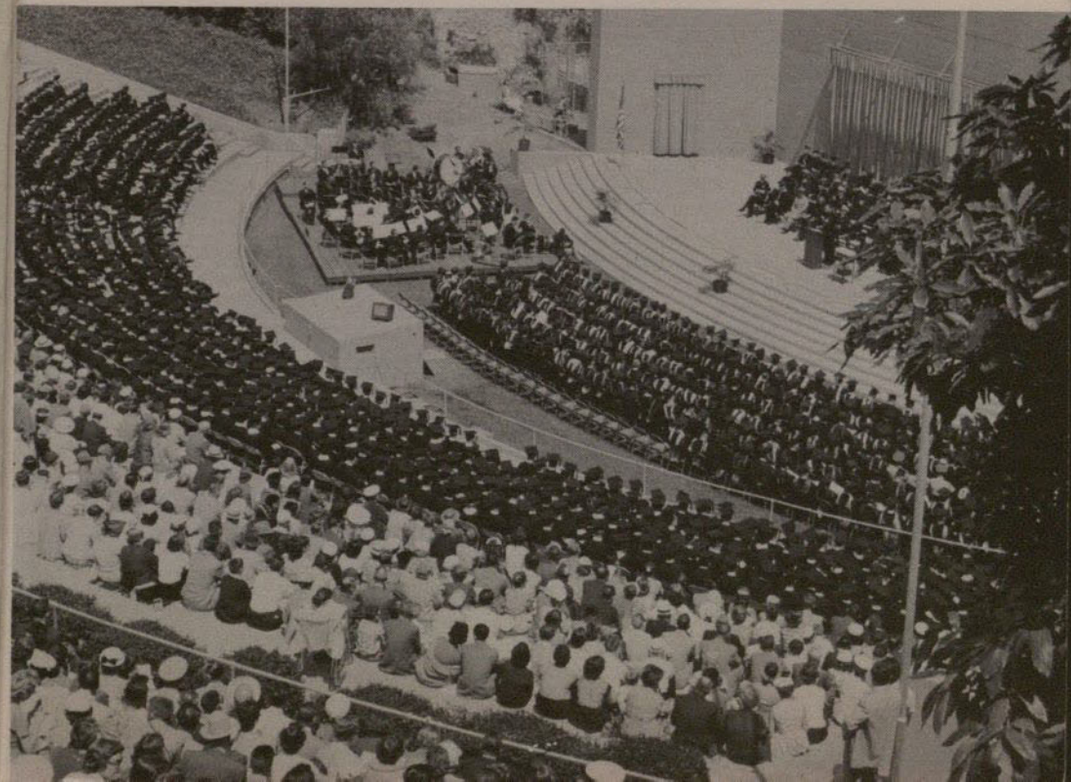
Catalog and Announcement Of Courses

FOR THE YEAR 1957-1958



An ever-increasing number of local, state and national businesses and industries are looking to the Placement Center for trained college graduates.

June Commencement in the Open Air Theater. A total of 1,069 students were awarded degrees and credentials during the 1955-56 college year.



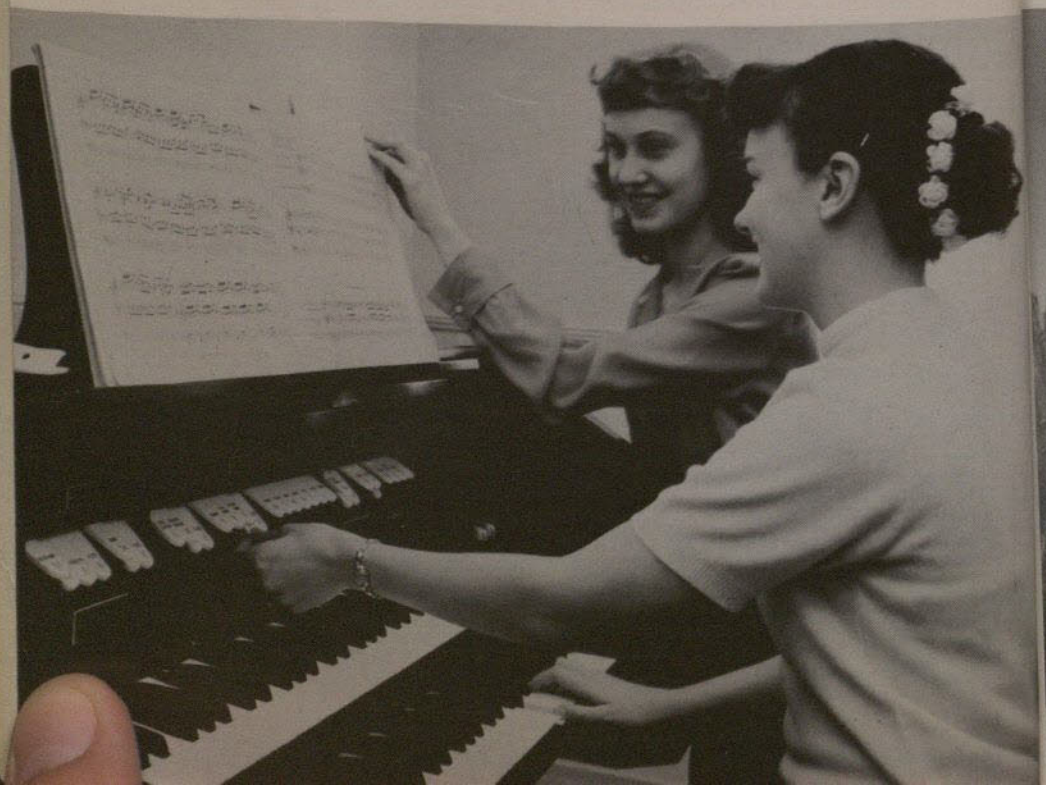


Students on their way to classes pass along the shaded walks of San Diego State College's main quadrangle, the center of many outdoor assemblies.

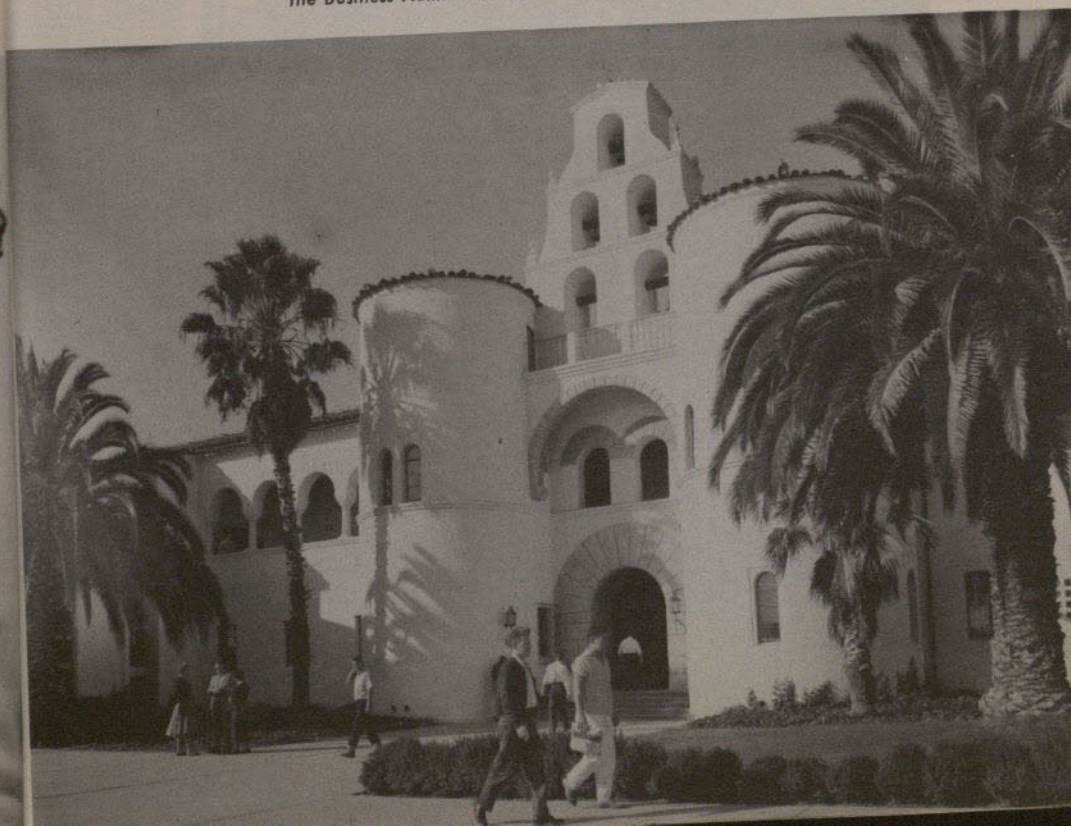


Students in the Home Management Laboratory course live in the new residence for five weeks. The home will accommodate eight students and a faculty supervisor.

Students use the new Allen electronic organ in the Music Auditorium. The music curricula are designed to fulfill the needs of all students.



One of the most familiar landmarks on the San Diego State College campus is the main arch of the Business Administration Building with its twin towers.





Aerial view of the San Diego State College 303-acre campus. Five new buildings were opened for use in 1956-57, two more will be started during 1957.

Catalog

and

ANNOUNCEMENT OF COURSES

VOLUME 44

APRIL, 1957

SAN DIEGO STATE COLLEGE

SAN DIEGO, CALIFORNIA

DEPARTMENT OF EDUCATION OF THE STATE OF CALIFORNIA

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

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MAX OSSLO — San Diego
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ROY E. SIMPSON, Secretary and Executive Officer

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President, San Diego Branch, American Association of University Women

KENNETH B. BARNES
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Vice President	ERNEST B. O'BYRNE
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Coordinator of the Evening Program	
Curriculum Evaluator	DARRELL C. HOLMES
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Dean of Admissions and Records	MELVIN A. ANDERSON
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Registrar	MARION L. PARKER
Dean of Counseling and Testing	DONALD E. WALKER
Test Officer	ROBERT T. GRAY
Dean of Activities	MARGERY ANN WARMER
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Executive Director of Alumni Association	CHARLES E. PETERSON
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Business Manager	SELWYN C. HARTIGAN
Personnel Officer	CAREY D. FOLGER
Chief of Maintenance	TIMOTHY V. HALLAHAN
Accounting Officer	DONALD G. PARKER

DIVISIONAL ORGANIZATION

(Including Chairmen of Divisions and Departments)

DIVISION OF AIR SCIENCE	Col. Lloyd A. Walker, Jr.
DIVISION OF BUSINESS ADMINISTRATION	Charles W. Lamden
Accounting Department	Vernie E. Odmark
Business Education Department	Evangeline O. LeBarron
Management Department	Frances B. Torbert
Marketing Department	(Acting) Frances B. Torbert
DIVISION OF EDUCATION	Manfred H. Schrupp
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DIVISION OF THE PHYSICAL SCIENCES	Dudley H. Robinson
Astronomy-Physical Science Department	Paul E. Stewart
Chemistry Department	John A. Spangler
Engineering Department	Martin P. Capp
Geology Department	Baylor Brooks
Industrial Arts Department	Kenneth Phillips
Mathematics Department	Vincent C. Harris
Physics Department	Lester L. Skolil
DIVISION OF THE SOCIAL SCIENCES	David S. Milne
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Geography Department	Alvena Storm
Journalism Department	James L. Julian
Political Science Department	Donald B. Leiffer
Sociology-Anthropology Department	Orrin E. Klapp
Coordinator of Public Administration	Robert F. Wilcox

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FEES

FEES PAYABLE AT TIME OF REGISTRATION

Regular students (carrying more than six units):	
Materials and service	$22.00
Student activity fee	8.00
Auditors pay same fees as students carrying courses for credit.	
Total required fees	$30.00
Limited students (carrying six units or less):	
Materials and service for one, two, or three units	9.00
Materials and service for four, five, or six units	15.00
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	90.00
Nonresident student enrolled for less than 15 units (per unit)	6.00
For fee-paying purposes, zero unit courses are counted as one unit.	

MISCELLANEOUS FEES

(Fees payable when service is rendered)

Change of program	1.00
Failure to meet administratively required appointment or time limit	2.00
Late registration	2.00
Transcript of record (first copy free)	1.00
R. O. T. C. deposit (unexpended portion is refundable)	10.00
Organ practice	10.00
Loss or damage of equipment and library books	Cost
State teaching credentials (each credential)	4.00

The credential fee is collected through the college by cashier's check or post office money order made payable to the State Department of Education.

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 the following amounts if application therefor is received by the Business Office within the following time limits:

Time Limit	*Amount of Refund*
(1) Before or during the first week of the semester	$6 per unit
(2) During the second week of the semester	$5 per unit
(3) During the third week of the semester	$4 per unit
(4) During the fourth week of the semester	$3 per unit
(5) During the fifth week of the semester	$2 per unit
(6) During the sixth week of the semester	$1 per unit

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)	$9.00
Activity fee (required):		
Term I		2.00
Term II		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.

CALENDAR 1957-1958

SUMMER SESSIONS, 1957

Terms I (6 weeks) June 24-August 2
Term II (3 weeks) August 5-August 23

FALL SEMESTER, 1957-1958

July 13, August 17 or 24	Qualifying examinations given on these dates for entering students. Application for admission and reservation for these examinatons must be made at least one week in advance of the examination date. English test and college aptitude test for freshmen from 8.15 a.m.-12.30 p.m. College aptitude test for advanced standing transfer students from 1.15-3 p.m.
August 1	File applications for admission to the fall semester before this date.
August 24	Last day for freshmen to take qualifying examinations. No opportunity afforded after this date to qualify for admission to the fall semester. Last date for new students to apply for admission to the fall semester. All official transcripts and other admission records must be on file in the Admissions Office by this date.
September 14	General Culture Test, required of all transfer students with 45 units or more who are candidates for secondary school credentials. 8.30 a.m.-12 noon.
September 16-18	Testing and advising program and residency declaration. All new students are required to attend.
September 17	Graduate Aptitude Test for master's degree applicants.
September 18-20	Registration and enrollment in classes. (Students registering in the evening program only see the schedule in the Evening Program Bulletin.)
September 20	Late registration fee effective at close of registration schedule. (Consult the Class Schedule and Instructions for Registration, Semester I, 1957-58 for exact schedule.)
September 21	Fundamentals Test, required of all transfer students with 15 units or more who are candidates for teacher education, 8.30 a.m.-12 noon. Also master's degree comprehensive in education, Part I.
September 23	Classes begin.
September 24	Assembly for students applying for admission to teacher education. (Campus Laboratory School Auditorium, 11 a.m.)
September 25	Last date for payment of fees and late registration of students who did not complete registration on the regularly scheduled registration days. (Students registering in the evenng program only see the schedule in the Evening Program Bulletin.)
September 28	Master's degree comprehensive in education, Part II, and Graduate Aptitude Test.
October 5	General Culture Test for master's degree applicants.
October 7	Last date to apply for refunds.
October 11	Last day for withdrawal from classes without penalty of class standing. Last date to file applications for mid-year graduation.
November 8	End of the eighth week. Deficiency notices due.

November 11	Holiday—Veterans Day.
November 28-29	Thanksgiving recess.
December 6	Last date for withdrawal from classes for the semester.
December 9	File applications for June or summer graduation.
December 13	Last day of classes before Christmas recess.
December 16-January 1	Christmas recess.
January 2	Classes resume.
January 4	Master's degree comprehensive in education, Part I.
January 12	Master's degree comprehensive in education, Part II.
January 14	Last day of classes before final examinations.
January 25	Graduate Aptitude Test for master's degree applicants.
January 31	Last day of the fall semester.

SPRING SEMESTER, 1957-1958

January 1	File applicatons for admisson to the spring semester before this date.
January 11	Qualifying examinations for entering students. Application for admission and reservation for these examinations must be made at least one week in advance of the examination date. This is the last opportunity for freshmen to qualify for admission to the spring semester. English test and college aptitude test from 8.15 a.m.-12.30 p.m.
January 17	All official transcripts must be on file in the Admissions Office by this date. Last date for students transferring from other colleges to file applications for admission to the spring semester. Freshman applications will not be accepted.
February 3	General Culture Test, required of all transfer students with 45 units or more who are candidates for secondary school credentials. 1-4.30 p.m. Also General Culture Test for master's degree applicants.
February 3-5	Testing and advising program and residency declaration. All new students must attend.
February 5-7	Registration and enrollment in classes. (Students registering in the evening program only see the schedule in the Evening Program Bulletin.)
February 7	Late registration fee effective at close of registration schedule. (Consult the Class Schedule and Instructions for Registration, Semester II, 1957-58 for exact schedule.)
February 8	Fundamentals Test, required of all transfer students with 15 units or more who are candidates for teacher education. 8.30 a.m.-12 noon.
February 10	Classes begin.
February 11	Assembly for students applying for admission to teacher education. (Campus Laboratory School Auditorium, 11 a.m.)
February 12	Holiday—Lincoln's birthday.
February 13	Last date for payment of fees and late registration of students who did not complete registration on the regularly scheduled registration days. (Students registering in the evening program only see the schedule in the Evening Program Bulletin.)
February 24	Last date to apply for refunds.

February 26	Graduate Aptitude Test for master's degree applicants.
February 28	Last date for filing applications for June or summer graduation.
February 28	Last day for withdrawal from classes without penalty of class standing.
March 1	General Culture Test for master's degree applicants.
March 28	End of the eighth week. Deficiency notices due. Last day of classes before spring recess.
March 29-April 6	Spring recess.
April 7	Classes resume.
April 26, May 3, 10	Qualifying examinations for students applying for admission to the fall semester. Open to high school seniors in their last semester or to students expecting to transfer from other colleges. Application for admission and reservation for these examinations must be made at least one week in advance of the examination date. English test and college aptitude test from 8.15 a.m.-12.30 p.m. Qualifying examinations are also given during July and August, dates to be announced later.
May 2	Last date for withdrawal from classes for the semester.
May 3	Master's degree comprehensive in education, Part I.
May 7	Master's degree comprehensive in education, Part II.
May 30	Holiday—Memorial Day.
June 3	Last day of classes before final examinations.
June 13	Commencement. End of the spring semester.

SUMMER SESSIONS, 1958

Term I (6 weeks) June 30-August 8
Term II (3 weeks) August 11-August 29

1957

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1958

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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

Renowned as a winter resort with a mild but invigorating climate, San Diego has become equally famous for its cool summers. High cultural standards in art, music, literature, and science create a stimulating environment for a college. Many of these advantages are to be found in the heritage resulting from the expositions of 1915-16 and 1935-36, including the buildings themselves, which portray the best types of Spanish colonial art and architecture. Housed in these buildings are the Fine Arts Gallery, exhibits in anthropology, natural history, and American archaeology, which are in many respects unsurpassed. The outdoor organ, the Balboa Bowl, and the horticultural gardens make Balboa Park, in which all these facilities are located, world renowned. The Scripps Institution of Oceanography, operated by the University of California at La Jolla, gives opportunity for important cooperation in the biological sciences.

BUILDINGS AND EQUIPMENT

On February 1, 1931, the college was moved to the new campus, located one mile north of the city's principal east-west street, El Cajon Boulevard. The buildings are of Spanish-Moorish architecture which is well suited to the landscape and climate of this region. They include the Business Administration Building; the Science Building; the Fine Arts Building; the Library; the Little Theatre; the Music Building; the Physical Science Building; Scripps Cottage (a social clubhouse for women students); the Cafe and Book Store; and the Physical Education Building (a structure with adequate facilities for both men and women). Since 1950, the following buildings have been completed: Administration, Health Services, Industrial Arts, Physics and Astronomy, Campus Laboratory School, an addition to the Music Building, Engineering, Education Division Classroom, Home Economics, and Home Management Residence. Construction is in progress for a Humanities-Social Science classroom building, a Cafeteria, and an addition to the Library. Additional physical facilities available include an Open Air Theatre seating 4,200 persons, a Football Stadium, Athletic Fields, and a Little Theatre.

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.

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 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 in the Announcement of Courses. For a description of requirements for the *Certificate in Industrial Management*, refer to Business Administration in the section of the catalog on Announcement of Courses.

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 work-rooms, the library, and shops, affords unusual opportunities for the induction of students into teaching. By arrangement with the San Diego city and county schools, directed teaching is provided in the elementary and secondary schools.

THE FACULTY

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

THE LIBRARY

The library facilities of the college are noteworthy, consisting of over 165,000 volumes and receiving annually more than 9,000 different periodicals selected to meet the requirements of a modern educational institution. Professionally trained librarians are available to render assistance to students and faculty in their reading and reference work.

The Campus Laboratory School Library, a collection of 15,000 volumes, with its equipment and building facilities, makes a valuable contribution to the teaching profession.

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 Department of Education, and is approved by the Veterans Administration for the education and training of veterans.

LIVING ACCOMMODATIONS

At present the college does not provide dormitories for students living away from home. Housing is available through listings on file in the office of the Dean of Activities. Single women students under the age of 21 must file with the Dean of Activities a statement from parent or guardian that the accommodations selected by the student are satisfactory.

VETERANS' EDUCATION AND HOUSING

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, aid

in the establishment of benefits, afford special counseling services, and serve as an information center.

Through the City of San Diego, 400 family units formerly under the jurisdiction of the Federal Public Housing Authority have been made available to the college for the housing of its married veterans. These units are located some eight miles from the campus proper at Aztec Terrace, near Old Town and Loma Portal. Applications for housing at Aztec Terrace are made through the office of the Dean of Students. Applications may be filed only after the student has been accepted for admission to the college.

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, seven governmental organizations, eight service organizations, 56 departmental and honorary organizations, 14 religious organizations, 15 national 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 Interfraternity 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.

STUDENT HEALTH SERVICE

As a part of the program of student personnel services, the college provides health services for the protection and maintenance of student health. These health services, 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, treatment of minor physical difficulties and emergencies, and counsel as to additional proper procedures. 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 chest X-ray and a survey of eye and ear conditions are done as part of the registration procedure. A form is furnished each student prior to registration for the purpose of recording the results of a physical examination done by the student's private 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 time of admission to and graduation from the various educational credential programs. Physical examinations are furnished by the Health Service only to those credential candidates who are applying for a state credential through the college, screened by the college. Physical examinations are also required before students are authorized to participate in the organized program of intramural recreation, or in intercollegiate athletics.

PERSONNEL SERVICES CENTER

The college offers the services of a trained staff to students who wish help in the solution of problems which are personal, social, academic, or occupational in nature. It is a program designed to help students gain the greatest possible advantage from their college experience. Agencies and facilities cooperating in the effort to assist students include the student health service; the test office; the reading, writing, and study laboratory; the speech improvement program; the placement and occupational guidance service; the veteran's service; and the counseling service. Students who wish to take advantage of these facilities may do so through the Personnel Services Center.

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.

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.

SPEECH CORRECTION CLINIC

A speech correction clinic for the training of college students in speech correction is held each Saturday during the school year, from 8.15 a.m. to 12 noon, to deal with all types of speech problems, such as stuttering and lisping. It is open for ages from 4½ years to the young adult; however, because of physical limitations, not all who apply are admitted. The cost of materials, not to exceed $1, must be met by the parent or individual concerned. Parents who enroll a child in the clinic must also enroll in Speech Arts E-175, The Role of Parents in Problems of Speech Correction, for one unit of credit, offered as an extension course each semester.

ALUMNI ASSOCIATION

The Alumni Association of San Diego State College maintains an office on the campus in charge of an Executive Secretary. Membership 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 are listed in the back of this catalog, immediately following the section on Announcement of Courses. 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.

The scholarships are grouped as follows: Scholarships Available to Freshmen; Scholarships Available to Students With Advanced Standing; Scholarships Available to Graduate Students; Unclassified Scholarships; Awards.

LOANS

Short term loans are available to students who have attended San Diego State College for at least one semester and who have demonstrated ability to do satisfactory college work.

Long term loans are available to students majoring in social science, education, nursing and certain other fields.

Applications for loans are made through the Office of the Activities Adviser.

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

1. 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 accepted for admission to the semester immediately following.

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

(1) Transcript from high school of graduation or last in attendance (not required of the graduate student who holds a bachelor's degree from an accredited institution, but is required of the student who holds a bachelor's degree from a nonaccredited institution)
(2) Transcripts from **EACH** college attended (including extension, correspondence, summer session, or evening courses). Graduate students must file transcripts **IN DUPLICATE**, if they plan to enter the master's degree program.
(3) Photostat or true copy of the military separation form DD-214 (or equivalent) if applicant has had active military service. (Not required of graduate students.)

An official transcript is one sent directly between schools. The applicant must request the school or college to send the transcript to the Admissions Office, San Diego State 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.*

3. Take Qualifying Examinations: The applicant may be required to take one or more of the examinations listed below. In cases where a reservation for the examination must be made, obtain a reservation card from the Admissions Office and file the reservation card at least one week before the date of the examination. Consult the calendar in this catalog for dates on which examinations are given.

(1) *Freshman Qualifying Examinations:* These examinations are required of all students applying for admission as freshmen. The examinations, which consist of a college aptitude test and an English test, must be completed before the applicant can be notified of acceptance. A reservation card must be filed with the Admissions Office at least one week before the date of the examination.
(2) *College Aptitude Test:* This test is required of all undergraduate students transferring from other colleges with 12 or more units of advanced standing credit. Students transferring with less than 12 units must also qualify as

freshmen. Graduate students are not required to take this test, unless they are candidates for one of the teaching credentials. The test must be completed before registration will be permitted. A reservation card must be filed with the Admissions Office at least one week before the date of the examination.

(3) *Teacher Education Examinations:* In addition to the college aptitude test which is required of all undergraduate students, applicants for admission to teacher education programs must take one or both of the tests listed below. These tests should be taken before registration and in all cases must be taken before the candidate can be considered for admission to teacher education. A reservation for these tests is not required. The student should report for the tests at the appropriate time.
(a) *Fundamentals Test:* This test is required of all teacher education candidates transferring from other colleges with 15 units or more of advanced standing credit, including graduate students.
(b) *General Culture Test:* This test is required of all candidates for any of the secondary school credentials, in addition to the Fundamentals Test. The test is open to students transferring from other colleges with 45 units or more of advanced standing credit, including graduate students.

(4) *Graduate Examinations:* Students planning to enter the master's degree program are required to take the Graduate Aptitude Test and, in some instances, the General Culture Test. Refer to the section of this catalog on the Graduate Division or inquire at the Graduate Office for further information on examinations.

ADMISSION OF HIGH SCHOOL GRADUATES

REQUIREMENTS

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

(1) Be a graduate of an accredited high school 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); or

(2) Be a graduate of an accredited high school 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 preparing to enter college are urged to consult their high school advisers and plan a program in high school that will prepare them adequately to pursue their chosen curriculum at the college level. The following high school courses are recommended as preparation for any college course leading to the bachelor's degree: English, 3 years; algebra, 1 year; geometry, 1 year; one foreign language, 2 years; American history and civics, 1 year; additional social science, 1 year; botany, chemistry, physics, physiology, or zoology, 1 year. Typing is a recommended elective.

Students preparing to enter the fields of natural science and engineering should include additional courses for specific majors. The following courses are recommended: chemistry and physics, 1 year credit in each field; advanced algebra, 1 year; trigonometry and solid geometry, 1 year; one modern foreign language, two years. Recommended electives: slide rule, mechanical drawing.

ADMISSION OF NON-HIGH SCHOOL GRADUATES AS ADULT SPECIAL STUDENTS

A 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 demonstrate to the appropriate college authorities his ability to profit from college work. He may become eligible for admission if he attains a score at the 40th percentile or above on the national norm of the college aptitude test given by the college and complies with other admission regulations.

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 and is 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 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-point grading 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 12 semester units in an accredited four-year college (or at least 24 units in an accredited junior college), or if transferring with less than the 12 or 24 units respectively, must also have been 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 of the national norm of a standard college aptitude test provided that he must have been in good standing at the last college institution attended, and his previous record must be such that it would not disqualify him in the college to which he seeks admission.

"(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 with at least a C average."

"930. **Students Who Transfer From Junior Colleges.** An applicant who has earned credit in a junior college may be admitted to a state college if he meets the standard previously listed in this article, except that in case the applicant was ineligible for admission to a state college on the basis of his high school record he must, as a condition to admission to a state college, have completed 24 or more semester units of college work with a grade-point average of 1.0 (grade of C on a five-point scale) or better in the total program attempted.

"Not more than 64 semester units may be allowed for credit earned in a junior college. No upper division credit may be allowed for courses taken in a junior college. No credit may be allowed for professional courses in education taken in a junior college."

"931. **Other Applicants for Admission With Advanced Standing.** An applicant who fails to meet the standards listed above in this article may be considered by the appropriate state college authorities for admission to the college on probation when the facts in the case seem to warrant such action."

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 OF GRADUATE STUDENTS

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. The application form will automatically be mailed to the applicant who indicates on his application to the college that he expects to enter the master's degree program.

Graduate students expecting to enter a graduate credential program in Teacher Education or a master's degree program in the Graduate Division must file applications and official transcripts from all colleges attended at least 30 days prior to the opening of the term in which they expect to begin graduate work. Graduate students planning to enter a program leading to a master's degree **must file official transcripts in duplicate.** Failure to complete these requirements on time may result in a delay as long as a semester in obtaining a guided plan for the graduate program. Transcripts filed with the college 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 this college. He must, however, file an application for readmission to the college and, if he plans to enter a master's degree program, an application for admission to the Graduate Division and must comply with all other admission procedures outlined above.

REQUIREMENTS

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, including graduate level (200 numbered) courses, is subject to evaluation as to its acceptance in the master's degree program.

Regular graduate standing may be obtained by an unclassified graduate student upon meeting requirements for admission to the Graduate Division. These requirements are described in the section of the catalog on the Graduate Division. Students with regular graduate standing are eligible to enroll in graduate level (200 numbered) courses.

With the approval of the Dean of Admissions and Records, a graduate student who holds a bachelor's degree from a nonaccredited college or university may be admitted as a **special graduate** student, pending removal of all undergraduate deficiencies to which he may be held, and completion of at least 12 units of approved upper division postgraduate 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 with Graduate Standing. A student may be admitted to a state college with graduate standing upon the basis of standards as follows:

"(a) The applicant must 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, and

"(b) He must have evidence of the possession of such other qualifications as the receiving college may prescribe, such qualifications to include appropriate scholastic, professional, and personal standing, and the passing of any required examination."

CAMPUS EVENING SESSION PROGRAM

In order to meet the needs of adults in the community for work on the college level, a Campus Evening Session program offers some courses in the late afternoon and evening. These include both undergraduate and graduate courses and carry full college residence credit. Classes offered under this program are part of the regular college offerings and are taught by faculty of the college, but moved to a late afternoon or evening hour to permit in-service teachers, public service personnel, businessmen, and others to attend. A special Evening Program Bulletin describing the current offerings, eligibility for admission, and procedures for registration is issued each semester and may be obtained upon request from the Office of the Coordinator of the Evening Program.

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. Offerings are made each semester in a number of departments including education, business administration, and the arts and sciences. Classes may be organized at various points 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 two units of credit and meets once a week, either in the late afternoon or evening. The minimum basic fee is $8.50 per unit. Interested persons desiring detailed information regarding organization of classes or current offerings should communicate with the Extension Office.

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 Session work is $9 per semester unit or fraction thereof. An additional activity fee of $2 for Term I and $1 for Term II is charged. Information concerning course offerings and special workshops may be obtained by communicating with the Summer Sessions Office. A Summer Session Bulletin is available during the month of May and will be mailed free of charge upon request.

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, payment of fees, and the keeping of other designated appointments as outlined in the *Class Schedule and Instructions for Registration*, a publication issued prior to the beginning of each semester.

RESIDENCY CLEARANCE

Each student enrolling in the college must be classified as a resident or nonresident student, prior to the payment of registration fees. The Residency Office will issue instructions to the applicant on the procedure to follow in obtaining residency classification. Specific instructions will be found in the *Class Schedule and Instructions for Registration*, which is issued prior to the beginning of each semester. Applicants for the Evening Program only will find instructions on procedure to follow in obtaining residency classification in the *Evening Program Bulletin*, which is also issued prior to the beginning of each semester.

The residency classification received by any student is subject to review and change. Each student is held responsible for notifying the Residency Office of any change in his legal status as a resident of California.

TESTS AND EXAMINATIONS

1. **A chest X-ray and medical clearance** from the health services office are required of all students entering or re-entering the college after an absence of more than one semester, except that students enrolled in the Campus Evening Session Program only are not required to meet these requirements. Appointments for the chest X-ray and medical clearance are scheduled during the testing and advising period and are part of the required registration procedures.

2. **College Aptitude Test.** All entering students are required to take a college aptitude test as prescribed by this college. This test is scheduled at various times during the year and must be completed prior to registration. Entering freshman will take this test as part of the freshman qualifying examinations. Refer to the calendar in this catalog for dates on which this test and the qualifying examinations are given.

3. **Competency Tests for English, Mathematics, and Speech.** A competency test for English is required of all entering freshmen and students transferring with advanced standing who have not previously met this competency requirement by completion of an appropriate course in another college. This English test is included in the freshman qualifying examinations and must be completed prior to registration. The competency test for mathematics is offered each semester and may be taken after the student has enrolled in the college. The competency test in speech is given in the required course, Speech Arts 3, to all students enrolled in the course. Remedial courses for credit are established for students failing these tests. Refer to the calendar in this catalog for the dates on which the qualifying examinations are given; refer to the *Class Schedule and Instructions for Registration* for dates on which the mathematics test is given. The class schedule is available at the beginning of each semester.

4. **Teacher Education Tests.** Candidates for admission to teacher education are required to complete the teacher education tests as prescribed by the Department of Education. For further information, refer to the section of this catalog on admission to teacher education and to the calendar for dates on which these tests are given.

5. **Graduate Examinations.** Applicants for admission to a master's degree program are required to complete examinations as prescribed in the Graduate Division. Refer to the section of the catalog on the Graduate Division.

REGISTRATION AND PAYMENT OF FEES

Registration Priority. Each student is assigned a registration number which determines the order in which he registers and pays fees. Entering freshmen are assigned registration numbers on basis of the high school scholastic grade record; students entering with advanced standing are assigned registration numbers on basis of the number of units completed. Freshmen with the higher grade records and transfer students with the greater number of units earned are given the earlier opportunity to register and pay 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.

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 will be found in the *Class Schedule and Instructions for Registration*, a publication available prior to the beginning of each semester. Fees are charged for failure to meet administrative deadlines, late registration, or changes of program after the student has filed his official study list of courses.

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 for which the student taking the course for credit is held. An auditor pays the same fees and has the same privileges as do students who take equivalent work for credit, but are not held for final examinations and do not receive final grades or credit in courses.

Auditor and Change of Program. A student enrolled in a course for "audit" who wishes to change his program to "credit" or who is enrolled in a course for "credit" who wishes to change his program to "audit" must apply for this change of program at the Registrar's Office within the time allowed for changes of program and with appropriate approval. Refer to the calendar in this catalog and to the *Class Schedule and Instructions for Registration*, which is published prior to the beginning of each semester, for information on dates of withdrawal from classes and instructions on changes of program.

LATE REGISTRATION

To be eligible for late registration, a student must have completed all requirements for admission to the college within the time limits permitted for the filing of applications and other official forms, the taking of required tests, and the filing of all official transcripts. If the student who has met all these requirements is unable to complete registration on the regularly scheduled registration days, an extension of the time for registration is permitted through late registration procedures. Refer to the calendar in this catalog for admission and registration deadlines and to the *Class Schedule and Instructions for Registration*, which is published prior to the beginning of each semester, for specific instructions on late registration. A fee of $2 is charged for late registration.

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.

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.

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 field work in the case of laboratory credit.

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.

GRADES AND GRADE POINTS

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

A, Outstanding achievement—4 grade points (Prior to September 1956, 3 grade points)
B, Commendable—3 grade points (Prior to September 1956, 2 grade points)
C, Satisfactory—2 grade points (Prior to September 1956, 1 grade point)
D, Passing—1 grade point (Prior to September 1956, 0 grade points)
F, Failure—0 grade points (Prior to September 1949, minus 1 grade point)
I, Incomplete—0 grade points (Prior to September 1956, not counted in student's grade average)
Cr, Credit (not counted in grade average, but units allowed)
WP, Withdrawal-Passing (not counted in grade average)
WF, Withdrawal-Failing (0 grade points for units attempted)

The number of grade points a student has earned in a subject is determined by multiplying the number of points he has received by the number of units attempted. The grade point average is determined by dividing the number of grade points earned by the number of units attempted.

A student must earn at least a C average (2.0) in all college work attempted and in all courses taken at San Diego State College to qualify for a bachelor's degree or a transcript of record with recommendation to another collegiate institution. (Prior to September 1956, a C grade average was 1.0 on the three point grading scale).

INCOMPLETE GRADE

One calendar year beyond the end of the term when an incomplete grade is assigned will be allowed for making up the incomplete. After the time has lapsed, the student may not make up the work, but may repeat the course if he desires. The incomplete remains on the permanent record as units attempted and no grade points. 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.

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.

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 17½ 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 taken 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 the Graduate Division. The maximum amount which will be approved for any one semester is 17 units and for any one year, 33 units. The maximum study load for the graduate student employed full time is six units per semester.

CHANGE OF MAJOR FIELD

At the time of admission to the college, each 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 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 disqualified from further attendance at 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 continuance 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 or Change of Program. A student withdrawing from college or from a class must file an official withdrawal form or change of program form with the Registrar. Forms may be obtained at the Registrar's Office.

Withdrawal Deadline Dates and Penalties. If a student officially withdraws from college or from a class by the end of the fourth week of the semester (includes the regular registration week), 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 fourth week and not later than the end of the twelfth week of the semester, either a WP 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 twelfth week, 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 the beginning of the final examination schedule; however, the student will receive a WP 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. 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.

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 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.

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 evaluation is made on the regulations in effect at the time the student entered this college, provided that he has been in uninterrupted attendance as a full-time student at this college; otherwise, the evaluation is made on regulations currently in effect at the time the evaluation is made. A student remaining in continuous attendance in regular sessions and continuing on the same curriculum in the college may, for purposes of meeting graduation requirements, elect to meet the graduation requirements in effect either at the time of his entering the curriculum or at the time of his graduation therefrom, except that substitutions for discontinued courses may be authorized or required by the proper college authorities.

All evaluations are subject to changes imposed upon the college by the State 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.

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.

Students in the honors program, so far as the facilities of the department and the best interests of the students under its charge allow, shall be treated as benefits their individual needs and as their individual capabilities warrant. They shall be eligible to enroll in honors or special study courses, credit in such courses to 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 honor 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 transferred 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.

FINAL EXAMINATIONS

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

CREDIT BY EXAMINATION

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.

Approval to receive credit by examination is granted only at the discretion of the appropriate college authorities.

CREDIT FOR EXTENSION COURSES

The maximum amount of extension and correspondence credit which may be accepted toward the minimum requirements for the bachelor's degree is 24 semester units, not more than 12 of which may be transferred from another college or university, except that courses taken through the United States Armed Forces Institute, or other official military correspondence schools, shall not be included within these limits. Extension and correspondence credit do not count in satisfaction of the minimum residence requirement. A maximum of six units in extension courses at San Diego State College may be accepted as part of the requirements for the master's degree, subject to limitations described in the section of the catalog on the Graduate Division.

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 photostat of the military separation form DD-214, or equivalent official records. 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 University 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 given credit toward the baccalaureate. Examples of such work would be credit for nurse's training, credit transferred from certain foreign schools, certain vocational courses in junior colleges, credit for military service, and courses in this college of a nonacademic nature.

GRADUATE DIVISION

DEGREES OFFERED

The master of arts and master of science degrees are conferred by San Diego State College through the Graduate Division. These degrees are designed to increase the student's competence and his ability for continued self study.

Effective with the school year, 1957-58, all students beginning postgraduate work leading to either the master of arts or master of science degree will make formal application for admission to the Graduate Division.

ADMISSION TO THE GRADUATE DIVISION

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. A graduate student who is accepted 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 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, including graduate level (200 numbered) courses, is subject to evaluation as to its acceptance in the master's degree program.

To become eligible to enter and continue in a master's degree program, the student must attain **regular graduate standing** and be admitted to the Graduate Division. 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. Sastisfactory 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.

An applicant for admission to the Graduate Division who meets the first two qualifications for regular graduate standing, namely, (1) an acceptable bachelor's degree from an accredited college or university and (2) an undergraduate grade point average of 2.5 or better, will be assigned to the Graduate Office for guidance in the program. The Graduate Office will assign an appropriate adviser in the student's major for further advising.

An applicant who does not have the last three qualifications named above for regular graduate standing will be referred to the Graduate Office for assignment to his appropriate department or division where under guidance he may continue postgraduate work as an unclassified graduate for the purpose of removing deficiencies and otherwise demonstrating ability to succeed in a regular graduate program. After satisfying the requirements of his department or division and the Graduate Council he may apply for regular graduate standing and admission to the Graduate Division.

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.

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/or the Graduate Division if they wish to resume their graduate work. They may 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 Department of Education to grant the master of arts degree with majors in the following fields of study:

- Art
- Business education
- Chemistry
- Education
  - Audio-visual education
  - Elementary curriculum and instruction
  - Secondary curriculum and instruction
  - Elementary administration
  - Secondary administration
  - Elementary supervision
  - Secondary supervision
- Education (continued)
  - Pupil personnel services
  - Special education
- English
- Foreign language
  - French
  - Spanish
  - Romance languages
- Health and Physical Education
- History
- Industrial arts
- Life science
  - Bacteriology
  - Biology
  - Botany
  - Zoology
- Mathematics
- Music
- Physics
- Psychology, educational psychology
- Social science
- Speech arts
- Personnel supervision and training

The fundamental purpose of the master of arts degree program is the improvement of the individual's professional competence in educational service and to develop his ability for continued self directed study in the field of his professional service. Students receiving the degree must hold a valid regular day school service California credential other than a provisional credential or be a licensed teacher from another state with one year of experience, or complete all requirements for a California credential and receive it concurrently with the master's degree. Exceptions to the foregoing requirement may be made in the following cases:

(1) For students who because of citizenship in a foreign country are ineligible for a California credential, but who are teachers or are preparing to teach in a foreign country.

(2) For students preparing to teach or supervise in institutions not requiring teaching credentials provided that a minimum of 12 semester units of professional education be included in their graduate program.

REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

1. **Course and unit requirements:**
   - A. A minimum of 30 units of approved postgraduate work. Thirty units must be completed within the seven-year period immediately preceding the date when all of the requirements for the degree are completed. In unusual circumstances, the student may petition for an extension of time.
   - B. A minimum of 10 units must be in graduate level (200 numbered) courses.
   - C. All applicants for the master of arts degree must complete two units in Education 290A, or its equivalent.
   - D. The minimum requirements for a concentration in a major are:
     - (a) Eight units in graduate level (200 numbered) courses, which may include a thesis or project, course 299, and one unit of bibliography (except in English which requires two units), course 290; and
     - (b) Six additional units in the major or an approved related field selected from upper division or graduate level (200 numbered) courses.
   - E. A grade point average of 3.0 (B) on all postgraduate work taken at this college in the graduate degree program, including prerequisites and courses taken to remove deficiencies. Only grades of A, B, or C are acceptable in a master's degree program.
   - F. Twelve units must be earned after advancement to candidacy.
2. **Residence:** Applicants must complete at least 24 units of their programs in residence at San Diego State.
3. **Advancement to candidacy:** In addition to holding regular graduate standing in the Graduate Division, a student desiring the master of arts or master of science degree must file a complete graduate program of study, approved by his graduate adviser, and an application for advancement to candidacy for the degree in the Graduate Office during his first graduate semester in residence. Advancement will not be granted, however, until the student has earned at least 12 units in his graduate program at this 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 was 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 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.
4. **Examinations:** Every student desiring the master's degree must take the scholastic aptitude examination and the achievement examination prior to or during his first semester in residence. Certain departments require additional examinations. See below for comprehensive examinations.
5. **Thesis:** Plan A, requiring a thesis or project, is available to students majoring in any field 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, involving a comprehensive examination, usually in lieu of a thesis, may be chosen by students majoring in education, business education, foreign language, and mathematics. Dates 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-B, the writing seminars required in their major concentration, or Education 299, Thesis.
6. **Final approval:** The student's graduate program of study as approved by the Graduate Council must be completed before the degree can be granted.

THE MASTER OF SCIENCE DEGREE

GENERAL INFORMATION

San Diego State College is authorized by the State Department of Education to grant the master of science degree with majors in business administration, chemistry, mathematics, physics, psychology, and public administration.

Graduate studies in business administration provide a broad graduate education in business or specialized preparation in such fields as accounting, banking and finance, business management, industrial management, insurance, marketing, and personnel management. Persons with undergraduate degrees in engineering can arrange programs especially planned to meet their needs in the fields of business management or industrial management.

Graduate studies in chemistry provide for concentration in the traditional subdivisions of chemistry: physical, inorganic, organic, biochemistry, and analytic. Special seminars planned for their applicability to industry may be obtained by the student.

Graduate studies in mathematics provide the basic concepts of advanced work and such techniques of applied mathematics as may be required by local industry.

Graduate studies in the physics program offer two areas of concentration, atomic and nuclear physics, and electronics. A wide variety of courses is available in the various fields of physics used in industrial and laboratory practice.

Graduate studies in psychology are offered for students wishing to prepare for psychological work in business, industry, government, mental hygiene clinics, colleges and universities.

Graduate studies in public administration are designed to prepare students for public service and to give additional training to those persons in public service who wish to do advanced study. The program offers a broad education in basic administrative knowledge, political science, and related social science fields.

REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

1. **Course and unit requirements:**
   A. A minimum of 30 units of approved postgraduate work and the satisfactory completion of six units of directed field experience, course 296, except that all or part of this six units may be waived if the student's professional work experience is judged adequate both in quantity and quality. All 30 or 36 units must have been earned within the seven-year period immediately preceding the date when all of the requirements for the degree are completed. In unusual circumstances, the student may petition for an extension of time.
   B. A minimum of 10 units must be in graduate level (200 numbered) courses. Some departments require 12 units.
   C. The minimum requirements for concentration in a major are 24 units of approved upper division (100 numbered), or graduate level (200 numbered) courses.
   D. A grade point average of 3.0 (B) on all postgraduate work taken at this college in the graduate degree program, including prerequisites to remove deficiencies. Only grades of A, B, or C are acceptable in a master's degree program.
   E. Twelve units of work must be earned after advancement to candidacy.
2. **Residence:** Applicants must complete at least 24 units of their programs in residence at San Diego State.
3. **Advancement to candidacy:** See under Master of Arts—Advancement to Candidacy. (Same requirements except that achievement examination is not required.)
4. **Examinations:** Every student desiring the master's degree must take the scholastic aptitude examination prior to or during his first semester in residence. Certain departments require additional examinations.
5. **Thesis:** Plan A, involving a thesis or project, is available to all majors in which the master of science degree is offered. Plan B, involving a comprehensive examination in lieu of a thesis, is available in chemistry, mathematics, and physics. (For further details, see the description above under The Master of Arts Degree —Thesis.)
6. **Final approval:** The student's graduate program of study as approved by the Graduate Council must be completed before the degree can 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. Such 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 graduate level (200 numbered) courses are included in the student's program. For students employed full time, the maximum study load is six units.
3. **Official program of study:** Official programs of study, as signed or 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 Graduate Council, 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:
(1) Arts and Sciences curricula, leading to a degree.
(2) Teacher education, leading to a degree and/or teaching credential.
(3) Occupational curricula, leading to a degree or certificate.
(4) 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) At least a C average (2.0) in scholarship is required in all college work attempted, in all work taken at this college, and in all upper division work in the major field.

(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 and any other requirements made by the college must be completed for graduation.

TESTS IN ENGLISH, MATHEMATICS, AND SPEECH

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

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.

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.

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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 Constitution of the United States, and in American history, including the study of American institutions and ideals, and of the principles of state and local government established under the Constitution of this State, by completing appropriate courses, or by passing a comprehensive examination on these fields prepared and administered by each college. Students transferring from other institutions of collegiate grade, who have already met this requirement in college, shall not be required to take further courses or examinations therein.

This graduation requirement may be fulfilled by any one of the following alternatives:

(1) 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

(2) By satisfactorily passing 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 requirements through examination may obtain a bibliography of suggested reading at the Evaluations Office in the Administration Building. Examinations for removal of these requirements are given once each semester and in Term I summer session.

(3) By satisfactory completion of a combination of courses or combination of courses and examinations in the required areas.

Students electing to remove requirements through a combination of courses or combination of courses and examinations should select courses from those listed below:

Courses meeting requirements in American History	*Courses meeting requirements in U. S. Constitution*	*Courses meeting requirements in California Government*
History 8A and 8B	Political Science 71A	Political Science 71B
History 176A and 176B	Political Science 115	Political Science 107B
History 179A and 179B	Political Science 107A and 107B	Political Science 115
History 181A and 181B	History 17A	Political Science 139B
	History 172A	Political Science or Journalism 142
		Political Science or Journalism 143
		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 Instruction.

General education courses may be found in the section of the catalog under Announcement of Courses. 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

	Minimum	*Maximum*
(a) Social Sciences	9	12
(b) Natural Sciences	9	12
(c) Literature, Philosophy, and the Arts	6	12
(d) Communication:		
Oral Communication	2	2
Written Communication	3	6
(e) Psychology	3	6
(f) Physical and Health Education:		
Physical Education	2	2
Health Education	2	2
(g) Mathematics	0	6
(h) Foreign Languages	0	6
(i) Family Life Education	0	6
(j) Air Science	0	6
Total number of units required		45

Explanation of Requirements

(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 1A-1B, 54, 152, 165

Economics 1A-1B, 102, 111, 131, 170

Geography 2, 12A-12B, 151, 152, 153

History 4A-4B, 8A-8B, 17A-17B, 121A-121B, 172A-172B, 179A-179B

Political Science 1A-1B, 71A-71B, 105, 107A-107B, 111A-111B, 112, 115, 138, 139A-139B, 168-S, 170A-170B

Sociology 35, 50, 51, 110, 135, 145

(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 1 or 3, geology, physical science, and physics). At least one unit of either physical or life science or 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
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, 150
Physics 2A, 2B

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

(c) **Literature, Philosophy, and the Arts.** A minimum of six or maximum of 12 units must be selected from general education courses in literature, philosophy, and the arts. At least one course of not less than three units must be selected in literature or in philosophy from courses in English, comparative literature, or philosophy. Twelve units may be concentrated in these fields, but not in the arts. Courses in the arts must be selected from the fine arts, including aesthetics, art, and music, or from the practical arts. A maximum of three units may be counted in the practical arts toward general education. Selection should be made from the following general education courses:

Literature and Philosophy

Comparative Literature 52A-52B, 101A-101B, 104A-104B, 115, 138, 140A-140B, 142, 152A-152B

English 2, 3, 10, 50A-50B, 52A-52B, 56A-56B, 60A-60B, 101A-101B, 110, 115, 117A-117B, 119A-119B, 126B, 129, 131, 132, 133, 134, 149, 152A-152B

Philosophy 1A-1B, 20, 100A, 100B, 101, 111A-111B, 129, 135, 136

Fine Arts

Aesthetics 2, 5, 50, 51, 52A-52B, 102, 138, 150

Art A, B, 6A, 6D, 8, 16A

Music 7A, 10A-10B, 70 through 88, 170 through 188

Practical Arts

Home Economics 3, 4A, 15

Industrial Arts 5, 6, 85

Library Science 10

(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 equivalent. Students failing the English test are required to complete English A for three units as a prerequisite for other courses in English. English A may not be counted toward general education requirements.

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, 106

(e) **Psychology.** Three units must be completed in Psychology 1. An additional three units may be selected from other general education courses in psychology, including Psychology 11, 12, 106, 107, 145.

(f) **Physical Education and Health Education.** Two units must be completed in Health Education 21 and two units must be selected from general education courses in physical education, except that veterans of the United States armed forces who are granted military credit for basic training are not required to enroll for Health Education 21 or for courses in physical education.

The physical education requirement must be satisfied by completion of four semesters of activity courses for a minimum of two units. A physical education activity course taken in the summer session may be counted in lieu of a semester. Not more than one activity course within any one semester may be counted toward general education. An activity course may not be repeated for credit.

General education courses in physical education include all activity courses and Physical Education 122.

(g) **Mathematics.** From zero to six units may be selected from general education courses in mathematics. Students failing the Mathematics Test must complete Mathematics X. This course may not be counted toward the general education requirements. Selection should be made from the following general education courses: Mathematics 1, 2, 3, 3A, 3B, 4, 10, 21, 22, 40, 50, 104.

(h) **Foreign Languages.** From zero to six units may be selected from general education courses in foreign languages. **Note:** Year-courses in foreign languages completed in high school may not be repeated in college for credit, except that the last year-course in any foreign language sequence completed in high school may be repeated in college for a maximum of three units of repeated work to be applied toward graduation.

Selection of general education courses in foreign language should be made from French, German, and Spanish courses numbered as follows: 1, 2, 3, 4, 15, 16, 115, 116.

(i) **Family Life Education.** From zero to six units may be selected from general education courses in family life education. Selection should be made from the following courses:

Business Administration 158

Health Education 90

Psychology 106

Home Economics 1, 3, 4A, 15, 70, 135, 150

Sociology 35, 135

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

BACHELOR OF ARTS DEGREE IN ARTS AND SCIENCES

MAJOR REQUIREMENTS

One major field is required for the A.B. degree in addition to 45 units in general education courses. **At least 40 units of the 124 required for graduation must be in courses carrying upper division credit.**

The major in arts and sciences consists of the total number of upper division units, including the specific courses prescribed in the major. Prerequisites and other related courses may be required in the lower division. Unless otherwise provided, these required lower division courses may not be included in general education. Some majors require a minor approved by the major department. For specific information on majors, refer to the section of the catalog on Announcement of Courses.

MAJORS

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

Art
Bacteriology
Botany
Chemistry
Economics
English
French
*General major
Geography
Geology
History
Home Arts Curriculum
Home Economics
Industrial Arts
Journalism
Language Arts
Latin-American Studies
Life Science
Mathematics
Music
Personnel Management
Philosophy
Physical Education
Physical Science
Physics
Political Science
Psychology
Public Administration
Public Personnel Management
Recreation
Romance Languages
Social Science
Social Service (Presocial Work)
Sociology
Spanish
Speech Arts
Zoology

* **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 a year course in each field 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.

Procedure for approval: The student electing a general major will apply at the office of the Personnel Services Center where he will receive assistance from a counselor in planning a program for the general major. He will be provided with two copies of an official form, Master Plan for the General Major, which he will take to the chairman of each of the three departments concerned with his general major for approval of the departmental program. After approval has been obtained from each chairman, the student will obtain final approval of the general major program from the Dean of the College (or authorized representative) or from the Dean of Counseling and Testing. Two copies of the Master Plan, carrying the completed program for the general major, as approved by the chairmen and dean, will then be filed with the office of the Personnel Services Center. The student is not enrolled in the general major program until these approved copies have been appropriately filed.

MINOR REQUIREMENTS

A minor in arts and sciences may be required by the department offering the major. In departments not requiring a minor, the minor is optional with the student. A minor generally consists of a minimum of 15 units, or maximum of 22, six to nine units of which must be in courses carrying upper division credit as specified by the department. A few minors may exceed the 22 unit maximum. The minor may include courses which are also included in the general education requirements.

MINORS

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

Accounting
Air Science
Anthropology
Art
Astronomy
Bacteriology
Banking and Finance
Botany
Broadcasting
Business Education
Business Management
Chemistry
Comparative Literature
Credit Management
Economics
Education
Engineering
English
French
Geography
Geology
German
Health Education
History
Home Economics
Industrial Arts
Insurance
Journalism
Life Science
Marketing
Mathematics
Music
Philosophy
Physical Education
Physical Science
Physics
Political Science
Psychology
Public Administration
Recreation
Secretarial Management
Sociology
Spanish
Speech Arts
Zoology

BACHELOR OF SCIENCE DEGREE IN ARTS AND SCIENCES

REQUIREMENTS FOR THE MAJOR

One major field is required for the B.S. degree in addition to 45 units in general education courses. A minimum of 128 units is required for graduation. A minor field is not required.

The major consists of a minimum of 36 upper division units, including the specific courses prescribed in the major. Prerequisites and other related courses may be required in the lower division. Unless otherwise provided, these required lower division courses may not be included in general education.

MAJORS

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

Science

Bacteriology
Botany
Chemistry
Engineering
Laboratory Technique
Life Science
Nursing
Physics
Zoology

Occupational

Health Education
Radio and Television Broadcasting

Business Administration

Accounting
Banking and Finance
Business Education
Business Management
Credit Management
Industrial Management
Insurance
Marketing
Office Management
Secretarial Management

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 predental, prelegal, and premedical programs. Students planning to enter other professional fields, such as agriculture, forestry, optometry, pharmacy, veterinary science, may obtain assistance from faculty advisers in arranging appropriate preprofessional courses of study.

PREDENTAL CURRICULUM

Candidates for a degree in dentistry should ascertain the entrance requirements of the dental college to which they expect to transfer and should make whatever changes in the following typical requirements that may seem desirable in satisfying the requirements of the specific dental college.

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

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, Zoology 1 (31 units); sophomore year, physical education activities, Psychology 1, Chemistry 5A, Physics 2A-2B and 3A-3B, Botany 1, 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 and 106; 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 flexibility in the individual programs. There are two patterns of concentration which will usually be indicated for the prelegal student, either of which may be selected, in consultation with the adviser, to fit best the interests of the student. These are the major-minor pattern and the general major pattern. Subject to individual variation, the fields of economics, history, and political science should receive first consideration when choosing the pattern of concentration as being the most effective background for later professional study in law and for possible activities in the field of business.

RECOMMENDED COURSE OF STUDY FOR PRELEGAL CURRICULUM

Lower division. Business Administration 1A-1B, Economics 1A-1B, Political Science 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 in terms of the field of law in which he plans to work, but keeping in mind the entrance requirements and examinations for admission to schools of law. The recommended list below should receive prime consideration by all prelegal students in the selection of courses, though it is to be thought of as flexible in accordance with student needs.

Recommended. Business Administration 100; Economics 131, 133, 150, 170; History 151A-151B, 175A-175B; Political Science 111A-111B, 139A-139B.

Twelve units of lower division courses in social science may be counted toward the general education requirements in social science.

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 the 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, Zoology 1 or Physics 2A-2B, 3A-3B.

Sophomore year: Chemistry 5A, Physics 2A-2B, 3A-3B or Zoology 1, and foreign language.

Junior year: Chemistry 101A-101B, foreign language to 12 units, Zoology 100 and 106.

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.

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 will describe (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 studies for each of the majors within the special secondary, general secondary, and junior high school credentials will be found in the section of the catalog on Announcement of Courses, under the heading of the department offering the major.

CREDENTIAL PROGRAMS

Programs of study are offered for the following credentials:

The credential	*Subjects and grades for which it is valid*
General Elementary	Kindergarten through grade 8.
Kindergarten-Primary	Kindergarten through grade 3.
Junior High School. A special program is offered in combination with the General Elementary Credential	All subjects in grades 7, 8, and 9 in all elementary or secondary schools.
General Secondary	All subjects in the public schools in grades 7 through 14.
Special Secondary in Art	Art in all grades of the public schools.
Special Secondary in Business Education	Business education subjects in all grades of the public schools.
Special Secondary in Homemaking Education (Approval pending)	Homemaking education subjects in all grades of the public schools.
Special Secondary in Industrial Arts	Industrial arts in all grades of the public schools.
Special Secondary in Music	Music in all grades of the public schools.
Special Secondary in Physical Education	Physical education in all grades of the public schools.
Special Secondary in Speech Arts	Speech in all grades of the public schools.
General Pupil Personnel Services	To serve in the areas of psychology, psychometry, counseling, or child welfare and attendance in all grades of the public schools.
Teaching Exceptional Children (Approval pending)	To teach mentally retarded or speech and aurally handicapped children in all grades of the public schools.

The credential	*Subjects and grades for which it is valid*
Administration in Elementary Education	To serve as superintendent, deputy superintendent, assistant superintendent, principal, vice-principal, and supervisor of instruction in elementary schools.
Supervision in Elementary Education	To supervise instruction in elementary schools.
Administration in Secondary Education	To serve as superintendent, deputy superintendent, assistant superintendent, principal, vice-principal, and supervisor of instruction in secondary schools.
Supervision in Secondary Education	To supervise instruction in secondary schools.
Special Subject Supervision	Supervision in the special subject in all grades.

COMBINATION OF CREDENTIALS

Students who seek more than one teaching credential must complete in full the curriculum for each, with only such exceptions as are indicated in the statement of requirements.

General Elementary and Junior High School Credentials

A combined program leading to the junior high school and general elementary credentials is available. Entering students interested in such a program should request an adviser for the junior high school credential.

A combination of the general elementary credential and the junior high school credential may be secured by completing the requirements for the elementary school credential and the following additional requirements.

(a) A junior high school teaching major plus a teaching minor to be approved by the Coordinator of Secondary Education.
(b) Education 121 in the major field or equivalent elementary education course.
(c) Three units of directed teaching, or equivalent, in a junior high school.
(d) Education 100 or 102.

Junior High School and Special Secondary Credentials

A combination of the junior high school credential and a special secondary credential may be secured by completing the requirements for the special secondary credential and the following additional requirements:

(a) A junior high school teaching minor approved by the Coordinator of Secondary Education.
(b) Education 121 in the junior high school teaching minor.
(c) Three units of student teaching in the junior high school teaching minor.

Credentials for General Elementary and Teaching Exceptional Children

The general elementary credential and the credential for teaching exceptional children in either area of specialization, speech correction and lip reading in the remedial classes, or teaching of the mentally retarded, may be combined by careful scheduling of all requirements for both credentials. It will probably be necessary to attend one or more summer school sessions in order to complete the requirements for the combined credentials within a four-year period.

ADMISSION TO TEACHER EDUCATION

APPLICATION FOR ADMISSION

Students who plan to earn credentials for teaching or other school service should apply for admission to teacher education during either the second semester of the freshman year or the first semester of the sophomore year. Students entering the college at the end of the sophomore year will apply at the beginning of the junior year. Application may be made at a special meeting held each semester. (For date and place of this meeting, refer to the calendar in this catalog.) No courses in education may be taken until admission is granted; any exception to this rule must have the approval of the appropriate admissions committee.

STANDARDS FOR ADMISSION

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

1. A satisfactory score on the college aptitude test taken at the college.
2. Competence in the use of English and satisfactory ability in arithmetic, handwriting, reading and spelling as indicated by scores on fundamentals tests. (See college calendar for dates of these tests which should be taken in the second semester of the freshman year.)
3. Satisfactory scores on the general culture test in the case of candidates for junior high school, special secondary, or general secondary credentials. (See college calendar for dates of this test, which should be taken in the second semester of the sophomore year.)
4. Quality of speech habits and voice control as indicated by the satisfactory completion of a speech test given at the college or satisfactory completion of a course in corrective speech.
5. Results of the college health examination given for teaching credential candidates.
6. Interviews with representatives of the Admissions Committee and with a representative of the department in which the student is a major. The interviewing 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 language usage, and many-sided interests.
7. Satisfactory grade point averages on the first two years or more of a given curriculum or its equivalent and on all subsequent work taken for the credential. Minimum grade point averages are indicated below:
   a. Elementary, kindergarten-primary, special secondary credentials, 2.2.
   b. General secondary credential: all subjects, 2.5, and major field, 2.75.
   c. Junior high school credential, 2.5.
8. For administration, supervision, and general pupil personnel services credential candidates, a satisfactory grade point average (minimum 2.75) on all work applicable to that credential, exclusive of the work applied to the basic credential.
9. For 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 admission to teacher education as soon as they enroll in the college. Transfer students admitted to the college with either upper division or graduate standing must take the necessary 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 calendar for dates.)

TRANSFER STUDENTS WITH PROVISIONAL CREDENTIALS

Teachers with a provisional credential who are teaching and working concurrently toward a regular credential may have a program designed to fit their background. According to present law, teachers on provisional credentials are required to embark upon a program with an accredited institution leading to a degree and/or a credential before the provisional credential can be renewed. Before the renewal can be certified by San Diego State College, the student must be fully matriculated in the college and must complete admission to teacher education. (Refer to the requirements stated above for admission to teacher education.) Also, at the time of renewal, successful teaching experience must be verified. For an evaluation of college credit completed to date, make formal application at the Evaluations Office, Administration Building, San Diego State College. For additional details, see the Coordinator of Elementary Education or the Coordinator of Secondary Education.

ADVANCED STANDING IN TEACHER EDUCATION

A student transferring into San Diego State College with advanced standing must complete a minimum of six units of professional education work in residence at San Diego State College before recommendation for a credential, regardless of extent of education work already completed elsewhere. 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 either at this college or elsewhere must be approved by an official adviser in order to be credited toward meeting credential requirements or pattern requirements for a degree.

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 directed teaching in the kindergarten. These courses may be taken as part of the 124 units required for a general elementary credential.

Major in Elementary Education

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 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, under the heading of the department offering the minor.

- English
- Foreign Languages (French, German, Spanish, Romance languages)
- General Science
- Industrial Arts
- Mathematics
- Physical Education
- Social Science
- Speech Arts (creative or speech correction)

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 and/or kindergarten-primary credential. The normal three-semester sequence in professional education is condensed into two semesters. 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 offered to students with minors in home economics or industrial arts and is recommended 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 approval of the program.

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 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	*Teaching Minors*
English	Home Economics
Foreign Languages (French, Spanish, Romance languages)	Industrial Arts
General Science	or
Mathematics	The special secondary field major when the combination credentials are earned
Social Science	

The program of studies for each of these majors and minors will be found in the section of the catalog on Announcement of Courses, 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: art, business education, homemaking education, industrial arts, music, physical education, and speech arts. The program of studies for each of these majors will be found in the section of the catalog on Announcement of Courses, under the heading of the department offering the major.

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.

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. 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 of 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 year.

Students desiring a major in art, busines 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 these majors, refer to the section of the catalog on Announcement of Courses, under the heading of the department offering the major.

Majors and Minors for the General Secondary Credential

Teaching Majors	*Teaching Minors*
Art	Art
Business Education	Business Education
English	Economics
French	English
Health Education	French
Homemaking Education	Health Education
Industrial Arts	History
Language Arts	Homemaking Education
Life Science and General Science	Industrial Arts
Mathematics	Life Science and General Science
Music	Mathematics
Physical Education (Men)	Music
Physical Education (Women)	Physical Education (Men)
Physical Science and General Science	Physical Education (Women)
Psychology	Physical Science and General Science
Romance Languages	Social Science
Social Science	Spanish
Spanish	Speech Arts
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 Announcement of Courses.

Program Approval Required

Every candidate for the general secondary credential must have a program approved in writing by the departmental representative in the major teaching field and in education as part of admission to the teacher education program.

Any person desiring the general secondary credential should consult with the Coordinator 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 110 (should be taken consecutively). Those persons changing from another vocational objective to education during the senior year may take Education 100 and 110 concurrently by special permission of the Coordinator of Secondary Education, following admission to teacher education and a check of the student's qualifications.

	Units
Health Education 151, Health Education for Teachers	2
Education 100, The Secondary School	4
Education 110, Development and Learning	4

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.

	Units
Education 120, The Teaching Process	4
Education 180 or 316A, Directed Teaching-Secondary (or equivalent)	3
Education 121 (methods in field of student teaching assignment)	2–4

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 Announcement of Courses.

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

	Units
Education 121 (in the field of the second directed teaching assignment) if not taken under (2) above	2
Education 230, Guidance Problems in Secondary Education	3
Education 250, Curricular Problems in Secondary Education	3
Education 316A, Directed Teaching, or equivalent teaching experience	3–6

CREDENTIAL TO TEACH EXCEPTIONAL CHILDREN

A. Speech Correction and Lip Reading in Remedial Classes

B. Teaching of the Mentally Retarded

This credential supercedes special secondary credentials in correction of speech defects and teaching the mentally retarded child. The requirements for the latter two credentials must be completed by September 15, 1957, in order to be valid.

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:

	Units
Education 170, Exceptional Children	3
Education 115 or 230 or Psychology 152, Counseling and Guidance	3
Speech Arts 170, Speech Development	3
Education 182 or 316B, Directed Internship	4
Total	13

b. Area of Specialization:

1. *Speech Correction and Lip Reading in Remedial Classes:*

Speech Arts 116, Field Work in Clinical Practices	4–6
Speech Arts 150, Phonetics	3
Speech Arts 174, Clinical Methods in Speech Correction	3
Speech Arts 176, or Education 176, Advanced Speech Correction	3
Speech Arts 177, or Education 177, The Teaching of Lip Reading	2
Speech Arts 178, or Education 178, Aural Rehabilitation	3
Speech Arts 179, or Education 179, Nervous Speech Disorders	3
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 Personalty (3)
Psychology 150, Abnormal Psychology (3)
Psychology 151, Introduction to Clinical Appraisal (3)

2. *Teaching the mentally retarded:*

	Units
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)	
Psychology 109, Mental Deficiency	3
Electives (a minimum of 3 units to be selected in consultation with adviser	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 his schedule of studies with the education adviser for the credential if he wishes to finish the credential within the four-year undergraduate period. It may be necessary to attend summer school to achieve this.

HEALTH AND DEVELOPMENT CREDENTIAL

Application for the health and development credential should be made directly to the Credentials Office, State Department of Education, Sacramento, California. Students interested in preparing for this credential should consult the Chairman of the Division of Education, San Diego State College.

GENERAL PUPIL PERSONNEL SERVICES CREDENTIAL

This credential became effective on September 15, 1956, and supersedes the school psychometrist and school psychologist credentials.

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 credentialling purposes by the State Board of Education.
2. Verification of two years of successful teaching experience, or 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 psychometry
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 psychometry 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.

CURRICULA LEADING TO CREDENTIALS IN ADMINISTRATION AND SUPERVISION

Courses and field experience are available which lead to credentials in elementary and secondary administration, elementary and secondary supervision and special subject 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 2.75 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.
4. Admission to the program should be completed at any time previous to enrolling in Education 262, 263, 264, or 265.
5. 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.
6. Candidate must have completed a minimum of one full year of successful teaching experience before he may be admitted to courses in the core subjects, Education 262, 263, 264, or 265.
7. Candidate must have completed a minimum of two full years of successful teaching experience before he may be admitted to Education 266 or 267 (Field Experience) or to Education 316B (Internship in School Administration or Supervision).

CURRICULA LEADING TO CREDENTIALS IN ELEMENTARY SCHOOL ADMINISTRATION AND SUPERVISION

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 for the administration credential (24 units for the supervision credential) 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 Department of Education and San Diego State College.
4. Complete a minimum of 15 units of post-graduate 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.

Course Requirements for the Elementary Administration and Elementary Supervision Credentials as Designated by the State Board of Education

A. Courses in undergraduate or graduate training (letters and numbers correspond with State Department Bulletin Credential Regulations):

*1. The scope, functions, and place of the system of public education of elementary and secondary schools; rural and urban schools; vocational education; education for adults; special school programs; auxiliary agencies:
Education 101 — 2 units

2. Principals and practices of curriculum construction and evaluation:
Education 240 or 245 — 3 units

3. Measurement and appraisal of educational achievements and aptitudes:
Education 151 — 3 units

* Courses not required for the Supervision Credential.

4. Pupil personnel, counseling and guidance, including techniques and practices of child study and parent education:
Education 115 or 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 field work of such a nature as to give the applicant first-hand knowledge 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. School finance, business administration, and law:
Education 270 ..... 3 units

3. The organization and administration of elementary schools:
Education 262 ..... 3 units

4. Elementary school supervision:
Education 264 ..... 3 units

5. Field work or internship in school administration or supervision:
Education 266 or 316B ..... 3–6 units

C. Elective courses in general or professional education to complete 30 units (24 for supervision) *after receiving the General Elementary Credential or the A.B. degree.*

CURRICULA LEADING TO CREDENTIALS IN SECONDARY SCHOOL ADMINISTRATION AND SUPERVISION

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

1. Possess a valid general secondary credential.
2. Present written evidence of two years of successful teaching experience on the secondary level.
3. Complete 18 semester units for the administration credential (15 units for the supervision credential) of upper division or graduate work in addition to requirements for the general secondary 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 12 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.

Course Requirements for the Secondary Administration and Secondary Supervision Credentials as Designated by the State Board of Education

A. Courses in undergraduate or graduate training (letters and numbers correspond with State Department Bulletin Credential Regulations):

†1. The scope, functions, and place in the system of public education of elementary and secondary schools; vocational education; education for adults; special school programs; auxiliary agencies:
Education 100, or 101 and 102 ..... 4–5 units

2. Principles and practices of curriculum construction and evaluation:
Education 250 ..... 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 field work of such a nature as to give the applicant first-hand knowledge of problems and issues as they exist in the public schools:

* Courses not required for the Supervision Credential.
† Courses not required for the Secondary Supervision Credential.

*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 field work or internship in administration or supervision:
Education 267 or 316B ..... 3–6 units

C. Elective courses in general or professional education to complete 18 units (15 for supervision) *after receiving the General Secondary Credential.*

SPECIAL SUBJECT SUPERVISION CREDENTIAL

This credential is available for persons who wish to supervise in a special subject area. Those desiring this credential should see the Coordinator of Administrative Studies, in the Division of Education.

NEW SUPERVISION CREDENTIAL

NOTE: A new supervision credential, which will supersede all present credentials for supervision, becomes effective September 15, 1957. However, students working on one of the present supervision credentials have until September 14, 1958, to apply under the old provisions. For details, see the Coordinator of Administrative Studies.

* Courses not required for the Secondary Supervision 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 ..... 45 units
Courses in general education must be distributed as follows:
(a) Social Sciences 9
Shall include required instruction in American history, institutions and ideals; U. S. Constitution; and California state and local government; and courses selected from the fields of anthropology, economics, geography, history, political science, sociology, and similar fields. Courses must be selected from two or more of these fields.
(b) Natural Sciences 9
Shall include the fields of astronomy, botany, chemistry, geology, physics, physiology, zoology, and similar fields. At least one course must be selected from a physical science and one from a life science.
(c) Literature, Philosophy or the Arts 6
Courses in fine and practical arts shall not exceed 3 of these 6 units.
(d) Health and Physical Education 2
(e) Oral and Written Expression 3
(f) Psychology 2
(g) Additional units in General Education 14
May be selected in whole or in part from the foregoing six general areas or may include courses in family life education or mathematics or not more than 6 units in foreign language. At least one course in general education must include instruction in fire prevention.

(2) Teaching background, minimum ..... 15 units
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 4 of the following fields:
(a) Art. Includes subject matter, laboratory or activity in the graphic or industrial arts.

(b) English and Speech. Includes oral and written expression, American or world literature, children's literature, dramatics, or use of books and libraries.
(c) Physical Education, Health, and Hygiene. Includes personal hygiene, first aid, health education, games, rhythms, or physical activities.
(d) Mathematics.
(e) Music.
(f) Social Science, including geography.
(g) Natural Science.

(3) Major ..... 24 units
Shall include courses from each of the following areas:
(a) General elementary school methods or methods of teaching basic elementary school subjects.
(b) Principles of elementary education or elementary school curriculum.
(c) Child psychology or child growth and development.
(d) Other appropriate professional courses in education including instruction in the use and educational value of audio and visual aids.

(4) Credit for Teaching Experience ..... 8 units
A maximum of 8 semester units may be allowed for directed teaching and/or teaching experience on the elementary school level. Credit for teaching experience may be allowed at the rate of 4 units for one year of verified successful teaching experience.

(5) Additional units required ..... 32 units
Courses to complete the 124 units required for the degree shall be selected from those offerings of the college that best serve the cultural and professional needs of the candidate.

Total ..... 124 units

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

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

BACHELOR OF VOCATIONAL EDUCATION DEGREE

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 requirement established in the Education Code of the State of California and who are recommended by the Board of Examiners for Vocational Teachers.

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 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.

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.

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.

ANNOUNCEMENT OF COURSES

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 is carrying sufficient lower division units to complete the required minimum of 60 units may carry upper division units for the remainder of his study load. A 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 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 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 section of the 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 each week for a semester of 18 weeks.

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 first semester

(3) I, II ——— Three units. Offered first semester and second semester

(3-3) Year, I
Three units each semester. Year sequence beginning in the first semester

(3-3) Year, I, II
Three units each semester. Year sequence beginning either semester

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.

PREREQUISITES

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

Admission to all graduate (200 numbered) courses requires regular graduate standing and permission of the instructor.

AESTHETICS

IN THE DIVISION OF FINE ARTS

Major or minor work is not offered in aesthetics; however, certain courses in this field are required as part of the majors in art and in music. For specific information, refer to these departments.

LOWER DIVISION COURSES

***2. Introduction to Music (3) I**

Practical approach to hearing music with understanding and pleasure, through study of representative compositions of various styles and performance media, great musicians and their art. Music correlated with other arts through lectures, recordings, concerts. Closed to music majors or minors. A general education course in literature, philosophy, and the arts.

***5. Art Orientation (2) II**

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.

***50. Appreciation and History of Art (2) I**

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.

***51. Survey of Mexican Art (2) I**

A study of Mexican and Middle American Art from earliest time to present. A general education course in literature, philosophy, and the arts.

***52A-52B. Survey of Oriental Art (3-3) Year, I**

A study of the art of the great cultures of the Orient. (52A is a prerequisite for 52B.) A general education course in literature, philosophy, and the arts.

UPPER DIVISION COURSES

***102. Great Music (3) II**

Instrumental and vocal music in the larger forms studied through directed listening. Artistic trends and their effect upon music composition and performance. No prerequisite, but completion of Aesthetics 2 recommended. Not open for credit to music majors. A general education course in literature, philosophy, and the arts.

***138. Introduction to Aesthetic Appreciation (1) I (Same course as Comparative Literature 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 for Comparative Literature 138. A general education course in literature, philosophy, and the arts.

***150. Appreciation and History of Art (2) II**

The period from the Renaissance through the modern school treated in the same manner as in Aesthetics 50. A general education course in literature, philosophy, and the arts.

160. Techniques and Procedures of the Art Museum Worker (3) I

Designed to acquaint the student with the nature and function of the art museum in the community and to give him experience in the methods by which it serves the public. Prerequisite: Aesthetics 5 or 50 and 150.

AIR SCIENCE

IN THE DIVISION OF AIR SCIENCE

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 basic course and a two-year advanced course.

The objectives of the Air Force ROTC program are the development of qualities of leadership and character essential to civil and military responsibility, and the training of reserve 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 outstanding qualities of scholarship and leadership are considered for regular commissions in the Air Force.

It is planned that flight instruction will be offered to senior students who are physically qualified as a part of the Air Force ROTC program. This training includes 35 hours of instruction in a light airplane leading to Civil Aeronautics Authority private pilot's license. The cost of this program is financed by the U. S. Government. Air Force ROTC graduates who are physically qualified may make application for the Air Force flying training program.

Eligibility for Admission to the Program

Eligibility: A regularly enrolled male student is eligible for admission to the basic course if he is a citizen of the United States, not less than 14 years of age and has not reached his 23d birthday, and is physically qualified for military training. For admission to the advanced course, the student must not have reached his 25th birthday and must have completed the basic course or its equivalent. Students must register for the AFROTC as first semester freshmen to qualify for the full program. Entrance into the advanced course is contingent upon successful completion of the basic course or its equivalent. Federal law prohibits doubling up of any phase of the basic course (four separate semesters are required). If the ROTC was available to the freshman, he cannot get consideration for starting in the program at a later date in his college career. Outstanding transfer students who were enrolled at schools where ROTC was not offered may be allowed to compress the course into three academic years. At the discretion of the Professor of Air Science, up to two years of pattern credit in the basic course may be allowed for prior active service in the armed forces, provided the serviceman has taken, in phase, that portion of the basic course available to him. Normally, a student entering the advanced course must have two years of college work remaining; however, the first semester advanced course may be taken concurrently with the last semester basic course at the discretion of the Professor of Air Science. The applicant must pass required screening tests and be selected by the Professor of Air Science and the President of the College.

Summer Camp

Attendance at one summer camp is required of each student to qualify for the commission. The summer camp is four weeks in length and is held at an active 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 basic and advanced courses are furnished uniforms, equipment, and textbooks for air science. Students in the advanced course are given an allowance of approximately $27 per month. Upon acceptance of this allowance, the student executes a written agreement with the United States Government and with the President of the College to complete the advanced course, completion of such course becoming a prerequisite to graduation.

Basic and Advanced Courses

The basic course requires two hours of classroom instruction and one hour of leadership laboratory per week each semester. The advanced course requires four hours of classroom instruction and one hour of leadership laboratory per week each semester. In addition, each student in the advanced course must attend one summer camp of four weeks. The basic course is primarily an education for citizenship in the air age. The advanced 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 minor is offered. Upon approval, air science may be used as part of the pattern for a general major.

MINOR IN ARTS AND SCIENCES

A minor in air science is offered in arts and sciences. The minor consists of 15 to 22 units in air science, seven units of which must be in courses carrying upper division credit.

LOWER DIVISION COURSES

***1A-1B. First Year Basic Air Science (2-2) Year, I**

Two hours of classroom instruction and one hour of leadership laboratory per week. Introduction to the AFROTC program; moral and statutory obligations for military service; introduction to aviation; fundamentals of global geography; international tensions and security organizations; instruments of national military security; laboratory in basic military training.

21A-21B. Second Year Basic Air Science (2-2) Year, I

Two hours of classroom instruction and one hour of leadership laboratory per week. A course that develops the purpose, processes, and primary elements of aerial warfare; the mission of the Air Force and the media for its accomplishment; career guidance; laboratory in cadet noncommissioned officer training.

UPPER DIVISION COURSES

131A-131B. First Year Advanced (3-3) Year, I

Four hours of classroom instruction and one hour of leadership laboratory per week. A course that introduces command and staff concepts in the Air Force; basic problem solving techniques, fundamental communication processes, and principles of learning and teaching; military courts and boards; elements of applied air science; the Air Force base; leadership laboratory.

133X. First Year Advanced (3) Summer Camp

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.

141A. Second Year Advanced (3) I

Critique of summer camp and introduction to fourth year air science; military aspects of world political geography; military aviation and the evolution of warfare; leadership laboratory. (Not open to students with credit for Geography 150.)

141B. Second Year Advanced (3) II

Career guidance for USAF officers; leadership and management seminar; briefing for commissioned service; leadership laboratory. (Two units of general education credit will be allowed.)

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

Individual study. Six units maximum credit. Prerequisite: permission of instructor.

ANTHROPOLOGY

IN THE DIVISION OF SOCIAL SCIENCES

Major work is not offered in anthropology; however, courses in anthropology may be included as part of a general major or social science major. Students wishing to use anthropology as a field of concentration in the *general major* should include the following courses in the lower division: Anthropology 1A-1B and 2 or 3; Geography 1 and 2, or Geology 1A-1B; Sociology 50, 51; recommended; Spanish, German, or French. The following supplementary fields of study are recommended in the upper division with a view to later specialization in anthropological work: For *archaeology:* art, geography, geology; for *physical anthropology:* psychology, statistics, and zoology; for *museum work:* art, education, and psychology. For further information on the *general major*, refer to the section on the Bachelor of Arts Degree.

MINOR IN ARTS AND SCIENCES

A minor in anthropology is offered in arts and sciences. The minor consists of 15 to 22 units in anthropology, nine units of which must be courses carrying upper division credit.

LOWER DIVISION COURSES

***1A-1B. General Anthropology (3-3) I**

Origin and antiquity of man. Theories of human descent. Classification of races. Origin and early development of civilization. A general education course in social science.

2. Physical Anthropology (3) I

An introduction to the studies of primatology and anthropometry. The comparative anatomy of the monkeys and great apes, the emergence of the anthropoids, the reconstruction of early man from fossil evidence. The landmarks, measures and indices used in the metrical study of the living human body and skeletal material. Sexual differences and growth changes in the skull and skelton. Medico-legal applications.

3. Survey of Archaeology (3) II

A review of the history of modern archeology and a discussion of its methods. The development of archaeological techniques in reconstructing the ancient cultures of the Mediterranean world. The problems of present day archaeology in the Near East, the Orient and the Americas. The principles and basic techniques used in the excavation of sites and the reporting of findings.

***54. Social Anthropology (3) II**

An anthropological study of social institutions in primitive and civilized societies. The evolution of family organization, religion, property right, and government traced in elementary and advanced civilization. A general education course in social science.

UPPER DIVISION COURSES

151A. The North American Indian (3) I

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**

The cultural patterns of representative aboriginal peoples. Industries, arts, social organization and supernaturalism considered with a view to environmental adjustment, historical development and functional interrelation. Ethnological theories reviewed and applied in interpreting illustrative aboriginal societies. A general education course in social science.

153. Primitive Religion (3) II

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

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.

***165. Ethnology and Race Psychology (3) I**

The biological basis of race, somatic and serologic typology, racial mentality, tests and their ethnopsychological significance, abnormality in ethnic groups. Race and culture; ethnic aspects of demography. A general education course in social science.

169-S. Backgrounds of Mexican Civilization (3) Summer

Mexico's archaelogical 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)

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: permission of instructor.

ART

IN THE DIVISION OF FINE ARTS

A major in art is offered with the A.B. degree in arts and sciences and in teacher education. Courses in the major are in addition to 45 units in general education courses. A minor is not required of art majors for the bachelor's degree. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

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 for all majors plus the requirements in the selected field of emphasis.

Basic Requirements for All Majors

All art majors must complete the following courses: Aesthetics 5 or 51, and 50; Art A (or high school equivalent), Art B, 6A-6B, and 14A. 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 shall complete the following courses: Lower division: Art 6D, 7, 61B, and two units of art electives. Upper division: 24 upper division units to include Aesthetics 150, Art 106A or B or C, 106D, 111A, 117A-117B, 119A-119B, and eight units of art electives.

Emphasis on Graphic Arts

In addition to the basic requirements, the student emphasizing graphic arts shall complete the following courses: Lower division: Art 15A, 16A, and four units of art electives. Upper division: 24 upper division units to include Aesthetics 150, Art 106A or B, 112A-112B, 115A-115B, 116A-116B, 117A, and six units of art electives.

MAJORS IN TEACHER EDUCATION

Special Secondary Credential in Art: Students taking this credential must complete a teaching major in art and additional requirements in professional education courses.

Requirements in the major: Lower division: Aesthetics 5 or 51, and 50; Art A (or high school equivalent), Art B, 6A-6B, 14A, 61A-61B; and six to eight units of art electives (24-26 units). Upper division: Aesthetics 150, Art 106A, 112A, 115A, 116A, 119A, 194A, 195A, Speech Arts 140A, and three units of upper division art electives (22 units).

Professional courses in teacher education: 24 upper division units to include Education 100, 110, 120, 180, 130B, 121A, and Health Education 151.

Major for the General Secondary Credential: A teaching major in art is offered for the general secondary credential. Students may complete requirements for this major and the general secondary credential in one of the following ways:

(1) By taking the special secondary credential in art with the A.B. degree; completing requirements in a teaching minor for the general secondary credential; and completing other credential requirements in a postgraduate year, to include four graduate units in Art 200A-200B.

(2) By completing an art major in arts and sciences with the A.B. degree and including in the major or adding to the major, when necessary, the following courses: Art 61A-61B, 106A, 112A, 116A, 119A, 194A, 195A, and Speech Arts 140A; a teaching minor for the general secondary credential; and the credential requirements in a postgraduate year, to include four graduate units in Art 200A-200B.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

MINOR IN ARTS AND SCIENCES

A minor in art is offered in arts and sciences. The minor consists of 15 to 22 units in art, six units of which must be in courses carrying upper division credit.

MINOR IN TEACHER EDUCATION

Minor for the General Secondary Credential: A minor in art is offered in teacher education for the general secondary credential. This minor, which may be used for the bachelor's degree, consists of a minimum of 21 units, exclusive of course equivalents, to include the following courses: Lower division: Aesthetics 50 and 5 or 51, Art A (or high school equivalent), Art B, 6A-6B, and three to five units of art electives (Art 14A is recommended). Upper division: Aesthetics 150 and four upper division units of art electives.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in art. See the section of this catalog on the Graduate Division.

ART APPRECIATION, HISTORY AND ORIENTATION

For courses in appreciation, history of art, and art orientation, see aesthetics. Many students, regardless of the field in which they may be majoring, recognize the need for an intelligent approach to the subject of art and art appreciation. However, due to the 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.

	Units
Aesthetics 5, Art Orientation	2
Aesthetics 50, History and Appreciation of Art	2
Aesthetics 51, Survey of Mexican Art	2
Aesthetics 52A-52B, Survey of Oriental Art	6
Art 8, Costume and Home-furnishing	2

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**

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**

Drawing of mechanical and natural forms by the use of line and value. Emphasis on proportion and structure. Some quick sketching, gesture and contour drawing. A general education course in literature, philosophy, and the arts. Prerequisite: Art A.

***6A. Design (2) I, II**

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

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

***6D. Furniture Design (2) I, II**

Study of the principles of design through the making of furniture. A general education course in literature, philosophy, and the arts. Prerequisite: Art 6A.

7. Line, Color and Display (2) I, II

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**

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

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

A basic craft course approached from the creative viewpoint and employing the techniques, materials and tools appropriate for the elementary grades. Prerequisite: Art 9. Not open to students with credit for Art 61A, 110, or 161A.

14A. Lettering (2) I

Fundamental art principles applied to lettering. Practice for quick, accurate lettering; original problems using letters as design. Prerequisite: Art 6A.

14B. Posters and Commercial Art (2) II

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. Prerequisites: Art 6A, 14A.

15A-15B. Life Drawing (2-2) Year, I, II

Drawing from the nude model. Prerequisite: Art A-B.

***16A. Painting (2) I, II**

Composition of still life in color. Prerequisites: Art A and B, or permission of instructor. A general education course in literature, philosophy, and the arts.

16B. Painting (2) I, II

Landscape and more advanced composition in color.

17A-17B. Sculpture (2-2) I, II

Creative design in such materials as clay, wood, stone, concrete, etc. Prerequisites: Art 6A-6B, or permission of instructor.

61A. Crafts (2) I, II

(Same course as Recreation 61A)

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. Prerequisite: Art 6A. Not open to students with credit in Art 10, 110, 161A, or Recreation 61A.

61B. Crafts (2) I, II

Problems involving the application of design principles to various fields—pottery, textiles, weaving, metal work, wood carving, and bookbinding. Prerequisite: Art 6A.

94A-94B. Costume Design (2-2) Year, I, II

Original designs of modern costumes suitable to the individual or to distinct types; the drawing of fashion figures; the rendering of fabrics and textures. Prerequisite: Art 6A.

95A-95B. Interior Design (See Art 195A-195B)

UPPER DIVISION COURSES

105S. Classroom Display for Teachers (3) Summer

A lecture and workshop course for elementary and secondary teachers in principles and techniques of modern display to meet various subject, classroom, and school requirements. Special attention to individual problems and needs.

106A-106B. Printmaking (2-2) I, II

Study of print crafts which includes the making of wood engravings, etchings, lithographs, and silk screen prints. Prerequisites: Art A, B, 6A.

106C. Illustration (2) II

Same as 106A-B except that printmaking is applied to problems of book illustration. Prerequisites: Art A, B, 6A.

106D. Advanced Furniture Design (2) I, II

(See Art 6D) Prerequisite: Art 6D, or permission of instructor.

107. Color and Design in Merchandise (2) I, II

(Same course as Bus. Adm. 159)

Principles of line, mass, and color applied to the design of manufactured goods, especially consumer goods, and to merchandise display. Shape and color in relation to utility and sale value. Practical problems. Not open to students with credit for Bus. Adm. 159 or Art 7.

110. Advanced Crafts in the Elementary Schools (2) I, II

An advanced design-craft course in which the activities, materials and tools employed are appropriate for the elementary grades. Prerequisite: Art 6A. Not open to students with credit for Art 10, 61A, or 161A.

111A-111B. Industrial Design (2-2) Year, I, II

Design of objects for manufacture with reference to their use, materials, and in accordance with factory practices and machine techniques. Practice in the techniques of presentation, working drawings, renderings in perspective and scale models. Prerequisite: Art 6A-6B, or permission of instructor.

112A. Design and Composition (2) I

Structure in picture making. The controlled use of line, value, color, and texture to organize the effect of depth, movement, volume, etc., in the recognizable image. Oil technique. Prerequisite: Art A-B, 6A-6B.

112B. Design and Composition (2) II

Continuation of Art 112A. Prerequisite: Art 112A, or permission of instructor.

115A-115B. Life Drawing and Painting (2-2) I, II

Drawing and painting from nude and costume models. Prerequisites: Art A-B.

115C-115D. Advanced Life Drawing and Painting (2-2) Year, I, II

Study of human figure in terms of form patterns. Prerequisites: Art 115A-115B.

116A-116B. Advanced Painting (2-2) Year, I, II

Painting in oil from still life, landscape, or models, stressing composition. Prerequisite: Art 16A or 16B.

117A-117B. Advanced Sculpture (2-2) Year, I, II

Creative design in such materials as clay, wood, stone, concrete, etc. Prerequisites: Art 6A-6B and 17A or 17B, or permission of instructor.

119A. Ceramics (2) I

Building of pottery on the basic techniques of coil, slab, mold making, and slip casting. Ceramic sculpture, glazing and kiln operations. Prerequisite: Art 6A.

119B. Ceramics (2) II

Study of glazes and elementary clay technology. Mold making, slip casting with application to individual creative problems. Prerequisite: Art 119A.

120A-120B. Advanced Design (2-2) Year, I, II

Advanced work in pure design, two and three dimensional. Re-examination of color theory and design principles. Prerequisites: Art A-B, 6A-6B.

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

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. Prerequisite: Permission of instructor.

194A-194B. Costume Design (2-2) Year, I, II

For description, see Art 94A-94B. Prerequisite: Art 6A.

195A-195B. Interior Design (2-2) I, II

The consideration of the house as a unit; the arrangement of garden, house, floor plan, and furniture as functional and decorative problems. Prequisites: Art A and 6A; 195A is a prerequisite for 195B.

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

Individual study. Six units maximum credit. Prerequisite: permission of instructor.

GRADUATE COURSES

200A-200B. Special Problems (2-2) I, II

A graduate course in which students may carry out projects in various fields of art under the direction of faculty members who are specialists in the field chosen. Students registering for this course must apply for work within a certain field after discussions with the art faculty.

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.

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

Individual study. Six units maximum credit. Prerequisite: permission of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3) I, II

Guidance in the preparation of a project or thesis for the master's degree.

ASTRONOMY

IN THE DIVISION OF PHYSICAL SCIENCES

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

MINOR IN ARTS AND SCIENCES

A minor in astronomy is offered in arts and sciences. The minor consists of 15 to 22 units in astronomy, nine units of which must be in courses carrying upper division credit.

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 methods by which astronomical knowledge has been gained. A six-inch refractor and an eight-inch reflecting telescope are available for observation. A physical science course in general education in the area of the natural sciences.

***2. Modern Astronomy (3) II**

A study of the stellar system in the light of modern research, especially photographic and spectrographic. Prerequisite: Astronomy 1 or permission of the instructor. A physical science course in general education in the area of the natural sciences.

***9. Practice in Observing. (1) I, II**

A course designed to supplement Astronomy 1. The course will include constellation study, use of astronomical coordinates, and descriptive observations of celestial objects with the telescope. One three-hour evening laboratory period each week. Recommended: Astronomy 1 or concurrent registration in Astronomy 1, or Physical Science 1 or 5. This is a physical science course in general education in the area of the natural sciences. Meets the laboratory requirement in general education.

10. Advanced Observational Astronomy (1) II

A continuation of Astronomy 9. More advanced problems in observing will be taken up such as the determination of latitude by observations of Polaris, transit observations, astronomical photography, etc. One three-hour evening laboratory period each week. Prerequisite: Astronomy 9.

12. Elementary Navigation (3) I

A study of compass corrections, time, line of position, use of celestial coordinates, etc. A few class hours devoted to the use of tables such as H.O. 214 for the solution of astronomical triangle. One laboratory period each week. Astronomy 1 and 9 desirable.

UPPER DIVISION COURSES

103. Astronomical Optics (3) II

Theory and applications of optical instruments used in astronomy. Two lectures and one three-hour laboratory per week. In the laboratory the students are required to complete an approved project in optical instrumentation. Prerequisite: Astronomy 1 and Physics 4C or Physics 2B and 3B.

***105. Historic Development of Astronomy (3) I**

A study of the more important problems and astronomical concepts in the light of their historical development. Particular attention is given to the biography and contributions of the more important astronomers, such as, Galileo, Kepler, Newton, Herschel, Bessel, etc. A physical science course in general education in the area of the natural sciences.

107. Method of Least Squares and Computing Practices (3) I

Fundamental principles with applications in the fields of astronomy, physics, and engineering. Prerequisite: Math 52 or equivalent.

110. Introduction to Study of Variable Stars (3) II

A study will be made of the various types of variable stars, their spectra, periods, methods of observing, etc. In the laboratory the light curve of several typical variables will be observed. Two lectures and one laboratory period each week. Prerequisite: Astronomy 2. Astronomy 9 desirable.

112. Elementary Astrophysics (3) I

A lecture course in the application of physics to astronomy: Much of modern astronomical research is in the field of astrophysics. An occasional laboratory period will be substituted by appointment for the lecture period. Prerequisites: Astronomy 2 or college physics.

113. Surveyor's Course in Practical Astronomy (3) II

The principles of spherical astronomy adapted to the needs of engineering students. Computation and observation. Two lectures and one three-hour laboratory period each week. Prerequisite: Engineering 2 or permission of the instructor. Astronomy 1 and 9 desirable.

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

Individual study. Six units maximum credit. Prerequisites: three units in astronomy and permission of instructor.

BACTERIOLOGY

IN THE DIVISION OF LIFE SCIENCES

A major in bacteriology is offered with the A.B. or B.S. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses, unless otherwise specified. A minor is not required of bacteriology majors for the bachelor's degree.

MAJORS IN ARTS AND SCIENCES

Major with the A.B. degree: Lower division: Bacteriology 1 or 101; Zoology 1 or Biology 3 and 4, or equivalents; Chemistry 1A-1B and 5A; and Biology 15, or equivalent. Recommended: French or German, Mathematics 20 and 21, Physics 2A-2B-3A-3B, and Zoology 8A-8B or 101. Nine units in the natural sciences may be counted in general education. Upper division: 24 upper division units in bacteriology and related fields to include Bacteriology 102, 103, 104, 107, Chemistry 101A, and 115 or equivalent. Recommended: Zoology 128 and 109.

Major with the B.S. degree: Lower division: Bacteriology 1 or 101; Zoology 1 or Biology 3 and 4, or equivalents; Chemistry 1A-1B and 5A; and Biology 15, or equivalent. Recommended: French or German, Mathematics 20 and 21, Physics 2A-2B-3A-3B, and Zoology 8A-8B. Nine units in the natural sciences may be counted in general education. Upper division: 36 upper division units in bacteriology and related fields to include Bacteriology 102, 103, 104, 105, and 107; Zoology 128; Chemistry 101A, and 115 or equivalent.

MINOR IN ARTS AND SCIENCES

A minor in bacteriology is offered in arts and sciences. The minor consists of 15 to 22 units in bacteriology to include Bacteriology 1 or 101, 102, 103, and the remainder of the units to be chosen from Bacteriology 104, 105, 107, and 199. Recommended courses to supplement the minor: Zoology 8A-8B, Chemistry 101A, and 115 or equivalent.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in bacteriology under the major of life science. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

1. General Bacteriology (Microbiology) (4) I

An introduction to bacteriology. Effects of physical and chemical agencies upon bacteria; biochemical activities of bacteria; microscopic examination and cultivation of bacteria; the bacteria of air, water, soil, milk and dairy products, other foods; industrial applications. Introduction to disease-producing bacteria. Two hours of lecture and six hours of laboratory per week. Prerequisite: Chemistry 1A or 2A. (Chemistry 1A-1B for major or minor in bacteriology.)

UPPER DIVISION COURSES

101. General Bacteriology (Microbiology) (4) II

Lectures and laboratory work of Bacteriology 1 with additional work to be prescribed by the instructor. Prerequisite: Chemistry 1A or 2A. (Chemistry 1A-1B for major in bacteriology.)

102. Advanced Bacteriology (4) I

Agents of disease and methods of host resistance. Laboratory experience in diagnosis of bacterial pathogens and antibiotic sensitivity. Concepts of virulence and pathogenicity, considering the host-parasite relationship. Two lectures and six hours of laboratory per week. Prerequisites: Bacteriology 1 or 101. Recommended: Chemistry 101A, biochemistry, and physiology.

103. Fundamentals of Immunology and Serology (4) II

Antigen-antibody reactions, the immunochemistry of protein and nonprotein cell substances, hemo-serology, and theoretical and pathologic aspects of hypersensitivity. Laboratory diagnosis by use of serological techniques. Two lectures and six hours of laboratory per week. Prerequisites: Bacteriology 1 or 101 and Bacteriology 102. Recommended: biochemistry and physiology.

104. Medical Mycology (3) I

A study of the mycotic agents of disease and methods of systematic identification of such agents. Concept of epidemiology, diagnosis, pathology, and host-responses are considered. Two lectures and three hours of laboratory per week. Prerequisites: Bacteriology 1 or 101 and Bacteriology 102.

105. Bacterial Metabolism (2) II

A course to provide a basic knowledge of the principles by which micro-organisms derive energy to support the life processes. Prerequisites: Bacteriology 1 or 101, and 102. Recommended: Chemistry 101A and biochemistry.

107. Virology (2) I

A survey of viruses and Rickettsias as agents of disease. An introduction to virological techniques, and routes of infection with further consideration of concepts of epidemiology, diagnosis, pathology, and host-responses. Prerequisites: Bacteriology 102, or equivalent, or permission of instructor.

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 bacteriology) with grades of A or B; and permission of instructor.

GRADUATE COURSES

200. Seminar (2) II

An intensive study on an advanced level of areas such as medical, industrial, agricultural and general microbiology. May be repeated with new subject matter for additional credit.

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.

296. Directed Field Experience (1-6) I, II

Experience in local laboratories, under supervision. Meets requirements of directed field experience for candidates for the master of science degree. This course or its equivalent required in addition to the 30 units specified for the degree.

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

Individual study. Six units maximum credit. Prerequisite: permission of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3) I, II

Guidance in the preparation of a project or thesis for the master's degree.

BIOLOGY

IN THE DIVISION OF LIFE SCIENCES

Major or minor work in biology is not offered; however, courses in biology are included in the bacteriology, botany, life science, and zoology majors.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in biology under the major of life science. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

***1. The Ideas of Biology (3) I, II**

General concepts of biology with emphasis on the biology of man in relation to modern life. A life science general education course in the area of natural sciences. This course does not meet the laboratory requirement in natural science for general education. Not open to students with credit for Biology 3 or 4, Botany 1, or Zoology 1.

***3. Principles of Biology (3) I, II**

A consideration of basic biological phenomena. Two hours of lecture and three of laboratory each week. A life science general education course meeting the laboratory requirement in natural science for general education. Not open to students with credit for Biology 1, Botany 1, or Zoology 1.

***4. Natural History of Plants and Animals (3) I, II**

An introduction to plants and animals in relation to their environments and to one another, with emphasis on local forms and their habitats. Two hours of lecture and three hours of laboratory per week. A life science general education course meeting the laboratory requirement in natural science for general education. Not open to students with credit for Botany 1 or Zoology 1.

15. Introduction to Quantitative Biology (3) I, II

Methods and experience in defining and solving quantitative problems in biology. Two hours of lecture and three hours of laboratory per week. Prerequisites: Two years of high school algebra, or equivalent, and one semester of college biological science.

UPPER DIVISION COURSES

102. Principles of Taxonomy (2) I

The classification of living organisms. Rules of botanical and zoological nomenclature, type categories, principles, and procedures. Prerequisite: Biology 15.

103. General Cytology (3) I, II

The structure and function of cells and cell inclusions of plants and animals, including the chemical and physical properties of protoplasm and cytological methods. Two hours of lecture and three hours of laboratory per week. Prerequisites: Zoology 1 and Botany 1, or Biology 3 and 4; Chemistry 1A-1B or 2A-2B.

110. Ecology (4) II

Relationships between organisms and the environment; field study in local marine, fresh water, mountain, chaparral, and desert habitats. Two hours of lecture and six hours of laboratory per week. Prerequisites: Zoology 1 and Botany 1, or Biology 3 and 4; Biology 15; and Chemistry 1A-1B or Chemistry 2A-2B.

111. Aquatic Biology (4) I

Biological, chemical and physical consideration of inland waters. Introduction to techniques in fishery biology. Two lectures and two three-hour laboratories per week. Prerequisites: Zoology 1, or Biology 3 and 4; Biology 15; Chemistry 1A-1B or 2A-2B; or permission of instructor.

134. Microtechnique (3) I, II

Introduction to methods of preparation of plant and animal tissues for microscopic study. One hour of lecture and six hours of laboratory per week. Prerequisites: One year of college chemistry and Botany 1, or Zoology 1, or Biology 3.

135. Scientific Illustration (3) I

Preparation of illustrative materials, inked drawings, charts, lettering models, still and movie photography, and photomicrography; field trips. Two lectures and one three-hour laboratory per week.

155. Genetics (4) I, II

Principles of plant and animal genetics, with experiments and demonstrations illustrating the mechanisms of heredity. Two hours of lecture and six hours of laboratory per week. Prerequisites: Botany 1, Zoology 1 or Biology 3 and Biology 15.

158. Conservation of Wildlife (3) II

A survey of plant and animal resources with emphasis on their conservation and intelligent use. Prerequisite: A college course in biology or consent of the instructor.

160. Evolution (2) II

The development of theories of organic evolution. Prerequisites: Botany 1 and Zoology 1, or Biology 3 and 4.

***161. History of Biology (3) I, II**

Lectures and reports tracing biological scientific development, with emphasis on the influence of personalities and trends of the times. Prerequisite: A college course in biological science.

167. Biology for Elementary School Teachers (3) I, II, Summer

A comprehensive approach to the study of living things, including the identification, adaptations, life histories, distribution and value of the more common animals and plants. Two hours of lecture and three hours of laboratory per week; field trips. Prerequisite: A college course in biology and admission to elementary education.

170-S. Contemporary Problems in Biology (1)

A series of six weekly lectures on varied aspects of biology by scientists engaged in research. Reading and reports required of students enrolled for credit. These lectures are open to the public. May be repeated for a total of 3 units.

189. Clinical Laboratory Procedures (4) II

Experience in laboratory procedures in the college health services and science laboratories, with instruction in the appropriate fields of the licensing examinations. One lecture and nine hours of laboratory per week. Prerequisites: Zoology 109, Bacteriology 102, 103, and 104; and Chemistry 114A and 114B, taken concurrently or previously, or consent of the instructor.

198. Methods of Investigation (2) I, II

Individual and original investigations in biology; class reports. One hour of discussion and three hours of laboratory per week. Four units maximum credit. Prerequisites: Junior standing and a major in the Division of Life Sciences.

GRADUATE COURSES

200. Seminar (2) I, II

Seminars are offered in one of the following fields of biology. None of the fields may be repeated for credit.

A. Applied Biology
B. Cellular Biology
C. Ecology
D. Modern Theories of Biology
E. Morphogenesis
F. Speciation

290. Bibliography (1) II

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II

Guidance in the preparation of a project or thesis for the master's degree.

BOTANY

IN THE DIVISION OF LIFE SCIENCES

A major in botany is offered with the A.B. or B.S. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses, unless otherwise specified. A minor is not required of botany majors for the bachelor's degree.

MAJOR IN ARTS AND SCIENCES

Major with the A.B. degree: Lower division: Botany 1 and Zoology 1, or Biology 3 and 4; Biology 15; Chemistry 1A-1B or 2A-2B. Recommended: German, French, or Spanish, Bacteriology 1 or 101, and Geology 1A-1B or 2 and 3. Nine units in the natural sciences may be counted in general education. Upper division: 24 upper division units, at least 18 of which must be in botany and biology, including Botany 101A-101B, 107, and 114; and six units of which may be in related courses in bacteriology, chemistry, geology, and zoology, selected with the approval of the departmental adviser.

Major with the B.S. degree: Lower division: Botany 1 and Zoology 1, or Biology 3 and 4; Biology 15; Chemistry 1A-1B or 2A-2B. Recommended: German, French, or Spanish, Bacteriology 1 or 101, and Geology 1A-1B or 2 and 3. Nine units in the natural sciences may be counted in general education. Upper division: 36 upper division units in botany and related fields, including Botany 101A-101B, 107, 114, and Biology 155. Chemistry 101A and Biology 161 are strongly recommended.

MINOR IN ARTS AND SCIENCES

A minor in botany is offered in arts and sciences. The minor consists of 15 to 22 units in botany, six units of which must be in courses carrying upper division credit.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in botany under the major of life science. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

1. General Botany (5) I, II

Fundamentals of structure, general behavior, and interrelationships of plants. Three hours of lecture and six hours of laboratory per week.

UPPER DIVISION COURSES

101A-101B. Plant Morphology (4-4) Year, I

The first semester covers the development and phylogenetic relationships of the algae, fungi, and bryophytes. The second semester covers the structure, development, and phylogenetic relationships of the vascular plants. Two hours of lecture and six hours of laboratory per week. Prerequisites: Botany 1, or Biology 3 and 4.

104. Plant Anatomy (3) I

The arrangement of structural elements within plant organs, with emphasis on cell and tissue types. Two lectures and one three-hour laboratory per week. Prerequisite: Botany 1.

107. Plant Physiology (4) II

The activities of plants, including food manufacture, absorption, conduction, transpiration, respiration, growth and movement. Two lectures and six hours of laboratory per week. Prerequisites: Botany 1 or permission of instructor, and Chemistry 2A-2B or equivalent.

114. Systematic Botany (4) II

Kinds, relationships, systematic arrangement, and geographical distribution of vascular plants; collection and identification. Two hours of lecture and six hours of laboratory per week. Prerequisites: Botany 1 or equivalent. Biology 102 is recommended.

119-S. Field Botany (4) Summer

Local native vegetation with emphasis on ecological units within floristic areas. Primarily for students not majoring in the Life Science Division. Two units of lecture and two units of laboratory. Prerequisite: A course in college biological science or permission of instructor.

126. Plant Pathology (4) II

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. Two lectures and six hours of laboratory per week. Prerequisites: Botany 1 or equivalent and Botany 101A-101B.

162. Agricultural Botany (2) II

A study of California crop plants, their general identification, cultural methods, and regional distribution. Field trips to be arranged. Prerequisite: Botany 1 or equivalent.

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 permission of instructor.

GRADUATE COURSES

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.

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

Individual study. Six units maximum credit. Prerequisite: permission of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3) I, II

Guidance in the preparation of a project or thesis for the master's degree.

BUSINESS ADMINISTRATION

IN THE DIVISION OF BUSINESS ADMINISTRATION

MAJORS IN BUSINESS ADMINISTRATION

Majors in various areas of the business administration field are offered with the B.S. degree or A.B. degree in arts and sciences and in teacher education. Four departments in the Division of Business Administration offer majors, as follows: **Accounting Department,** offering a major in accounting with the B.S. degree; **Management Department,** offering majors in banking and finance, credit management, business management, industrial management, and insurance with the B.S. degree, and a major in personnel management with the A.B. degree; **Marketing Department,** offering a major in marketing with the B.S. degree; **Business Education Department,** offering majors in business education, office management and secretarial management with the B.S. degree, and a major in business education with the A.B. degree and special secondary credential.

Courses in the arts and sciences majors are in addition to 45 units in general education courses. Requirements for each major are described below under the department offering the major. Students with business administration majors are not required to complete a minor for the bachelor's degree.

MINORS IN BUSINESS ADMINISTRATION

Minors in various areas of the business administration field are offered in arts and sciences to students who have majors in fields other than in business administration. Each minor is described under the department offering the minor.

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, provided that the student is also eligible to enroll in the college. Candidacy will be established by approval of the Coordinator of Industrial Management after the applicant has satisfactorily completed six units of applicable courses. To receive the certificate the candidate must complete a total of 30 units of approved courses with a 2.5 average or better. Credit for any course below the grade of C shall not be counted toward the certificate.

Courses required of all candidates are as follows: Bus. Adm. 80, 104, 134, 135, 136, 139, E-142, 144. Approved electives are as follows: Bus. Adm. 116, 131, 137, 138, 140, E-143, 145, 146, 147, 155, 161, 173; Economics 140, 150, 161.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in business education. The master of science degree is offered with a major in business administration. See the section of this catalog on the Graduate Division.

DEPARTMENT OF ACCOUNTING

Major in Arts and Sciences

Accounting. A major in accounting is offered with the B.S. degree. Lower division: Business Administration 1A-1B, 2, 30A-30B, 80, and Economics 1A-1B. Upper division: A minimum of 36 upper division units to include Business Administration 100, 101, 102, 106, 131 (or Economics 135), 134, 150, Economics 140; and 12 units selected from Business Administration 103, 107, 108, 112, 113, 114, 115, 116, 119, 130A, 131, Economics 135. In addition to 45 units of general education, three upper division elective units outside of business administration or economics are required.

Minor in Arts and Sciences

A minor in accounting is offered in arts and sciences to students who are not business administration majors. The minor consists of 15 to 22 units in accounting, of which Bus. Adm. 1A-1B and 100 must be included. A total of nine units must be in courses carrying upper division credit.

DEPARTMENT OF MANAGEMENT

Majors in Arts and Sciences

Majors in banking and finance, credit management, business management, industrial management, and insurance are offered with the B.S. degree. The major in personnel management is offered with the A.B. degree.

Banking and Finance. Lower division: Business Administration 1A-1B, 2, 30A-30B, 80, and Economics 1A-1B. Upper division: A minimum of 36 upper division units to include Business Administration 100, 131, 133, 134, 150, Economics 135, 140; and 15 units selected from the following: Business Administration 120, 121, 127, 128, 129, 144, 145, Economics 102, 111, 131, 138, 142, 170, 171, 172, 190. In addition to 45 units of general education, three upper division elective units outside of business administration or economics are required.

Credit Management. Lower division: Business Administration 1A-1B, 2, 30A-30B, 80, and Economics 1A-1B. Upper division: A minimum of 36 upper division units to include Business Administration 128, 129, 131 (or Economics 135), 134, 144, 150, Economics 140; and 15 units selected from the following: Business Administration 100, 101, 115, 116, 131, 136, 138, 145, 151, and 173. In addition to 45 units of general education, three upper division elective units outside of business administration or economics are required.

Business Management. Lower division: Business Administration 1A-1B, 2, 30A-30B, 80, and Economics 1A-1B. Upper division: A minimum of 36 upper division units to include Business Administration 100, 131 (or Economics 135), 134, 140, 144, 150, Economics 140; and 15 units selected from the following: Business Administration 120, 121, 127, 128, 130A, 130B, 131, 133, 135, 138, 145, 146, 153, 155, 161, Economics 111, 131, 135, 138, 142, 150, 151, and 170. In addition to 45 units of general education, three upper division elective units outside of business administration or economics are required.

Industrial Management. Lower division: Business Administration 1A-1B, 2, 30A-30B, 80, Engineering 1, 23, and Economics 1A-1B. Upper division: A minimum of 36 upper division units to include Business Administration 102, 131 (or Economics 135), 134, 135, 140, 144, 150, Economics 140; six units selected from the following: Business Administration 136, 137, 138, 139; and six units selected from the following: Business Administration 100, 115, 120, 131, 145, 146, 147, 155, 161, 173, 175, Economics 111, 135, 142, 150, 151, 152, 170, and Psychology 124. In addition to 45 units of general education, three upper division elective units outside of business administration or economics are required.

Insurance. Lower division: Business Administration 1A-1B, 2, 30A-30B, 80, and Economics 1A-1B. Upper division: A minimum of 36 upper division units to include Business Administration 120, 121, 124, 125, 131 (or Economics 135), 134, 150, Economics 140; and 12 units selected from the following: Business Administration 127, 130A, 130B, 131, 133, 144, Economics 111, 131, 135, 138, 142, 170, 171, and 185. In addition to 45 units of general education, three upper division elective units outside of business administration or economics are required.

Personnel Management. This major in personnel management is offered with the A.B. degree. It includes work in three fields: business administration, economics, and psychology. Lower division requirements: Business Administration 1A and 80; Economics 1A-1B; and Psychology 6. Upper division requirements: 36 upper division units consisting of the following courses: Business Administration 134, 144, 145, 146, 147; Economics 150, 151, 152; and Psychology 104A, 105, 121, 152. Four additional upper division units must be completed to meet the minimum 40 upper division units required for the A.B. degree.

Minors in Arts and Sciences

A *minor in arts and sciences* is offered in *banking and finance* to students who are not business administration majors. The minor consists of 15 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 134, and Economics 135.

A *minor in arts and sciences* is offered in *business management* to students who are not business administration majors. The minor consists of 15 to 22 units and 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.

A *minor in arts and sciences* is offered in *credit management* to students who are not business administration majors. To minor in credit management the student must complete 15 to 22 units including Business Administration 1A-1B, 30A-30B, 128, 129, and three additional units of upper division courses approved by an adviser in this field.

A *minor in arts and sciences* is offered in *insurance* to students who are not business administration majors. Students desiring such a 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.

DEPARTMENT OF MARKETING

Major in Arts and Sciences

Marketing. A major in marketing is offered with the B.S. degree. Lower division: Business Administration 1A-1B, 30A-30B, 50, 80, and Economics 1A-1B. Upper division: A minimum of 36 upper division units to include Business Administration 134, 144, 150, 158, 131 (or Economics 135), Economics 140; and 18 units to be selected from the following: Business Administration 100, 120, 128, 145, 146, 151, 152, 153, 155, 156, 157, 159, 160, 161, Economics 170, 171, 190. In addition to 45 units of general education, three upper division elective units outside of business administration or economics are required.

Minor in Arts and Sciences

A *minor in arts and sciences* is offered in *marketing* to students who are not business administration majors. This minor consists of 15-22 units to include Economics 1A-1B, in the lower division, and nine units of courses carrying upper division credit, including Business Administration 150 and six units to be selected with approval of the adviser in marketing.

DEPARTMENT OF BUSINESS EDUCATION

Majors are offered in business education, office management, and secretarial management with the B.S. degree in arts and sciences. A major in business education is also offered with the A.B. degree and special secondary credential in teacher education. A minor is not required for the bachelor's degree; however, students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

Majors in Arts and Scieces

Business Education. This major is primarily for the student planning to take the general secondary credential with business education as the teaching major subject.

Lower Division. Business Administration 1A-1B, 30A-30B, 72 or equivalent, 73, 80, Economics 1A-1B; and the lower division courses in two of the subfields listed below, of which *accounting* or *secretarial* must be one.

Upper Division. A minimum of 36 upper division units to include the following: Bus. Adm. 131 or Economics 135, Bus. Adm. 134, 150, 158, 175, 176, 178, 189, Economics 140; and the upper division courses in the same two subfields which were selected in the lower division:

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

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

Business Management subfield. Business Administration 2 and six upper division units selected in consultation with the adviser in business education.

Merchandising subfield. Business Administration 50, 160, and 181. (Students who plan to meet the requirement 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 Bus. Adm. 152, 153, and 159.)

Office Management. Lower division: Business Administration 1A-1B, 30A-30B, 71 (or equivalent), 73, 80, and Economics 1A-1B. Upper division: A minimum of 36 upper division units to include Bus. Adm. 131 or Economics 135, Bus. Adm. 134, 150, 173, 175, 176, 178, Economics 140; and 15 units to be selected from the following: Bus. Adm. 100, 102, 128, 144, 146, 196, Economics 170, Psychology 121.

Secretarial Management. Lower division: Business Administration 1A-1B, 30A-30B, 72 (or equivalent), 73, 75A-75B (or equivalent), 80, and Economics 1A-1B. Upper division: A minimum of 36 upper division units to include Bus. Adm. 131 or Economics 135, Bus. Adm. 134, 150, 173, 175, 176, 178, 183A-183B, Economics 140; and 9 units to be selected from the following: Bus. Adm. 106, 120, 133, 144, 153, 196.

Majors in Teacher Education

Special Secondary Credential in Business Education: Students taking this credential must complete a teaching major in business education, the additional requirements in professional education courses, and present evidence of experience in the field named in the credential.

The Major

Requirements in the major: Lower division: 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. Upper division: 24 upper division units to include the following: Business Administration 131 or Economics 135, Business Administration 134, 150, 158, 175, 176, 178, 189, and Economics 140.

To complete the credential requirements in the teaching subfields, additional units are required in at least *two* of the following fields of concentration, one of which must be *accounting* or *secretarial:*

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

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

Business Management: Business Administration 2.

Merchandising: Business Administration 50, 160, and 181. (Students who plan to meet the requirement 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 152, 153, and 159.)

Professional Education

Professional courses in teacher education: 24 upper division units to include Education 100, 110, 120, 180, 121U; one of the following: Education 121Q, 121R, or 121S; and Health Education 151.

Work Experience

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

Major for the general secondary credential: A teaching major is offered in business education for the general secondary credential. Students may complete requirements for this major and the general secondary credential in one of the following ways:

(1) By taking the special secondary credential in business education with the A.B. degree; completing requirements in a teaching minor for the general secondary credential; and completing other credential requirements in a postgraduate year, to include five graduate units to be selected from Business Administration 270 and 271.

(2) By completing the business education major in arts and sciences with the B.S. degree, a teaching minor for the general secondary credential, presenting evidence of appropriate work experience (see special secondary credential above), and completing other credential requirements in a postgraduate year, to include five graduate units to be selected from Business Administration 270 and 271.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

Minors in Arts and Sciences

A *minor in arts and sciences* is offered in *business education* 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 courses carrying upper division credit to be selected with approval of the adviser in business education.

A *minor in arts and sciences* is offered in *secretarial management* to students who are not business administration majors. This minor consists of 15-22 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 their equivalent, in the lower division, and 12 units in the upper division to include Business Administration 183A-183B, 175, 176, and 178.

Minor in Teacher Education

Minor for the general secondary credential: A teaching minor in business education is offered in teacher education for the general secondary credential. This minor, which may be used for the A.B. degree, 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

Introduction to the theory, practice, and principles of accounting as they relate to single proprietorship, partnership, and corporate types of business enterprises. Four hours of lecture and laboratory per week. Business Administration 1A is prerequisite for 1B.

2. Mathematics of Finance (3) I, II

Interest and annuities; amortization; sinking funds; valuation of bonds; depreciation; mathematics of building and loan associations. Prerequisites: Two years of algebra in high school, or equivalent.

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

The fundamental principles of business law. Cases showing the actual application of the principles to business transactions. The subjects covered: First semester, to include contracts, sales, agency, personal property; second semester, negotiable instruments, real estate property, wills, partnerships, corporations, and insurance. Business Administration 30A is prerequisite to 30B.

50. Salesmanship (2) I, II

Theoretical and psychological backgrounds of salesmanship; newer concepts of selling; the selling of ideas and services; steps in a sale: Attention, interest, desire, closing; the development of clienteles and of good will; the personal factor in salesmanship.

71. Beginning and Personal-use Typewriting (3) I, II

Fundamentals of typewriting. Development of personal-use skills. Not open to students with credit for high school typewriting.

72. Typewriting (3) I, II

Advanced typewriting. Production work and problem typing. Prerequisite: Business Administration 71 or equivalent.

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

Gregg shorthand theory; dictation and transcription. (75A or equivalent is prerequisite to 75B.)

76. Advanced Shorthand (3) I, II

Development of speed in writing and transcription. Prerequisites: Business Administration 75A-75B or equivalent.

80. Business Writing (3) I, II

Written communications in typical business situations. Prerequisites: English 1 and Business Administration 71 or equivalent.

UPPER DIVISION COURSES

100. Intermediate Accounting (3) I, II

Theories and principles underlying balance sheets of partnerships and corporations. Prerequisites: Business Administration 1A-1B.

101. Advanced Accounting (3) I, II

Problems involved in ventures, consignments, installment sales, estate accounting, consolidations, insurance and foreign exchange. Prerequisite: Business Administration 100.

102. Cost Accounting (3) I, II

Basic theories and practices of materials costing, labor costing, and overhead absorption as applied to process and job order cost systems. Prerequisites: Business Administration 1A-1B.

103. Advanced Cost Accounting (3) II

Theories and practices of job order and process cost systems including standard costs and costs for special managerial decisions. Prerequisites: Business Administration 102.

104. Managerial Cost Accounting (3) I, II

Use of accounting information to solve management problems related to control and planning of manufacturing. Included are basic accounting principles and techniques, cost standards, variance analysis, breakeven charts, budgeting, and cost-volume decisions. Designed primarily for Certificate in Industrial Management. Prerequisite: Business Administration 134.

106. Income Tax Accounting (3) I, II

Theory and procedures in the preparation of federal and California income tax returns for individuals. Prerequisites: Business Administration. 1A-1B.

107. Advanced Income Tax Accounting (3) II

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. Prerequisite: Business Administration 106.

108. Governmental Accounting (3) I

A comparative study of accounting systems used by municipalities, counties, and the State of California; detailed comparisons with commercial practice; procedures in handling budget accounts, appropriations, and encumbrances; subsidiary records; cost records; internal checks; auditing. Prerequisites: Business Administration 100 and 101, or consent of instructor.

112. Auditing (3) I

General principles of auditing; duties, ethics, and responsibilities of the auditor; procedures for verification of financial records used by public accountants and internal auditors; auditor's opinion and report. Prerequisites: Business Administration 100 and 101.

113. Advanced Auditing (3) II

Application of auditing principles in verification of financial statements; types, limitations, contents and review of working papers; preparation of reports; current status and trends in the development of auditing standards and procedures. Prerequisite: Business Administration 112.

114. Accounting Systems (3) II

General principles underlying the design and installation of accounting systems; methods and procedures used in various types of businesses; familiarization with various types of accounting machines presently available. Prerequisites: Business Administration 100, 102.

115. Financial Statements (3) I, II

The construction, composition, analysis and interpretation of accounting reports with particular emphasis on the form, content and phraseology of reports. Prerequisites: Business Administration 100.

116. Internal Auditing and Controllership (3)

The place and functions of the controller and internal auditor in business enterprises; accounting systems and methods related to functions as internal check and audit control of routine transactions. Prerequisite: Business Administration 112.

119. C. P. A. Review (3) I

An intensive review of the accounting principles and procedures covered in the accounting theory and accounting practice sections of the uniform C. P. A. examination prepared by the American Institute of Accountants. Prerequisites: Business Administration 100, 101, 102, 103, 106, 107, 108, 112, 113.

120. General Insurance (3) I, II

History of insurance; economic and social implications; principles of insurance contracts; theory of risk; law of large numbers. Survey of all major insurance fields and policies including life, fire, marine, inland marine, casualty and surety bonding.

121. Property and Casualty Insurance (3) I, II

All standard forms of insurance except life; includes automobile, liability, workmen's compensation and disability, fire, marine, and inland marine. Legal interpretation of contract coverages; underwriting problems, marketing of insurance, government supervision and control. Prerequisites: Business Administration 120, 30A-30B.

E-123A—E-123B. C. P. C. U. Preparation (3-3) Extension

Preparation for Chartered Property and Casualty Underwriter examination. Content to be selected by instructor from: Parts I and II—Insurance Principles and Practices; Part III—General Education; Part IV—Law; Part V—Accounting, Finance and Agency Management.

124. Life Insurance Principles and Practices (3) I, II

Economic and social aspects of life insurance; nature of life insurance and annuity contracts; basic legal principles; theory of probabilities, premiums, reserves, and nonforfeiture values; company operational activities; agency development and management.

125. Life Insurance Underwriting (3) I, II

Programing fundamentals with emphasis upon economic, actuarial, and legal principles, program coordination and integration with wills; guardianships; estate planning fundamentals; taxation; business life insurance. Analysis of life insurance selling as a career. Prerequisite: Business Administration 124.

E-126A—E-126B. C. L. U. Preparation (3-3) Extension

Preparation for Chartered Life Underwriter examination. Content to be selected by instructor from: Part A—Life Insurance Fundamentals; Part B—General Education; Part C—Law, Trusts, and Taxes; Part D—Finance; Part E—Life Underwriting.

127. Real Estate Principles and Practices (3) II

(Same course as Economics 139)

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 for Economics 139.

128. Credits and Collections (3) I, II

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. Prerequisites: Business Administration 1A-1B and 30A-30B.

129. Credit Management (3) II

Problems involved in credit and financial management, including methods of developing credit policies, organizing a credit department or institution, supervising and coordinating the work of subordinates in the credit field. Prerequisite: Business Administration 128 and senior standing.

130A-130B. Advanced Business Law (3-3) I, II

Principles and rules of law. First semester includes contractual relationships, obligations, and trade regulation. Second semester includes acquisition and disposition of property, both real and personal. Either semester may be taken first.

131. Corporation Finance (3) I (Same course as Economics 133)

The corporate form of organization, instruments of long-time finance, methods of raising capital, efficient financial management, the financing of reorganizations, and governmental control. Not open to students who have credit for Economics 133.

133. Investments (3) I, II

Investment principles and practices with emphasis upon problems of the small investor, such as tests of a good investment, sources of information, types of stocks and bonds, mechanics of purchase and sale, investment trusts, real estate mortgages, and the like.

134. Business and Industrial Management (3) I, II

Principles and practices of business management as applied to industrial organization and operation; emphasis upon efficient utilization and control of resources. Prerequisites: Economics 1A-1B.

135. Production Planning and Control (3) I, II

(Same course as Engineering 173)

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 Engineering 173. Prerequisite: Business Administration 134.

136. Motion and Time Study (3) I, II (Same course as Engineering 176)

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 for Engineering 176. Prerequisite: Business Administration 134.

137. Plant Layout and Materials Handling (3) II

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. Prerequisite: Business Administration 135.

138. Industrial Purchasing (3) I

Policies for purchasing raw materials, fabricated parts, supplies, machinery and industrial equipment; procedures and records control; quantity and price considerations; bid analysis and award procedure; follow-up; vendor relations; legal problems; quality control; receiving and inspection; inventory control. Prerequisite: Business Administration 134.

139. Quality Control (3) (Same course as Engineering 177 and Mathematics 177)

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 for Engineering 177 or Mathematics 177. Prerequisites: Bus. Adm. 134, 135, or equivalents, and either Economics 140 or Mathematics 12.

140. Organization and Management Theory (3)

Administrative principles and their application to the objectives, organization, planning, policies, and controls of a business. Prerequisites: Senior standing, business Administration 134 and 144.

E-142. Manufacturing and Tooling Administration (3) Extension

(Same course as Engineering E-179)

Production breakdown and relationship to manufacturing plan and tooling policy; planning, processing, and control required to activate program into production. Relationship of design engineering, tool project engineering, and tool manufacturing to production. Not open to students with credit for Engineering E-179. Prerequisite: Business Administration 135 or permission of instructor.

E-143. Systems and Procedure Analysis (3) Extension

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. Prerequisites: Business Administration 80, 100, and 134.

144. Personnel Management (3) I, II

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; union relationships; stimulation of interest. Prerequisite: Business Administration 134.

145. Human Relations in Management (3) I, II

(Same course as Political Science 145)

Human factors in supervision and management. Problems of incentives, attitudes, communication, and other personal relations between employee and employer. Effectiveness of various types of leadership. Discipline and grievances. Not open to students with credit for Political Science 145. Prerequisite: Business Administration 144.

146. Wage and Salary Administration (3) I

(Same course as Political Science 146)

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 Political Science 146. Prerequisite: Business Administration 144.

147. Supervisory Staff and Employee Training (3) II

(Same course as Political Science 155)

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 Political Science 155. Prerequisite: Business Administration 144 or permission of instructor.

150. Marketing Principles (3) I, II

Study of marketing functions; activities of producers, wholesalers, retailers and other middlemen; channels of distribution; integration of marketing activities; price policies; government regulation. Prerequisites: Economics 1A-1B.

151. Marketing Problems (3) II

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. Prerequisite: Business Administration 150.

152. Retailing Principles (3) I, II

Study of retail stores, emphasizing the problems of store managers and merchandising executives; store location, organization, personnel, sales promotion, buying and handling of merchandise, inventory, turnover, and control methods. Problems of profitable operation under changing conditions. Prerequisite: Business Administration 150.

153. Advertising Principles (3) I, II

Advertising as a sales promotional tool in marketing activities; consumer, market and product analysis; advertising media; preparation of advertisements; measurement of advertising effectiveness; economic and legal aspects of advertising; public relations; advertising campaigns. Not open to students with credit for a lower division course in advertising. Prerequisite: Business Administration 150.

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 institutions and industry; case studies of public relations problems. Not open to students with credit for Journalism 180.

156. Radio and Television Station Management and Advertising (3) I

(Same course as Speech Arts 181)

Administative and commercial methods of radio and television station operation. Advertising trends in broadcasting; audience and program measurement; publicity and promotion; traffic. Prerequisites: Speech Arts 81A and 81B, or equivalent, and permission of the instructor. Not open to students with credit for Speech Arts 181.

157. Market Research (3) II

The solution of business problems by formal research techniques. The procedures of research are developed by considering actual business problems such as determining marketing potential, brand preferences, and sales forecasts. Prerequisites: Bus. Adm. 150, Economics 140.

***158. Consumer Income Management (3) I, II**

Functions and responsibilities of consumers; problems of choice-making; planning expenditures for housing, household operation, insurance and investments. Economics of installment buying, borrowing procedures, control of frauds, legislation affecting consumers. A general education course in family life education.

159. Color and Design in Merchandise (2) I, II

(Same course as Art 107)

Principles of line, mass, and color applied to the design of manufactured goods, especially consumer goods, and to merchandise display. Shape and color in relation to utility and sale value. Practical problems. Not open to students with credit for Art 7 or 107.

160. Merchandise Analysis (3) I (Same course as Home Economics 160)

Characteristics, merits, limitations, care, and selling points of the more important textile and nontextile products. Stress on manufacturing processes as they affect consumer demands. Not open to home economics majors. Not open to students with credit for Home Economics 160.

161. Traffic Management (3) II

Organization and functions of a traffic department, routing policy on shipments, freight rates and classifications, receiving and shipping, loss and damage claims, warehousing, packing and loading, documentation, export and import shipments, government regulations.

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

Refer to the Honors Program.

173. Office Management (3) I, II

Functions, facilities, techniques, organization and personnel relationship of the business office.

175. Office Systems (3) I, II

Principles and techniques used in formulating and installing modern office systems, including the interrelating functions of business machines, particularly as these relate to integrated and electronic data processing.

176. Office Machines Methods (2) I, II

Methods and theories of voice-writing, addressing, and duplicating machine operation as applied to office procedures.

178. Records Management (1) I, II

Systems of preparing, keeping, storing and disposing of office records, including the use of equipment and supplies.

180. Workshop in Business Education (2) Summer

Developments in business education areas such as (A) bookkeeping, (B) distributive and basic business education, (C) secretarial, and (D) typewriting. Opportunity provided for work on individual problems. May be repeated with new subject matter to a total of eight units.

181. Administration and Supervision of Distributive Education (3) II

Objectives, duties, qualifications, and problems of supervisors and coordinators in organizing and administering distributive education programs.

183A-183B. Executive Secretarial Procedures (3-3) I

Analysis of and practice in the executive secretarial procedures in modern offices; includes review for the *Certified Professional Secretary* examination. Prerequisites: Business Administration 72 and 75B or their equivalents.

189. Objectives and Curricula in Business Education (3) I

Scope, function, and curricula of business education in the secondary schools.

196. Work Experience (2) I, II

Supervised work in cooperating business firms; relationship between theory and practice in specific business conditions. Prerequisite: Permission of instructor.

198A-198B. Investigation and Report (1 to 3 each semester) I, II

A comprehensive and an original study of a problem connected with business under the direction of one or more members of the business staff. Prerequisites: Senior standing and permission of the instructor. 198A is a prerequisite for 198B.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

200. Seminar in Accounting Theory (3)

205. Advanced Problem Analysis (Accounting) (2)

The study of conditions causing various accounting problems with special emphasis upon the theory and practices involved in their solution. Prerequisites: Business Administration 100, 101, 102, 112.

220. Seminar in Management (3) I, II

An intensive study of some phase of management such as
(a) Industrial Organization and Management
(b) Personnel Management
(c) Finance
(d) Insurance

May be repeated with new subject matter for additional credit.

250. Seminar in Marketing (3)

270. Seminar in Business Education (3) I, II

An intensive study of some phase of business education, such as administration and supervision; distributive and basic business education; trends in and methods of teaching shorthand and typewriting. May be repeated with new subject matter. Maximum of six units may be applied for the master's degree program.

271. Seminar in Office Management (2)

An intensive study of the problems of office management and their solution. The relation of records, reports, budgets and manuals to managerial control. Prerequisites: Business Administration 1A-1B, 173.

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 field will be assigned to cooperating businesses in the community for work under joint supervision of the supervisor for the business and the course instructor. Required in addition to the 30 units required for the master of science degree, when previous experience is lacking or not acceptable.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

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

MAJORS

Arts and sciences: A major in chemistry is offered with the A.B. or B.S. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses, except that nine units in chemistry, physics, and mathematics may be counted in general education. A minor is required of chemistry majors for the A.B. degree. A minor is not required for the B.S. degree. Curricula outlines for the various chemistry majors are given below.

Teacher education: A teaching major in physical science and general science, with chemistry as the basic major, is offered for the general secondary credential. The major for this credential is described below. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

MINOR IN ARTS AND SCIENCES

A minor in chemistry is offered in arts and sciences. The minor consists of 15 to 22 units in chemistry, six units of which must be in courses carrying upper division credit. Chemistry 1A-1B or its equivalent must be included in the minor.

THE MASTER'S DEGREE

The master of arts degree for teaching service and the master of science degree are offered with a major in chemistry. See the section of this catalog on the Graduate Division.

CURRICULA FOR CHEMISTRY MAJORS IN ARTS AND SCIENCES

Bachelor of Science Degree in Chemistry. 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 and provides the training required by most universities for admission to graduate work in chemistry. This department is on the approved list of the American Chemical Society. The degree may be obtained without the certificate of the American Chemical Society by proper substitution of courses for the German requirement. A minor is not required of students taking the B.S. degree.

B.S. Degree and Certificate of the American Chemical Society

First year	*Units 1st Sem.*	*2d Sem.*
Chemistry 1A-1B	5	5
Physics 4A	–	4
Mathematics 50, 51	5	4
*Health Education 21	2	–
*Biology 1 or 3	–	3
*English 1	3	–
*P. E. activity	½	½
	15½	16½

Second year	*Units 1st Sem.*	*2d Sem.*
Chemistry 5A-5B	4	4
Physics 4B-4C	4	4
Math 52	4	–
†*German 1, 2	3	3
*Speech Arts 3	2	–
*Psychology 1	–	3
*Social Science	–	3
*P. E. activity	½	½
	17½	17½

Third year	*1st Sem.*	*2d Sem.*
Chemistry 101A-101B	4	4
Chemistry 102A-102B	1	1
Chemistry 110A-110B	3	3
†German 8A-8B	3	3
*Social Science	3	3
*Lit., Phil., and Arts	3	–
	17	14

Fourth year	*1st Sem.*	*2d Sem.*
Chemistry 111	–	3
‡Advanced Chemistry	9	8
*Lit., Phil., and Arts	3	–
Electives	3	4
	15	15

* General education courses (nine units of chemistry, physics, and mathematics may be applied toward general education requirements).
† The B.S. degree may be obtained without the Certificate of the American Chemical Society by substituting for the German courses, six units of general education courses and six units of electives.
‡ Must 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.

Bachelor of Arts Degree in Chemistry. Two programs are outlined below for the A.B. degree in chemistry. **Plan A** is offered for students who wish to take the A.B. degree and at the same time meet the recommendations of the American Chemical Society and the requirements of most universities for admission to graduate work in chemistry. The degree may be obtained without the certificate of the American Chemical Society by proper substitution of courses for the German requirement. **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 in preparation for training in a related profession. By proper choice of electives, graduates can meet the requirements for admission to medical schools. The sequence of courses listed under Plan B represents the minimum technical requirement for an A.B. degree with a major in chemistry. A minor is required of chemistry majors taking the A.B. degree.

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

First year	Units 1st Sem.	Units 2d Sem.
Chemistry 1A-1B	5	5
Physics 4A	–	4
Math 50, 51	5	4
*Health Education 21	2	–
*Biology 1 or 3	–	3
*English 1	3	–
*P. E. activity	½	½
	15½	16½

Second year	Units 1st Sem.	Units 2d Sem.
Chemistry 5A-5B	4	4
Physics 4B-4C	4	4
Mathematics 52	4	–
†*German 1, 2	3	3
*Speech Arts 3	2	–
*Psychology 1	–	3
*Social Science	–	3
*P. E. activity	½	½
	17½	17½

Third year	1st Sem.	2d Sem.
Chemistry 101A-101B	4	4
Chemistry 102A-102B	1	1
Chemistry 110A-110B	3	3
†German 8A-8B	3	3
*Social Science	3	3
*Lit., Phil., and Arts	3	–
	17	14

Fourth year	1st Sem.	2d Sem.
Chemistry 111	–	3
‡Chemistry electives	2	3
Minor (U. D.)	3	3
*Lit., Phil., and Arts	3	–
Electives	5	4
	13	13

* General education courses (nine units of chemistry, physics, and mathematics may be applied toward general education requirements).
† The A.B. degree may be obtained without the Certificate of the American Chemical Society by substituting for the German courses, six units of general education courses and six units of electives.
‡ Must include four units lecture and one unit laboratory from courses requiring three full year courses in chemistry as prerequisites.

Plan B: The A.B. Degree for Related Professions

First year	Units 1st Sem.	Units 2d Sem.
Chemistry 1A-1B	5	5
*Physics 2A-2B	3	3
*Physics 3A-3B	1	1
*Mathematics 21, 22	3	3
*English 1	3	–
*Psychology 1	–	3
*P. E. activity	½	½
	15½	15½

Second year	Units 1st Sem.	Units 2d Sem.
Chemistry 5A-5B	4	4
†*French or German	3	3
*Speech Arts 3	2	–
*Health Education 21	–	2
*Biology 1 or 3	3	–
*Lit., Phil., and Arts	–	3
Elective	3	3
*P. E. activity	½	½
	15½	15½

Third year	Units 1st Sem.	Units 2d Sem.
Chemistry 101A-101B	4	4
Chemistry 102A-102B	1	1
Chemistry 110A-110B	3	3
*Social Science	3	3
*Lit., Phil., and Arts	3	–
*Elective	3	3
	17	14

Fourth year	Units 1st Sem.	Units 2d Sem.
Chemistry 111	–	3
‡Chemistry electives	3	2
*Social Science	3	–
Minor	3	3
Electives	7	7
	16	15

* General education courses.
† Six units of general education courses may be substituted for the French or German.
‡ May not include Chemistry 105.

MAJOR IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in physical science and general science is offered for the general secondary credential. Requirements for this teaching major may be met by completing the A.B. or B.S. degree in arts and sciences with a major in chemistry or physics, or the A.B. degree with a major in physical science, and in addition to the major, the following lower division courses: Astronomy 1, Biology 3 and 4, and Geology 2 or 1A. (These courses may be counted in general education.)

Recommended lower division electives: Astronomy 9, Geography 3, Geology 3, Industrial Arts 5, 6, 85. Recommended upper division electves, if not included as part of the major: Botany 119-S, Chemistry 101A, Physics 101, 120, Zoology 119-S, and Geography 153.

Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in physical science and general science, a teaching minor for the credential, and the credential requirements in a postgraduate year, to include four graduate units selected from Chemistry 200 (2-4 units) and Physics 200 (2-4 units).

Refer to the section of the catalog on Professional Curricula in Teacher Education for a descripton of requirements in the postgraduate year.

LOWER DIVISION COURSES

1A-1B. General Chemistry (5-5) Year, I, II

General principles of chemistry with emphasis on inorganic materials. Three lectures and two three-hour laboratory periods per week. Qualitative analysis is included in the second semester. Prerequisites: Elementary algebra and plane geometry. Recommended: High school chemistry, physics, and additional mathematics.

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

A general course including inorganic, organic, and biological chemistry for students not intending to take further work in chemistry. Two lectures and one three-hour laboratory period per week. A physical science course in general education meeting the laboratory requirement in natural science. Not open to students with credit for Chemistry 1A-1B.

5A. Elementary Quantitative Analysis (4) I, II

Theoretical consideration of the principles of gravimetric and volumetric analysis. Practice in standardizing reagents and analyzing samples. Two lectures, and two three-hour laboratory periods per week. Prerequisite: Chemistry 1A-1B, and facility in the use of logarithms and slide rule.

5B. Quantitative Analysis (4) II

Further work in the theory and practice of volumetric and gravimetric analyses and the study of electro analytical methods. Two lectures and two three-hour laboratory periods per week. Prerequisite: Chemistry 5A.

UPPER DIVISION COURSES

101A-101B. Organic Chemistry (4-4) Year, I

The first semester lecture stresses aliphatic compounds and includes an introduction to aromatic compounds. The second semester stresses the aromatics, continues with more complex aliphatics and introduces mechanisms of organic reactions. Three lectures and one three-hour laboratory period per week. Prerequisites: Chemistry 1A-1B.

102A-102B. Organic Chemistry Laboratory (1-1) Year, I

Synthesis of typical aliphatic and aromatic compounds. Study of the theory and practice of laboratory operations. One three-hour laboratory period per week. Open only to students enrolled concurrently in Chemistry 101A-101B.

105. Avanced Quantitative Analysis (4) II

Advanced work in the theory and practice of volumetric, gravimetric, and electro-analysis. Two lectures and two three-hour laboratory periods per week. Prerequisite: Chemistry 5A. Not open to students with credit for Chemistry 5B.

110A-110B. Physical Chemistry (3-3) Year, I

Theoretical principles of chemistry with emphasis on mathematical relations. Three lectures per week, problems and reports. Prerequisites: Physics 2A-2B, or equivalent; Math. 52, or equivalent; Chemistry 5A-5B.

111. Physical Chemistry Laboratory (3) II

Physico-chemical apparatus and measurements, with emphasis on technical report writing. Discussion period and three three-hour laboratory periods per week. Prerequisite: Chemistry 110B, or concurrent registration with permission of the instructor.

114A-114B. Clinical Biochemistry (4-4) Year, II

Principles of biochemistry and analytical methods applied to blood, urine, and other body fluids. This course cannot apply to the major in chemistry. Two lectures and two three-hour laboratories per week. Prerequisites: Chemistry 5A, 101A.

115. General Biochemistry (4) I

The chemistry and metabolism of carbohydrates, fats, and proteins. Three lectures and one three-hour laboratory period per week. Prerequisites: Chemistry 5A-5B, 101A-101B, or permission of instructor.

118. Colloid Chemistry (2) II (Offered 1958-59 and alternate years)

The theoretical principles of colloid chemistry and the preparation, properties and practical applications of colloids. Two lectures per week. Prerequisites: Chemistry 101A, 110A and 110B.

122. Glass Blowing (1) I (Offered 1957-58 and alternate years)

Elementary training in the manipulation of glass. Prerequisite: Chemistry 1A-1B. One three-hour laboratory period per week.

127. Advanced Inorganic Chemistry (3) II

(Offered 1957-58 and alternate years)

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. Three lectures per week. Prerequisites: Three years of chemistry.

130. Chemistry for Elementary Teachers (3) Summer

Practical chemistry designed to develop an understanding of basic concepts, methods and materials of chemistry used in the elementary school. Lectures, demonstrations, and field trips. Not open to students with previous credit in chemistry. No prerequisites.

144A-144B. Principles of Chemical Engineering (3-3) Year, I

(Not offered in 1957-58)

Industrial stoichiometry, flow of fluids, heat transfer, unit processes and types of industrial equipment. Three lectures per week, problems and reports, prerequisite: Credit or registration in Chemistry 110A-110B.

154. Organic Qualitative Analysis (3) I (Offered 1957-58 and alternate years)

A systematic study of the identification of organic compounds and mixtures. One lecture and two three-hour laboratory periods per week. Prerequisites: Chemistry 5B or 105, 101B.

155. Instrumental Methods of Analysis (3) I

(Offered 1958-59 and alternate years)

Theory and practice of modern methods of instrumental analysis, including use of pH meters, colorimeters, spectro-photometers, and other analytical devices. Discussions, reports, field trips, special individual projects. One lecture and two three-hour laboratory periods per week. Prerequisites: Three year-courses in chemistry.

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: open only to students who have shown ability to do A or B work in chemistry; permission 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.

210A-210B. Mathematics of Chemistry and Physics (3-3) I, II

(Same course as Mathematics 210A-210B or Physics 210A-210B)

An introduction to the mathematical processes which form a basis for advanced work in one of the physical sciences. First semester: selected topics introducing the student to the mathematical approach in the solution of scientific problems. Second semester: applications of mathematical principles to specific problems in chemistry and physics. Prerequisites: Graduate standing and acceptance into master of science degree program.

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: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II

Guidance in the preparation of a project or thesis for the master's degree.

COMPARATIVE LITERATURE

IN THE DIVISION OF 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 in arts and sciences. For specific information, refer to English.

MINOR IN ARTS AND SCIENCES

A *minor in arts and sciences* is offered in *comparative literature*. The minor consists of 15 to 22 units in comparative literature, nine units of which must be in courses carrying upper division credit.

LOWER DIVISION COURSES

***52A-52B. Masterpieces of World Literature (3-3) Year, I**

(Same course as English 52A-52B)

A chronological survey from Homer to modern times. The first semester stresses the classical epic and tragedy. The second semester stresses more recent literature, including prose fiction, the drama, and the essay. 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) Year, I**

(Same course as English 101A-101B)

Selected novels and short stories of continental Europe from Tolstoy's time to the present. First semester, Russian and Scandinavian works; second semester, French, German, and Italian works. A general education course in literature, philosophy, and the arts.

***104A-104B. Spanish-American Literature (3-3) I**

For a description of this course, see Spanish 104A-104B, which may be taken for credit in Comparative Literature by doing the required reading in English translation. 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.

***138. Introduction to Aesthetic Appreciation (1) I**

(Same course as Aesthetics 138)

Major forms of expressions and aesthetic experience in art, music and literature, presented by an interdepartmental staff through lectures, demonstration, and panel discussions. A general education course in literature, philosophy, and the arts. Not open to students with credit for Aesthetics 138.

***140A-140B. Masterpieces of French Literature (3-3) Year, I**

A cultural course designed to be given in introduction to the great French works from the Song of Roland through Cyrano de Bergerac, with emphasis on the sixteenth, seventeenth, eighteenth and nineteenth century authors. The contributions to world thinking of Rabelais, Montaigne, Moliere, Racine, Descartes, Pascal, Montesquieu, Voltaire, Rousseau, Hugo, Balzac, Flaubert, Maupassant, Zola, will be studied through lectures and outside readings. 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 (3-3) Year, I** (Same course as English 152A-152B)

Study of selected tragedies and comedies from Asiatic, European, English, and American literature, with emphasis upon the human problems depicted therein and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings. 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: Permission of instructor.

ECONOMICS

IN THE DIVISION OF SOCIAL SCIENCES

A major in economics is offered with the A.B. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses. Economics majors are required to complete a minor for the bachelor's degree.

MAJOR IN ARTS AND SCIENCES

Lower division: Economics 1A-1B and Business Administration 1A-1B.

Upper division: Twenty-four 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 departmental adviser.

MINOR IN ARTS AND SCIENCES

A minor in economics is offered in arts and sciences. The minor consists of 15 to 22 units in economics, nine units of which must be in courses carrying upper division credit.

MINOR IN TEACHER EDUCATION

Minor 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, in the lower division, 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).

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in economics under the major of social science. See the section of the catalog on the Graduate Division.

LOWER DIVISION COURSES

***1A-1B. Principles of Economics (3-3) Year, I, II**

The basic principles of economics: Business organization and production; money, credit and banking, depression problems; prices, competition, and monopoly; income distribution; public finance; international trade; economic systems. Aims of course: Foundation for further study, business pursuits, and intelligent economic citizenship. A general education course in social science. Prerequisite: 1A prerequisite for 1B.

UPPER DIVISION COURSES

100A. Intermediate Economic Theory (3) I

Economic theory with special reference to the theory of the firm and the industry; value and distribution. Prerequisite: Economics 1A-1B.

100B. Intermediate Economic Theory (3) II

Economic theory with special reference to national income analysis and the theory of investment. Prerequisite: Economics 1A-1B.

***102. Comparative Economic Systems (3) II**

The economic aspects of laissez-faire and regulated capitalism, cooperatives, socialism, communism, nazism, fascism. Experience in Russia, Germany, United States, Great Britain. Criteria for evaluating economic systems. The individual and government in each system. Planning in a liberal capitalistic society. A general education course in social science.

105. Economics of Consumption (3) I

An analysis of the determination of consumer demands, the relationship of the consumer to the price system, the effects of consumption and saving upon income and employment, the effects of monopoly and advertising upon consumers' welfare.

110. Economic History of Europe (3) I

A general survey of economic development from the Middle Ages to the present. Particular attention is given to the impact of the Industrial Revolution on national economics, especially on England's commerce and industry.

***111. Economic History of the United States (3) II**

A comprehensive survey of American economic development and of national legislation in the field of industry and commerce. A general education course in social science.

127. Agricultural Economics (3) II

Major problems of finance, markets, conservation, overproduction, economic institutions and governmental policy, in relation to agriculture. Emphasis on regional problems.

***131. Public Finance (3) II**

Principles and practices of taxation and public expenditures. Economic effects of public spending, debts and taxation. Financing social security and other services. Fiscal policy and prosperity. Relation to inflation and deflation. Special emphasis on social problems involved. A general education course in social science.

133. Corporation Finance (3) I, II
(Same course as Business Administration 131)

The corporate form of organization; instruments of long-time finance; methods of raising capital, efficient financial management, financing of organizations, and government control. Not open to students with credit for Business Administration 131.

135. Money and Banking (3) I, II

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

Analysis of major influences affecting city location and growth; role of private and governmental institutions in influencing residential and other uses of land; major considerations in appraising, managing, financing, marketing, developing and taxation of urban property. Discussion of San Diego problems.

139. Real Estate Principles and Practices (3) II
(Same course as Business Administration 127)

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 for Business Administration 127.

140. Statistical Methods (3) I, II

Statistical method in the social sciences. Tabular and graphical presentation. Frequency and time series analysis. Index numbers and correlation techniques. Prerequisite: Mathematics 1, 2, and 3, or equivalent. Not open to students with credit for Sociology 103, Psychology 104A, 104B.

142. Business Cycles (3) I

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 practical application of forecasting methods to both business and other data. Prerequisite: Economics 1A-1B.

150. Labor Problems (3) I, II

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

Labor-management relations; fair labor standards; arbitration and conciliation of industrial disputes. Federal, state and local laws dealing with these subjects.

152. Collective Bargaining (3) II

Structures of labor relations; management and union problems; public policy and collective bargaining; conditions of successful collective bargaining.

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

Refer to the Honors Program.

***170. Government and Business (3) I, II**

General survey of governmental activities affecting business; the state as an entrepreneur and manager; governmental assistance to business; governmental regulation of business in its historical, legal and economic aspects, including recent developments in the United States and abroad; proposed policies. A general education course in social science.

171. Transportation (3) I

The development of railway transportation; railroad financing; rates and rate making; governmental regulation; government operation of railroads during the war; recent development of motor and air transportation. Prerequisite: Economics 1A-1B.

172. Public Utilities (3) II

The growth of public utilities in the United States; economics of public utility rates; valuation; public regulation and its legal basis; public ownership; transportation problems. Prerequisites: Economics 1A-1B.

185. Social Insurance (3) II

Old age pensions, health insurance, unemployment insurance, and Social Security Act. Strength and weakness of existing systems.

190. International Economics—Principles (3) I

National welfare and foreign trade. Principle of comparative costs, comparative advantages in various nations. Foreign exchange and the balance of payments, financing foreign trade. Regulations over trade and obstructing factors. Techniques of exporting and importing. Doctrines of international trade.

195. International Economics—Problems (3) II

Important aspects of international cooperation and conflict in the economic sphere, conditions essential to future cooperation. The quest for foreign markets, raw materials, investment opportunities and population outlets. Commercial policies, international economic conferences and organizations. Colonial rivalries and postwar problems.

198. Investigation and Report (3) I, II

Designed to stimulate independent study and investigation; to furnish guidance in the collection, organization, and presentation of factual material; to improve the technique of term reports. For economics majors only.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

200A-200B. Seminar in the Development of Economic Thought (3-3) Year, I, II

A critical study of the development of economic thought and of contemporary economic thought, in order to provide a clearer understanding of major economic problems of the day.

201. Seminar (3) I, II

An intensive study of some phase of economics. The course may be repeated for each subject for additional credit. (a) Money and Banking, (b) International Economics, (c) Public Finance, (d) Value and Distribution, (e) Labor Economics. Additional credit may be obtained if repeated with new materials. Prerequisite: Consent of instructor.

290. Bibliography (1)

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Guidance in the preparation of a project or thesis for the master's degree.

EDUCATION

IN THE DIVISION OF EDUCATION

A major in elementary education is offered with the A.B. degree and general elementary or kindergarten-primary credential in teacher education. 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. All students must complete 45 units in general education courses, the lower division prerequisites for the credential and degree, a major in elementary education, and a minor selected from those listed below.

GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIAL REQUIREMENTS

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 (20½ units). Additional prerequisites for the kindergarten-primary credential: Music 10A-10B, or qualifying by examination (2 units).

Major for both credentials: 39-43 upper division units to include the following courses: Education 112, 151 (6 units); Education 130 (13 units); Education 131 (7 units); Education 111 (2 units); Education 101 (2 units); Education 181 (7 units); Health Education 151 (2 units). Additional requirement for the kindergarten-primary credential: Education 132 (4 units).

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
Foreign Languages (French, German, Spanish, Romance Languages)
General Science
Industrial Arts
Mathematics
Physical Education
Social Science
Speech Arts (creative or speech correction)

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 ARTS AND SCIENCES

A minor in education is offered in arts and sciences. This minor consists of 15 to 22 upper division units in education selected with the approval of the division chairman. Students will be admitted to education courses only when they are admitted to teacher education or have permission from the division chairman. Experienced teachers may take education courses for which they have the prerequisites. Students who take the minor in education must have been regularly admitted to teacher education. Refer to the section of this catalog on Admission to Teacher Education.

THE MASTER'S DEGREE

The master of arts degree is offered with a major in education. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

A. Review of Arithmetic (0) I, II

H. Review of Handwriting (0) I, II

R. Review of Reading (0) I, II

S. Review of Spelling (0) I, II

Noncredit courses designed to increase competence in the skill subjects. For students who do not qualify on the respective sections of the Fundamentals Test required of all applicants to teacher education.

UPPER DIVISION COURSES

Social Foundations

100. The Secondary School (4) I, II

Orientation toward understanding teaching as a profession, and the public school as a social institution. Overview of philosophy, history, aims, scope, function, outcomes, principles, and problems of American elementary and secondary education. Field work, including audio-visual experiences, required.

101. History and Philosophy of Education (2) I, II Summer

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. Prerequisite: Senior standing or the equivalent; minimum of 12 units of 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

To acquaint the student in secondary education with the nature of development and the learning process, with consideration of mental hygiene, guidance and the place of audio-visual aids. Field work required. Prerequisite: Education 100.

111. Educational Psychology (2) I, II Summer

(Same course as Psychology 130)

To develop understanding of the applications of psychological research for effective classroom teaching. Observation and field work required. Prerequisite: Psychology 1. Not open to students with credit for Psychology 130.

112. Child Growth and Development (3) I, II Summer

Study of the mental, emotional, social, and physical development during childhood and early adolescence. Directed observation required. Should precede Education 151 for elementary candidates.

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) Summer

For kindergarten-primary teachers treating the analysis and interpretation of early childhood behavior. Emphasis on understanding and interpreting the causative factors in typical behavior of children to parents, social workers, teachers, and others concerned with the guidance of kindergarten-primary children.

115. Guidance in Elementary Education (3) I, II Summer

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) Summer

Content includes laws relating to children, guidance principles, social case work, 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

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). Field work required. Prerequisites: Education 110 and concurrent registration in Education 180 or Education 316A.

121. Methods and Materials of Instruction and Audio-visual Aids Major (2), Minor (2)

Professional courses in specific teaching fields taken just prior to or concurrently with the first directed teaching assignment. Each course emphasizes the application of best practice with reference to each subject area named.

Subject fields for sections in 121 are as follows:

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 Romance Language
121G. Methods in Music
121H. Methods in Phys. Ed. (Men)
121J. Methods in Phys. Ed. (Women)
121K. Methods in Physical Science
121L. Methods in Speech Arts
121M. Methods in Social Science

Offered in the Spring Semester

121B. Methods in English
121D. Methods in Industrial Arts
121F. Methods in Mathematics
121N. Methods in Life Science
121J. Methods in Phys. Ed. (Women)
121M. Methods in Social Science

Offered Irregularly

121P. Methods in Health Education
121Q. Methods in Accounting
121R. Methods in Merchandising
121S. Methods in Shorthand
121T. Methods in Secretarial Subjects
121U. Methods in Typing

122. Reading in Secondary Education (3) II

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

A workshop type course designed to prepare teachers of the course in high school. Enrollment by permission of the instructor.

124. Advanced Driver Education (2) Summer

An advanced workshop dealing with special problems in driver education, including legal and sociological aspects, administration, and special training techniques. Prerequisite: Education 123, or equivalent.

125. Organization and Administration of Music Education (2) II

Administration of an instrumental music program: purchase, care, depreciation of instruments and equipment; developing interest; ethics; schedule-making; operation and maintenance of music library; personnel and equipment records; the achievement point system; the marching band show; rehearsal procedure.

126. Workshop in Secondary Education (3 or 6) Summer

Designed to meet the needs of individuals or groups of teachers who wish to develop or continue to study of some problem with the consultation of the college staff and the San Diego County Curriculum Staff.

Methods—Elementary

130. First Elementary Education Practicum (13) I, II

Curriculum, principles, methods and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed in A through G below. Prerequisite: Admission to elementary education.

130A. Arithmetic in Elementary Education (2-3) I, II, Summer
130B. Art in Elementary Education (2) I, II, Summer
130C. Language Arts in Elementary Education (2-3) I, II, Summer

130D. Music in Elementary Education (2) I, II, Summer
130E. Reading in Elementary Education (2-3) I, II, Summer
130F. Observation and Participation (2) I, II
130G. Curriculum (1) I, II

131. Second Elementary Education Practicum (7) I, II

Curriculum, principles, methods and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed in A through D below. Prerequisite: Education 130.

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 (1) I, II

132. Kindergarten-Primary Practicum (4) I, II Summer

A continuation of Education 131 and will accompany Education 181 in the kindergarten. A study of the theory of early childhood education providing experience with children of nursery school and kindergarten ages. Prerequisites: Education 130 and 131.

133. Literature in Elementary Education (3) 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 choir, 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, spelling. Students in this course will observe in the summer demonstration school and discuss with the staff the teaching procedures.

135. Workshop in Elementary Education (3 or 6) Summer

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

Music literature for singing, expressive movement, listening, playing instruments, and creative activities, stressing integration of these activities with the total classroom program. Prerequisites: Music 7A and teaching experience; or permission of instructor.

137. Reading Difficulties (3) I Summer

Reading difficulties, their causes, prevention, and correction. Remedial practices in reading useful to the classroom teacher, school counselor, and reading specialist. Prerequisites: Education 112, or equivalent, and Education 130E or 122; or permission of instructor.

138. Curriculum in Elementary Education (3) Irregular

Emphasis upon the selection and development of content, teaching methods, and materials as they relate to social needs; evaluation procedures; psychological principles, and the nature of the learner.

Audio-Visual

140. Audio-visual Instruction (3) I, II Summer

Audio-visual materials and techniques as they affect learning; operation of equipment. Three hours of lectures and two hours of laboratories per week.

141. Creating Audio-visual Materials for Classroom Use (3) Irregular

Practice in the creation and evaluation of instructional materials, such as 35 mm. film strips, 16 mm. films, scripts, recordings and other audio-visual materials. Prerequisite: Education 140, or equivalent.

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142. Television and Radio in the Classroom (3) Summer

The use of television and radio programs as instructional aids in the classroom. Prerequisites: Education 140, or equivalent, and teaching experience.

Measurement

150. Psychological Testing (3) I, II (Same course as Psychology 105)

The basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement. Prerequisite: One of the following courses: Psychology 104A, Education 151, 152, 120, or a semester of statistical methods in any other department. Not open for credit to students with credit for Psychology 105.

151. Measurement and Evaluation in Elementary Education. (3) I, II Summer

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. Should follow Education 112 for elementary candidates.

152. Measurement and Evaluation in Secondary Education (2) Irregular

Problems of evaluation in secondary education, construction of examinations, the elements of statistics, the selection and interpretation of standardized measures, and appraisal of audio-visual instructional materials. Field work required. Prerequisite: Education 111.

Honors Course

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

Refer to the Honors Program.

Exceptional Children

170. Exceptional Children (3) I or II

Characteristics and adjustment problems of mental, physical, and emotional deviates.

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 physiology of the eye, conservation of sight, and classroom adaptation for the visually handicapped.

176. Advanced Speech Correction (3) II (Same course as Speech Arts 176)

Etiology and treatment of the more severe speech deviations such as cleft palate, voice disorders, aphasia and cerebral palsy. Prerequisites: Speech Arts 150 and 170. Not open to students with credit for Speech Arts 176.

177. The Teaching of Lip Reading (2) Summer
(Same course as Speech Arts 177)

History, theory and methods of lip reading. Aids for the classroom teacher, program and materials of instruction for the specialized teacher. Not open to students with credit for Speech Arts 177.

178. Aural Rehabilitation (3) Summer (Same course as Speech Arts 178)

The adjustment of the hard-of-hearing group with emphasis on the public school child. State and county hearing programs; audiometric techniques with practice; educational, classroom, and social problems. Meets audiometric certification requirement. Not open to students with credit for Speech Arts 178.

179. Nervous Speech Disorders (3) I (Same course as Speech Arts 179)

Clinical survey of newest methods of speech correction with special emphasis given to stuttering. (Minimum of 25 laboratory hours required per semester.) Required course for special corrective credential. Not open to students with credit for Speech Arts 179.

Student Teaching

180. Directed Teaching—Secondary (2-12) I, II

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. Prerequisites: Admission to teacher education; education program approved by the Coordinator of Secondary Education. Any grade below C is unacceptable for a credential.

181. Directed Teaching—Elementary (2-12) I, II

Systematic observation, participation and teaching under supervision in the Campus Elementary School or affiliated elementary schools. During each semester of student teaching a weekly conference period is required as indicated in the time schedule. Prerequisites: Admission to teacher education; education program approved by the Coordinator of Elementary Education. Any grade below C is unacceptable for a credential.

182. Directed Internship (1-6) I, II

Extensive daily participation or teaching in public schools in preparation for a second credential when Directed Teaching has been taken for a prerequisite credential. Application should be made during the preceding semester. Preregistration required.

Conference and Special Courses

190. Conference on the Teaching of Mathematics (1) Summer

Lectures, discussions, and demonstrations on problems in teaching of mathematics in the elementary and secondary schools. Designed for teachers, supervisors, and administrators interested in current developments in this area. Course may be taken three times for credit.

191. Guidance Conference (1) Summer

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. Admission upon permission of the director of this conference. Course may be taken three times for credit.

192. Audio-visual Conference (1) Summer

A series of lectures, discussions and demonstrations, centering on problems in the use of audio-visual instructional materials. Designed for teachers, administrators, audio-visual representatives, and others interested in current developments in this area. Course may be taken three times for credit. Does not fulfill credential requirement.

197E. Problems in Education (Credit to be arranged) I, II, Summer

Class study of specially selected problems in education. Does not apply to pattern requirements for credentials. Offered only in extension. Prerequisite: Permission of instructor.

199. 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; permission of instructor.

GRADUATE COURSES

For requirements for admission to graduate courses, refer to the section of this catalog on the Graduate Division. In addition to these general requirements, 12 units of professional education are prerequisite for enrollment in all graduate courses.

Sociological Foundations

205. History of Education (3) Summer

Advanced study of the history of education with emphasis on educational practices as related to present day problems. Prerequisite: Education 101 or equivalent.

206. Philosophy of Education (3) Summer

Advanced study of philosophical backgrounds of educational thought; a study of comparative philosophies, and an analysis of selected current trends and problems. Prerequisite: Education 101 or equivalent.

207. Educational Sociology (3) Summer

A study of the social, economic, political and moral setting in which present day American education functions. Prerequisite: Education 101, or equivalent, teaching experience.

208. Workshop in Community Influences on Learning and Curriculum Planning (3 or 6) Summer

Advanced study of community influences on learning and child growth and development, and of group techniques; implications for curriculum planning. Provides opportunity for work on individual problems of the participants. Prerequisite: teaching experience.

Educational Psychology

220. Advanced Educational Psychology (3) I, II, Summer

Advanced study of the research and its application to learning and human growth. Prerequisite: Education 111, or equivalent, teaching experience.

221. Seminar in Educational Measurement (3) Summer

Problems in educational testing. Emphasis upon construction, administration, and validation of teacher-made tests. Prerequisite, one of the following: Education 117, or 150, or 151, or 152, or equivalent.

222. The Gifted Child (3) I, Summer

The abilities and characteristics of the intellectually gifted or talented; related problems of curriculum, teaching, administration and guidance. Prerequisite: Education 112 and 113, or 110.

230. Guidance Problems in Secondary Education (3) I, II, Summer

The theory and practice of guidance emphasizing advanced mental hygiene concepts needed by teachers and counselors. Prerequisite: Education 110, or equivalent.

231. Techniques of Pupil Appraisal (3) I, II or Summer

Techniques of collecting, assembling, and interpreting data about individual pupils for guidance purposes. Field work required. Prerequisites: Psychology 104A and either Education 152 or 151, or equivalents.

232. Problems in Vocational Guidance (3) I, Summer

To prepare counselors for vocational guidance in secondary schools. Emphasizes group and individual procedures for assisting pupils to understand and integrate vocational and self information. Prerequisites: Education 230 and 231, or equivalents.

233. Guidance Counseling Techniques (3) I, II
(Same course as Psychology 233)

Designed for school counselors. To stress the understandings and procedures necessary for effective interviewing. Prerequisite: Education 230, or equivalent. Not open to students with credit for Psychology 233.

234. Administration of Pupil Personnel Services (3) I, Summer

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. Prerequisite: Education 230 or equivalent.

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. Field Work in School Guidance (3) II

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. Prerequisite: Permission of instructor and 12 units in guidance and related areas.

239. Workshop in Pupil Personnel Services (3) Summer

Application of principles and procedures to specific situations for improvement of pupil personnel services. Individual problems emphasized. Prerequisite: Teaching experience and permission of director of workshop.

Elementary Education

240. Curriculum Construction and Evaluation in Elementary Education (3) I, Summer

Advanced study of the research in curriculum development, construction, and evaluation. Prerequisites: 12 units of work in elementary education and consent of the instructor.

241. Problems in the Teaching of Arithmetic (3) Summer

A study of research and practice in the methods of teaching and in the curriculum of elementary and junior high school arithmetic. Prerequisite: Education 130A or equivalent.

242. Problems in the Teaching of Reading (3) Summer

Advanced study of trends in reading instructions. Topics include developmental sequences in reading skills and abilities, reading in the content fields, individual differences, and interests. Students will develop individual projects or problems. Prerequisites: Education 130E and 137 or equivalents.

243. Seminar in Social Studies in Elementary Education (3) Irregular

Advanced study of problems in teaching social studies in the elementary school with emphasis on the study of the scientific research in the field. Prerequisite: Permission of instructor.

244. Seminar in Language Arts in Elementary Education (3) Irregular

Advanced study of problems in teaching language arts in the elementary school, including spelling, literature and written and oral communication. Emphasis will be on the study of scientific research in the field. Prerequisite: Permission of instructor.

245. Seminar in Elementary Education (3) Irregular

A study of the methodology of research with particular reference to the basic research in the psychology and teaching of the elementary school subjects. Prerequisites: 12 units in elementary education and permission of the instructor.

246. Advanced Diagnosis in Reading (3) II, Summer

Principles and techniques of individual and group diagnosis of reading difficulties. Experience in administration and interpretation of individual and group instruments of diagnosis. Prerequisites: Psychology 105B and Education 137, or permission of instructor.

247. Advanced Diagnosis and Treatment of Learning Difficulties (3) II, Summer

Principles and techniques of diagnosis and treatment of difficulties in learning the school subjects. Supervised experience in working with individual pupils and their parents. Prerequisites: A teaching credential and Education 151 or 152.

Secondary Education

250. Curricular Problems in Secondary Education (3) I, II, Summer

Present status and development of the secondary school curriculum with emphasis upon curriculum construction and curriculum evaluation. Opportunities provided for study of problems submitted by students. Prerequisites: 12 units in secondary education and consent of the instructor.

252. General Education in the Secondary School (3) Summer

A course designed for teachers in service. A study of the function and implementation of general education in the secondary school. Prerequisites: 12 units in secondary education and permission of the instructor.

254. Advanced Problems in Secondary School Instruction (3) II, Summer

An analysis of the scientific research and philosophical principles in secondary school instruction. Prerequisites: Teaching experience and permission of instructor.

256. Recent Trends in Secondary Curriculum (3) Irregular

Current practices and trends in secondary schools. Extensive individual work on related problems of interest to members of the class. Prerequisites: 12 units in secondary education and permission of the instructor.

257. Workshop in Intercultural Education (4) Summer

A cooperative workshop sponsored by the college and the San Diego City Schools to study trends in intercultural education in American schools, including units, curricular and instructional materials and techniques. Enrollment only by application to the Chairman of the Division of Education.

258. Research in Curricular Problems (1-3) Irregular

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.

School Administration and Supervision

260. Federal, State, County and City School Organization and Administration (3) I, Summer

A study of federal, state, county and city school organization and administration including the interrelationships of the four levels. Prerequisite: Possession of a valid teaching credential.

262. The Organization and Administration of Elementary Schools (3) I, Summer

A study of the problems of personnel, local finance, curriculum, school plant and community relations of elementary schools. Field project required. Prerequisites: Valid general elementary credential, teaching experience, Education 115, 240, 260, and 270 and admission to program of Administrative Studies.

263. The Organization and Administration of Secondary Schools (3) I, Summer

A study of the problems of personnel, local finance, curriculum, school plant, transportation and community relations of secondary schools. Field project required. Prerequisites: Possession of a valid general secondary credential, teaching experience, Education 230, 250, 260 and 270 and admission to program of Administrative Studies.

264. Elementary School Supervision (3) II, Summer

Principles and practices of supervision and methods of evaluating instruction and the curriculum in elementary education. Field project required. Prerequisites: General elementary credential, teaching experience, Education 115, 240, 260 and 270 and admission to program of Administrative Studies.

265. Secondary School Supervision (3) II, Summer

Principles and practices of supervision, curriculum and teaching methods in secondary education. Field project required. Prerequisites: General secondary credential, teaching experience, Education 230, 250, 260 and 270 and admission to program of Administrative Studies.

266. Field Work in Elementary School Administration and Supervision (3) II

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. Prerequisites: admission to the program of Administrative Studies, completion concurrently of all other requirements for the elementary administration or supervision credential, permission of local school administrator and instructor.

267. Field Work in Secondary School Administration and Supervision (3) II

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. 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 instructor.

268. Seminar in School Administration (3) Summer

An intensive study of research on selected problems in the field of school administration. Provision will be made for individual work on special topics of interest to students. Prerequisites: permission of instructor.

270. School Finance, Business Administration, and Law (3) II, Summer

A study of public school finance at federal, state and local levels; an analysis of the business administration of schools and a study of school law as it applies to finance, administration and other aspects of school administration. Prerequisites: Possession of a valid teaching credential or permission of instructor.

271. Supervision of Student Teaching (2) II

Study of selection, orientation, induction, counseling and evaluation of credential candidates and student teachers; and helping student teachers plan lessons, conduct classroom learning, analyze pupils' difficulties and achievement. Open to experienced teachers interested in the teacher education program.

274A. Utilizing Audio-Visual Materials in the Classroom (3) I, Summer

A critical analysis of research evaluating the use of visual, auditory, and other sensory materials in education. Prerequisite: Education 140, or equivalent.

275. Administering the Use of Audio-Visual Materials (3) II, Summer

Organizing, supervising, and coordinating audio-visual centers as an integral part of educational systems. Prerequisite: Education 140, or by permission of the instructor.

278. Educational Leadership (3) I, Summer

An analysis of the factors and practice in procedures of group and individual leadership in four areas: (a) the community; (b) the teaching staff; (c) the student personnel; (d) the professional field of educational administration and supervision. Prerequisite: Valid teaching credential or permission of instructor.

Procedures of Investigation

290A. Procedures of Investigation and Report (2) I, II, Summer

Methods of investigation, data analysis, and reporting. Procedures for selecting topics and writing papers, projects, and thesis. Exercises in locating, selecting, analyzing, and summarizing professional literature. For majors in education, concurrent registration in 290B is required.

290B. Bibliography (1) I, II, Summer

Exercises in the use of basic reference books, journals, and specialized bibliographies preparatory to a seminar project or to the writing of a thesis.

295A-295B. Seminar (3-3) I, II, Summer

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. Prerequisite: Satisfactory score on the Graduate Comprehensive Examination in Education.

298. Special Study (1-6) I, II, Summer

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II, Summer

Guidance in the preparation of a project or thesis for the master's degree.

Student Teaching and Internship

316A. Directed Teaching (3-7) I, II

Systematic observation, participation and teaching under supervision in the campus elementary school, the affiliated elementary, junior high and senior high schools. During each semester of student teaching a weekly conference period is required as indicated in the time schedule. Prerequisites: Admission to teacher education; education program approved by the Coordinator of Elementary or Secondary Education. Any grade below C is unacceptable for a credential.

316B. Directed Internship (2-6) I, II

Extensive daily participation or teaching in public schools in preparation for a second credential when Directed Teaching has been taken for a prerequisite credential. Application should be made during the preceding semester. Preregistration required. May be repeated for additional credit with new content.

ENGINEERING

IN THE DIVISION OF PHYSICAL SCIENCES

The engineering program is designed to give the student a sound training in the fundamentals of engineering and at the same time provide the broad academic experiences which constitute a liberal education. The curriculum leads to the degree of bachelor of science in engineering.

The course of study embraces those fundamental subjects, common to the functions of engineering, which are recognized as being within the scope of a four-year program. The functions for which training is specifically provided are those of the production, operation, maintenance, service, sales, and management aspects of engineering application. Students who desire training in such fields as research, advanced design, and development, which usually requires graduate work, should plan to complete their academic work in a university where these fields of study are emphasized.

Characteristics of the San Diego State College engineering curriculum include an emphasis on engineering fundamentals, close integration of class and laboratory work, progressive development of skills in a strict sequence of phases, and a coordinated application in project form of these skills to the solution of an engineering problem in one of the several recognized fields.

MAJOR IN ARTS AND SCIENCES

A major in engineering is offered with the B.S. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses, except that nine units of chemistry, physics, and mathematics may be counted in general education. The major consists of a minimum of 39 upper division units. Requirements for the engineering program are outlined below. A minor is not required for the B.S. degree.

Students interested in working toward an M.S. degree in business administration with emphasis in engineering management should consult the section of this catalog under the heading "Business Administration," and should make appropriate arrangements to consult both engineering and business administration advisers early in their programs.

MINOR IN ARTS AND SCIENCES

A minor in engineering is offered in arts and sciences. The minor consists of 15 to 22 units in engineering, nine units of which must be in courses carrying upper division credit. The courses should follow a logical sequence approved by the departmental representative.

ENGINEERING CURRICULUM

The high school subjects which the student is expected to have completed in preparation for the engineering curriculum are listed in this catalog under Admission and Registration. In addition to the qualifying examinations taken by all applicants for admission to the college in freshman standing, competency examinations in mathematics and mechanical drawing are specifically required of engineering students.

The tabulation below indicates the specific requirements and sequence of courses in engineering, and also shows the general pattern normally followed as regards general education courses and electives. While the tabulation presumes completion of the requirements for the degree in eight full-time semesters, it is not uncommon for students to elect to complete the program in more than four years by combining part-time employment with their academic work, either on a private basis or in one of the cooperative plans operated with local industries. Many required engineering courses are offered every semester, making for flexibility of such part-time cooperative plans.

All specifically required courses of the lower division must be completed before any required courses of the upper division are taken; and all required courses of the fifth and sixth semesters must be completed before the integrated work of the seventh and eighth semesters is begun.

REQUIREMENTS FOR THE ENGINEERING PROGRAM

Semester course is taken	*General Education units*	*Phys. Sci. courses and units*	*Free elective units*	*Required units in engineering*	*Courses required in the Engineering Major*
1	6½	Math. 50 5 Chem. 1A 5		1	Introduction (Engr. A)
2	½	Math. 51 4 Chem. 1B 5 Phys. 4A 4		3	Descriptive Geometry (Engr. 21)
3	5½	Math. 52 4 Phys. 4B 4		3	Surveying I (Engr. 2) or Machine Drawing (Engr. 22)
4	6½	Phys. 4C 4		6	Statics (Engr. 50) and Surveying II (Engr. 3) or Manufacturing Processes (Engr. 23)
5	3			13	Electrical Engineering (Engr. 100) Dynamics (Engr. 102) Thermodynamics (Engr. 108) Physical Metallurgy (Engr. 109)
6	2		3	12	Alternating Current Machinery and Electrical Controls (Engr. 101) Fluid Mechanics (Engr. 115) Strength of Materials (Engr. 116)
7	6		3	7	Senior Project (Engr. 198A) Engineering Applications (Engr. 190)
8	6		3	7	Senior Project (Engr. 198B) Engineering Applications (Engr. 190)
Total:	36 *(plus 9)	35	9	52	TOTAL UNITS FOR B. S. DEGREE: 132

*9 units of General Education may be applied from mathematics, chemistry, and physics.

LOWER DIVISION COURSES

A. Introduction to Engineering (1) I, II

A survey of the fields of engineering, designed to familiarize the student with the nature, the requirements, the responsibilities, and the opportunities of the profession. Required of all freshman engineering students.

1. Engineering Drawing (2) I, II

Freehand lettering, use and care of drafting equipment, shape description, freehand sketching, size description, sections, auxiliary views and revolutions, fastening, detail and assembly drawing. Two three-hour laboratories per week.

2. Surveying I (3) I, II

Use, care, and adjustment of surveying equipment. Introduction to standard procedures and techniques of plane surveying. One lecture and two three-hour laboratories per week. Prerequisite: Sophomore standing.

3. Surveying II (3) I, II

Computations and map making; land, topographic, and city surveying. Use of the plane table. One lecture and two three-hour laboratories per week. Prerequisite: Engineering 2.

21. Descriptive Geometry (3) I, II

Fundamental principles of descriptive geometry and their application to engineering problems. Solutions of point, line and plane problems; curved lines and surfaces; intersections of surfaces. One lecture and two three-hour laboratories per week. Prerequisite: Mathematics 40, or equivalent.

22. Machine Drawing (3) I, II

Standard drawing methods and procedures, complete sets of working drawings of simple machine parts, gears and cams; includes tolerance dimensioning, sectioning, threads and fasteners. Three three-hour laboratories per week. Prerequisites: Engineering 21, Mathematics 50.

23. Manufacturing Processes (3) I, II

Analysis of the various tools and processes utilized in modern manufacturing and fabrication operations. Field trips are made to local manufacturing organizations. Two lectures and one three-hour laboratory per week. Prerequisite: Sophomore standing.

50. Statics (3) I, II

Engineering applications of the principles of static equilibrium of force systems acting on rigid bodies. Centroids and moments of inertia, introduction to fluid statics, and dry friction. Prerequisites: Physics 4A, Mathematics 51.

65A-65B. Industrial Practice (2-2) I, II

Supervised training in cooperating industrial organizations. First year of a three-year program providing the opportunity for selected students to correlate their formal college training with industrial experience at corresponding levels of responsibility and difficulty. Prerequisite: Sophomore standing in Engineering. Selection based on personal interview following written application.

UPPER DIVISION COURSES

100. Elements of Electrical Engineering (4) I, II

Theory and characteristics of electrical equipment emphasizing industrial applications, operation and control. Direct current circuit analysis; motors and generators; single phase and polyphase alternating current analysis. Three lectures and one three-hour laboratory per week. Prerequisite: Completion of lower division engineering requirements.

101. Alternating Current Machinery and Electrical Controls (4) I, II

Theory and characteristics of transformers, induction and synchronous machines; and electronic devices including amplifiers, rectifiers, photoelectric cells, timing circuits, and motor control. Industrial application emphasized. Three lectures and one three-hour laboratory per week. Prerequisite: Engineering 100.

102. Dynamics (3) I, II

Engineering applications of fundamental kinematics and kinetics to problems involving translation, rotation, and plane motion of particles and rigid bodies. Work and energy, impulse and momentum, periodic motion. Prerequisites: Completion of lower division engineering requirements.

108. Thermodynamics (4) I, II

The basic principles of thermodynamics; application of the first and second laws to gas and vapor cycles. Three lectures and one three-hour laboratory per week. Prerequisite: Completion of lower division engineering requirements.

109. Physical Metallurgy (2) I, II

Fundamentals of ferrous and nonferrous metallurgy in those aspects which affect physical qualities of metals. Effect of heat treatment, aging, and other processes on physical properties. One lecture and one three-hour laboratory per week. Prerequisite: Completion of lower division engineering requirements.

115. Fluid Mechanics (4) I, II

The statics and dynamics of incompressible and compressible fluids. Fluid measuring instruments, pipe flow, open channel flow, fluid machinery. Three lectures and one three-hour laboratory per week. Prerequisite: Engineering 108.

116. Strength of Materials (4) I, II

Elastic 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 theory. Three lectures and one three-hour laboratory per week. Prerequisites: Engineering 102 and 109.

165A-165B-165C-165D. Industrial Practice (2-2-2-2) I, II

Supervised training in cooperative industrial organizations. Second and third years of a three-year program providing the opportunity for selected students to correlate their formal training with industrial experience at corresponding levels of responsibility and difficulty. Prerequisites: Engineering 65A and 65B.

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)

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. Prerequisite: Business Administration 134.

176. Motion and Time Study (3) I, II

(Same course as Business Administration 136)

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 for Business Administration 136. Prerequisites: Business Administration 134 or Engineering 173.

177. Quality Control (3)

(Same course as Business Administration 139 or Mathematics 177)

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 for Business Administration 139 or Mathematics 177. Prerequisites: Business Administration 134 and Business Administration 135 or Engineering 173; and either Economics 140 or Mathematics 12.

E-179. Manufacturing and Tooling Administration (3) Extension

(Same course as Business Administration E-142)

Production breakdown and relationship to manufacturing plan and tooling policy; planning, processing, and control required to activate program into production. Relationship of design engineering, tool project engineering, and tool manufacturing to production. Not open to students with credit for Business Administration E-142. Prerequisite: Engineering 173 or Business Administration 135; or permission of instructor.

180. Principles of Engineering Economy (3) II

Analysis of the costs of development and promotion, construction, operation, depreciation and depletion. Capital recovery, income, return and yield. Valuations and appraisals, cost analysis and financial analysis. Application to engineering problems. Prerequisite: Senior standing.

185. Advanced Heat Transfer (3) I

Applications of thermodynamics and fluid mechanics to problems in air conditioning and refrigeration involved in several fields of engineering. Two lectures and one three-hour laboratory per week. Prerequisite: Engineering 108.

187. Methods of Analysis (3) II

Solutions of advanced engineering problems in fluids, thermodynamics and electricity utilizing the methods of analogs, dimensional analysis and the theory of models. Two lectures and one three-hour laboratory per week. Prerequisite: Senior standing.

190. Engineering Applications (5-5) I, II

Integration and application of basic engineering and physical science principles in electrical, mechanical, civil, industrial, and such other engineering fields as community needs reveal. The class will be divided into sections, each concerned primarily with one of these fields. Prerequisite: Satisfactory completion of all engineering programs through the junior year.

190A-190B. Engineering Applications (Civil Engineering Field) (5-5) I, II

Semester I: Applications of fundamental engineering science and techniques to the solution of a predetermined construction project. Field work, lines and grades, soil analysis, concrete inspection techniques, earthwork quantity calculations, and concrete formwork, together with utility supply and materials scheduling. Semester II: Erection methods and temporary falsework design, handbook methods of checking final designs for erection stresses, construction machinery and service, and utility installations such as water supply, electric power, and sewage disposal works. Lecture and laboratory.

190C-190D. Engineering Applications (Electrical Engineering Field) (5-5) I, II

Semester I: Applications of fundamental engineering science to electrical control systems, selsyns, servo-mechanisms, carrier communication, voltage-speed-torque regulating systems. Problems concerned with operation of electrical equipment under severe climatic and altitude variations. Semester II: Applications of fundamental engineering science to a comprehensive analysis of power systems. Further study of a-c machinery including application of 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. Protective devices and metering. Lecture and laboratory.

190E-190F. Engineering Applications (Mechanical Engineering Field) (5-5) I, II

Semester I: 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. Semester II: Applications of fundamental engineering principles to the practical design of machinery. Considerations of materials properties, stress analysis, mechanisms, kinematics, economics, production, and appearance are taken up as needed. Practical design methods utilizing empirical techniques are emphasized and explained in the individual design of a simple machine. Lecture and laboratory.

190G-190H. Engineering Applications (Aeronautical Engineering Field) (5-5) I, II

Applications of the fundamental engineering sciences to aeronautics. Semester I. Foundations of aeronautics, fluid dynamics, thermodynamics of fluid flow, airfoil characteristics, drag and power considerations. Aircraft engines and propellers. Aircraft performance, stability and control. Four lectures and one three-hour laboratory per week. Semester II: Aircraft structures, vibration theory. Introduction to supersonic aerodynamics. Four lectures and one three-hour laboratory per week.

198A-198B. Senior Project (2-2) I, II

An individual investigation and report on the application of engineering fundamentals to some area of the production, operation, maintenance, service, sales, and management functions of engineering. Prerequisite: Satisfactory completion of all engineering programs through the junior year.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

NOTE.—In laboratory courses special emphasis is placed upon the preparation of neat, concise, complete and intelligent reports.

ENGLISH

IN THE DIVISION OF HUMANITIES

A major in English is offered with the A.B. degree in arts and sciences and in teacher education. Courses in the major are in addition to 45 units in general education courses. A minor is not required of English majors for the bachelor's degree. Students who plan to take the general secondary credential are advised to complete a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

Lower division: 12 units in English, in addition to English 1, at least six units to be in a year course.

Upper division: 24 upper division units in English and comparative literature, selected with the approval of the departmental adviser.

Prospective majors of sophomore standing may, with the consent of the course instructor and subject to general college regulations (see Credit for Upper Division Courses, in the section of the catalog on Announcement of Courses), substitute six units of upper division electives for six units of lower division work, such upper division units to be selected from the following: English 101A, 116A, 116B, 118A, 118B, 119A, 119B, 126A, 126B, 143A, 143B.

Students of junior or senior standing may substitute for any deficiencies in lower division requirements in English (except English 1) an equivalent number of units of upper division courses selected from the following: English 101A, 116A, 116B, 118A, 118B, 119A, 119B, 120A, 120B, 126A, 126B, 143A, 143B, 151.

Two years of lower division work in a foreign language or the equivalent reading knowledge of a language is strongly recommended.

MAJORS IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in English is offered for the general secondary credential. This major may be used for the A.B. degree.

Lower division: 12 units in English, in addition to English 1, at least six units to be in a year course.

Upper division: 24 upper division units to include the following courses: English 191 and 192; three units from English 117A or 117B; six units from English 131, 132, 133, and 134; six units from one of the following groups: (a) English 119A, 119B, 126A, 126B, 143B, (b) English 118A, 118B, 143A, (c) English 120A and 151; and three units of upper division electives in English.

Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in English, a teaching minor for the credential, and the credential requirements in a postgraduate year, to include the following courses: English 200 (2 units) and English 191, 195, or an additional seminar in English (2 or 3 units). Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

Major for the junior high school credential: A teaching major in English is offered with the A.B. degree and junior high school credential to students with teaching minors in home economics or industrial arts. Students taking this credential must complete the teaching major and minor and additional requirements in professional education courses.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a description of this program, refer to Combination of Credentials in the section of the catalog on Professional Curricula in Teacher Education. Students wishing to secure the junior high school credential under conditions other than those described above should consult with the Coordinator of Secondary Education.

Requirements in the major: 24 units in English or comparative literature, in addition to English 1, at least 18 units to be in courses carrying upper division credit, including three units in American literature and three units in Shakespeare. Recommended as part of the major: English 192.

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

For additional information on this credential, refer to the Junior High School Credential in the section of the catalog on Professional Curricula in Teacher Education.

MINOR IN ARTS AND SCIENCES

A minor in English is offered in arts and sciences. The minor consists of 15 to 22 units in English, nine units of which must be in courses carrying upper division credit.

MINORS IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in English is offered for the general secondary credential. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units to include the following courses: Lower division: English 1 and a year course chosen from English 50A-50B, 52A-52B, 56A-56B, or 60A-60B (9 units). Upper division: 12 units to include one course from each of the following areas: Nineteenth Century English Literature, selected from English 119A, 119B, 126A, 126B, or 143B; Shakespeare, selected from English 117A or 117B; American Literature, selected from English 131, 132, 133, or 134; and Language, English 192.

Minor for the general elementary and kindergarten-primary credentials: A minor in English is offered for the general elementary or kindergarten-primary credential. The minor consists of a minimum of 15 units, to include three units in American literature. Six units in the minor must be in courses carrying upper division credit.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in English. See the section of the catalog on the Graduate Division.

COMPARATIVE LITERATURE

For courses in world literature, see Comparative Literature; these courses give credit toward the English major or minor or toward the minor in comparative literature.

CREDIT IN COURSE SEQUENCES

All elective year courses in the English Department may be begun in either semester, and either semester may be taken singly for credit.

LOWER DIVISION COURSES

A. English Fundamentals (3) I, II

The elements of composition, including drill in grammar and usage; exercises in vocabulary building and in fundamental reading skills; theme writing. Credit in this course is equivalent to passing the English A examination and may be counted toward graduation as an elective but not to satisfy lower division English requirements in any curriculum.

A-X. English for International Students (3) I

A first course in English grammar and composition. To be taken by international or bilingual students as a substitute for English A. Students are assigned to this course upon the recommendation of the faculty adviser and the student's performance on the English A placement examination. This course may be counted toward graduation as an elective but does not satisfy lower division English requirements in any curriculum or in general education.

R. Reading Laboratory (0) I, II

A semitutorial service offered by the English Department to those wishing to improve reading ability, or secure individual help with study problems. Open to all students at any level of college work. Consult department chairman.

W. Writing Laboratory (0) I, II

A semitutorial service offered by the English Department to those wishing assistance in writing projects, either remedial or advanced. Open to students at any level of college work. Consult department chairman.

***1. Freshman Composition (3) I, II**

Study and practice in the expression of ideas and factual materials; principles of organization and of effective style, with emphasis on exposition. A required general education course in written communication. Prerequisite: Satisfactory English A examination or credit in English A.

***1-X. English for International Students (3) I**

A first course in English grammar and composition. To be taken by international or bilingual students as a substitute for English 1. Students are assigned to this course upon the recommendation of the faculty adviser and the student's performance on the English A placement examination. As a substitute for English 1, this course will meet the general education requirement for written communication.

***2. Freshman Literature: Imaginative (3) I, II**

Training in reading literary materials with insight and vividness. A general education course in literature, philosophy, and the arts.

***3. Contemporary Thought (3) I, II**

The improvement of comprehension through reflecting and reporting on current articles and books of nonfiction. A general education course in literature, philosophy, and the arts.

***10. Recreational 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 of 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) Year, I**

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) Year, I**

(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) Year, I**

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. Prerequisite: English 2 or 3, or consent of instructor.

***60A-60B. Literature and Personality (3-3) Year, I**

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**

Practical writing beyond the freshman level. Prerequisite: English 1 or equivalent. A general education course in written communication.

***62. Directed Writing (3) II**

Guidance and extensive practice in effective creative writing, particularly description and narration. A general education course in written communication.

UPPER DIVISION COURSES

***101A-101B. Modern Continental Fiction (3-3) Year, I**

(Same course as Comparative Literature 101A-101B)

(Offered in 1957-58 and alternate years)

Selected novels and short stories of continental Europe from Tolstoy's time to the present. First semester, Russian and Scandinavian works; second semester, French, German, and Italian works. 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 on narrative and description, but freedom to pursue whatever writing forms may interest the student most. May be taken a second time with new material. A general education course in written communication.

***110. Recreational Reading (1) I, II**

An advanced course in the group 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) Year, I

Semester I: Poetry and prose, exclusive of drama. Semester II: The drama to 1642, excluding Shakespeare.

***117A-117B. Shakespeare (3-3) Year, I**

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) Year, I

The first semester emphasizes the social satire of Swift, Pope, Addison, Steele, Dryden, Gay, Prior; and also the first stirrings of the romantic revolt in a number of important poems and prose works. The second semester is devoted to Johnson and Boswell and their circle and to a significant romantic literature antedating the romantic outburst.

***119A. English Romantic Poetry (3) I**

The culmination of the romantic movement in the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats, in relation to the thought of the revolutionary period. A general education course in literature, philosophy, and the arts.

***119B. Victorian Poetry (3) II**

Tennyson and Browning with 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 stress on the development of his art and mind; the political and religious background and the events in which Milton participated.

120B. The Seventeenth Century: Milton's Contemporaries (3) II

(Alternate years)

The Seventeenth Century poets and prose writers, excluding Milton; the Metaphysical and Cavalier poets; the beginnings of the essay and biography.

126A. Romantic and Victorian Prose (3) I

Romantic and mid-Victorian prose writers, including Coleridge, Hazlitt, Lamb, DeQuincey, Carlyle, Landor, Macaulay, and Mill, related to the literary, political, and social movements of the period.

***126B. Late Nineteenth Century British Prose (3) II**

The essays of Arnold, Thomas Huxley, Newman, Pater, Ruskin, and Stevenson. Study of scientific, aesthetic, and ethical backgrounds. A general education course in literature, philosophy, and the arts.

***129. Contemporary British Literature (3) I**

Selected prose and poetry of England and Ireland in the present century, especially after World War I: Yeats, Joyce, Eliot, D. H. Lawrence, Virginia Woolf and some representative modern novelists, the Oxford poets, Dylan Thomas and current movements. 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 source materials, biographies, and representative writers. A general education course in literature, philosophy, and the arts.

***133. 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 realists. The romantic attack and the realist defense. A general education course in literature, philosophy, and the arts.

***134. 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 (3-3) Year, I

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**

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 (3-3) Year, I**

(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 and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings. A general education course in literature, philosophy, and the arts. Not open to students with credit for Comparative Literature 152A-152B.

162. Magazine Fiction (3) II

Coaching in constructing and writing short stories for commercial publications. Admission by consent of the instructor.

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

Refer to the Honors Program.

189. Studies in American Folklore (3) II

American folk songs, tales, legends, superstitions, proverbs, and speech, with particular emphasis on one of these.

191. Advanced Composition (3) I

A course designed for prospective teachers of secondary school 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

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. Open only to seniors and graduate students.

195. Literary Criticism (3) I

A historical survey of the principles and practices of literary criticism from Greek times to the Nineteenth Century. Readings in the works of Aristotle, Horace, Longinus, Sidney, Boileau, Dryden, Lessing, Sainte-Beuve, Coleridge, and Arnold. Open only to senior and graduate students.

198. Comprehensive Reading and Survey (3) II

A study of major movements in English literature through a review of important writers and key works. Individual programs of readings to fill the needs of each student. Open only to students with nine upper division units in English.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

200. Seminar (2) I, II

An intensive study of some phase of literature. The course may be repeated for each subject. (a) The critical study of a major author (such as Shakespeare, Dickens, Mark Twain); (b) the study of a cultural period through its literature (Renaissance, Enlightenment, Romantic Revolution, etc.); (c) the study of a literary problem (such as Regionalism in American Literature, or European influences in American Literature); (d) the study of a literary type (Personal Essay, Epic, Tragedy, etc.). May be repeated with new materials for additional credit.

290. Bibliography (2) II

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff: to be arranged with department chairman and instructor.

299. Thesis (3)

Guidance in the preparation of a project or thesis for the master's degree.

FRENCH

IN THE DIVISION OF HUMANITIES

A major in French is offered with the A.B. degree in arts and sciences and in teacher education. Courses in the major are in addition to 45 units in general education courses, except that six units in elementary German or Spanish may be counted in general education. A minor to be approved by the departmental adviser is required of French majors for the bachelor's degree. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

Lower division: French 1, 2, 3, 4 (or equivalents), 5, 6; and German 1 and 2, or Spanish 1 and 2, or Latin 1 and 2 (or equivalents). Recommended: History 4A-4B.

Each year course in high school foreign language may be counted as the equivalent of three semester units of pattern credit in college. Year courses in foreign languages completed in high school may not be repeated in college for credit, except that the last year course in the foreign language sequence may be repeated in college for graduation credit, not to exceed a total of three units of repeated work.

Upper division: 24 upper division units, at least 21 units of which must be in French, including French 198. With the approval of the departmental adviser the remaining three units may be selected from the following courses: French 115, 116; Geography 125; History 121A-121B, 131A-131B, 141, 142, 143A-143B, 144A-144B; or Comparative Literature 101A, 140A-140B, 152A-152B.

MAJORS IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in French is offered for the general secondary credential. This major, which may be used for the A.B. degree, is the same as the major in arts and sciences, except that French 101A-101B must be included in the major. By date of credential candidacy, the student must have completed at least 36 units in French, exclusive of course equivalents. Before taking directed teaching (Education 180 or 316A), the candidate for a teaching credential in French is expected to pass a proficiency examination, administered by the Foreign Language Department, in the language and in French civilization.

Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in French, a teaching minor for the credential, and the credential requirements in a postgraduate year, to include French 214 and 220 (4 units).

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

Major for the junior high school credential: A teaching major in foreign languages (French) is offered with the A.B. degree and junior high school credential to students with teaching minors in home economics or industrial arts. Students taking this credential must complete the teaching major and minor and additional requirements in professional education courses.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a description of this program, refer to Combination of Credentials in the section of the catalog on Professional Curricula in Teacher Education. Students wishing to secure the junior high school credential under conditions other than those described above should consult with the Coordinator of Secondary Education.

Requirements in the major: 24 units in one or more foreign languages (French, German or Spanish), to include 18 units in courses carrying upper division credit.

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

For additional information on this credential, refer to the Junior High School Credential in the section of the catalog on Professional Curricula in Teacher Education.

MINOR IN ARTS AND SCIENCES

A minor in French is offered in arts and sciences. The minor consists of 15 to 22 units in French (exclusive of course equivalents), six units of which must be in courses carrying upper division credit.

MINORS IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in French is offered for the general secondary credential. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units (exclusive of course equivalents) to include the following courses: French 1, 2, 3, 4, 5, 6; and French 101A-101B.

Minor for the general elementary and kindergarten-primary credentials: A minor in foreign languages is offered for the general elementary or kindergarten-primary credential. This minor consists of a minimum of 15 units in one or more foreign languages (French, German, Spanish), six units of which must be in courses carrying upper division credit.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in French under the major of foreign language. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

***1. Elementary (3) I, II**

Pronunciation, oral practice, readings on French culture and civilization, minimum essentials of grammar. Three hours of class work and one hour of laboratory per week. A general education course in foreign language.

***2. Elementary (3) I, II**

Continuation of French 1. Three hours of class work and one hour of laboratory per week. Prerequisite: French 1 or one year of high school French. A general education course in foreign language.

***3. Intermediate (3) I**

Reading in French of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. A general education course in foreign language. Prerequisite: French 2 or two years of high school French.

***4. Intermediate (3) II**

Continuation of French 3. A general education course in foreign language. Prerequisite: French 3 or three years of high school French.

5. Intermediate (2) I

A practical application of the fundamental principles of grammar by means of oral and written work based on French texts. A general education course in foreign language. Prerequisite: French 2 or two years of high school French.

6. Intermediate (2) II

Continuation of French 5. Prerequisite: French 5 or three years of high school French.

8A-8B. Scientific Reading (3-3) I

Reading taken from the fields of chemistry, physics, medicine, zoology, biology, etc. Outside readings of books and periodicals, with written reports. Prerequisite: French 2 with a grade of C or two years of high school French.

10. Conversation (2) I

Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays. Prerequisite: French 2 or two years of high school French.

11. Conversation (2) II

Continuation of French 10. Prerequisite: French 10 or French 3, or three years of high school French.

***15. French Civilization (2) I**

The major currents and characteristics of French culture, as expressed through the centuries in literature, art, philosophy, music and science. Conducted in English. No prerequisite. A general education course in foreign language.

***16. French Civilization (2) II**

Continuation of French 15. No prerequisite. A general education course in foreign language.

UPPER DIVISION COURSES

101A-101B. Conversation and Composition (3-3) Year, I (Offered 1958-59)

Translation into French from moderately difficult English prose. Outside reading of modern French prose, with written reports in French monthly. Readings and oral discussions in French of various facets of French life and culture. Prerequisite: French 4 and 6, or their equivalent, with a grade of C, or permission of instructor.

105A-105B. Modern French Drama (3-3) Year, I ((Offered 1959-60)

Plays of Victor Hugo, de Vigny, de Musset, Scribe, Augier, Dumas fils, Pailleron, Brieux, Hervieu, Maeterlinck, Rostand, and others read and discussed as to subject matter and technique. Outside reading and reports. Prerequisite: French 4 and 6, or their equivalent, with a grade of C.

107A-107B. Eighteenth Century Literature (3-3) Year, I

The works of Montesquieu, Voltaire, Rousseau, the Encyclopédistes, as well as the theatre and novel of the period. Outside reading and reports. Prerequisite: French 4 and 6, or their equivalent, with a grade of C.

110A-110B. Modern French Novel (3-3) Year, I (Offered 1959-60)

The French novel from Victor Hugo to the present day, including such authors as: Hugo, Dumas, Stendahl, Balzac, Flaubert, Loti, Anatole France, Bourget, Bordeaux, Bazin, Barrès, Romain Rolland, A. Gide, Marcel Proust, and others. Class reading, outside reading, and reports. Prerequisite: French 4 and 6, or their equivalent, with a grade of C.

111A-111B. Seventeenth Century Dramatic Literature (3-3) Year, I (Offered 1958-59)

Reading in class of plays of Molière, Corneille, and Racine. Outside readings and lectures on the background of the seventeenth century in France. Prerequisite: French 4 and 6, or their equivalent, with a grade of C.

***115. French Civilization (2) I**

An advanced course in French 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. A general education course in foreign language. Prerequisite: Sophomore standing.

***116. French Civilization (2) II**

Continuation of French 115. Prerequisite: Sophomore standing. A general education course in foreign language.

150-S. Advanced Phonetics and Diction (3) Summer

For students and teachers of French wishing to perfect their pronunciation and diction. Correct formation of French sounds in isolation and combination. Class exercises, individual drill, and use of special discs and tape recording. Prerequisite: Two years of college French or its equivalent.

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

Refer to the Honors Program.

198. Comprehensive Reading and Survey Course (3) II

Designed to fill up the gaps in the reading done in courses. Class meeting once a week for guidance, reports, and quizzes. Required of all seniors majoring in French.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

214. Contemporary French Literature (2) I

An intensive study of the current movements and techniques in the novel, poetry, and theatre in France from 1900 to the present day. Class discussion, outside readings, written reports. Prerequisite: Nine units of upper division French.

220. Explication de Textes (2) II

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. Prerequisite: Nine units of upper division French.

290. Bibliography (1) See Romance Languages

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Master's degree candidates in French 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.

GENERAL CULTURE

IN THE DIVISION OF HUMANITIES

Major or minor work is not offered in general culture courses. These courses are carried as part of the offerings of the Foreign Languages Department. They are conducted in English and are open to all students. A knowledge of foreign language is not required. All courses designated with an asterisk (*) are general education courses in the area of foreign languages.

LOWER DIVISION COURSES

French *15. French Civilization (2) I

The major currents and characteristics of French culture, as expressed through the centuries in literature, art, philosophy, music and science. Conducted in English. No prerequisite.

French *16. French Civilization (2) II

Continuation of French 15. No prerequisite.

German *15. German Civilization (2) I

The major currents and characteristics of German culture, as expressed through the centuries in literature, art, philosophy, music and science. Conducted in English. No prerequisite.

German *16. German Civilization (2) II

Continuation of German 15. No prerequisite.

Spanish *15. Spanish Civilization (2) I

The major currents and characteristics of Hispanic life and culture, as expressed through the centuries in literature, art, philosophy, music and science. Conducted in English. No prerequisite.

Spanish *16. Spanish Civilization (2) II

Continuation of Spanish 15 with emphasis on Spanish America. No prerequisite.

General Culture 17-S. European Civilization (3) Summer

A study of the civilization of Europe through a conducted travel tour.

UPPER DIVISION COURSES

French *115. French Civilization (2) I

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. Prerequisite: Sophomore standing.

French *116. French Civilization (2) II

Continuation of French 115. Prerequisite: Sophomore standing.

German *115. German Civilization (2) I

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. Prerequisite: Sophomore standing.

German *116. German Civilization (2) II

Continuation of German 115. Prerequisite: Sophomore standing.

Spanish *115. Spanish Civilization (2) I

An advanced course in Hispanic 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. Prerequisite: Sophomore standing.

Spanish *116. Spanish Civilization (2) II

Continuation of Spanish 115 with emphasis on Spanish America. Prerequisite: Sophomore standing.

General Culture 117-S. European Civilization (3) Summer

A study of the civilization of Europe through a conducted travel tour. Prerequisite: Sophomore standing.

GENERAL LANGUAGE

IN THE DIVISION OF HUMANITIES

Major or minor work is not offered in general language.

LOWER DIVISION COURSES

20. Latin and Greek Word Derivation (3) I, II

(Same course as English 20)

A general and elementary course in philology. A study of Latin and Greek roots 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. No prerequisite.

31. Pronunciation of Italian (1) I

A course designed especially to meet the needs of singers, radio announcers, etc. No prerequisite.

32. Pronunciation of German (1) II

A course designed especially to meet the needs of singers, radio announcers, etc. No prerequisite.

33. Pronunciation of Spanish (1) II

A course designed especially to meet the needs of singers, radio announcers, etc. No prerequisite.

GENERAL SCIENCE

IN THE DIVISIONS OF LIFE SCIENCES AND PHYSICAL SCIENCES

Majors in the general science area, leading to the junior high school or general secondary credential, are offered to students in teacher education. A major is not available in arts and sciences.

MAJORS IN TEACHER EDUCATION

Major for the junior high school credential: A teaching major in general science is offered with the A.B. degree and junior high school credential to students with teaching minors in home economics or industrial arts. The major is in addition to 45 units in general education courses. Students taking this credential must complete the teaching major and minor and additional requirements in professional education courses.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a description of this program, refer to Combination of Credentials in the section of the catalog on Professional Curricula in Teacher Education. Students wishing to secure the junior high school credential under conditions other than those described above should consult with the Coordinator of Secondary Education.

Requirements in the major: The major consists of a minimum of 33 units and must include courses in all of the following areas of science: astronomy, botany, chemistry, geology, physics, and zoology. Students electing this major must have one year each of high school algebra and geometry, or equivalent.

Lower division: Minimum requirements include Biology 3 and 4, and Physical Science 1 and 2, or equivalent courses. Upper division: A minimum of 12 upper division units to include Botany 119-S or Zoology 119-S, Physical Science 150, and at least one more course in each of life and physical sciences. 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: Industrial Arts 85, Zoology 8A-8B, Biology 160, 161, Industrial Arts 185, and Zoology 165.

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

For additional information on this credential, refer to the Junior High School Credential in the section of the catalog on Professional Curricula in Teacher Education.

Majors for the general secondary credential: A teaching major is offered for the general secondary credential in (1) life science and general science and (2) physical science and general science. For a description of these majors, refer to the section of the catalog on Life Science or on Physical Science.

MINOR IN TEACHER EDUCATION

Minor for the general elementary and kindergarten-primary credentials: A minor in general science is offered for the general elementary or kindergarten-primary credential. This minor consists of a minimum of 15 units to include Biology 3 and 4, or approved equivalents, Physical Science 1 and 2, or approved equivalents, and six upper division units chosen from Biology 160, Botany 119-S, Industrial Arts 185, 186, Zoology 119-S and 165.

GEOGRAPHY

IN THE DIVISION OF SOCIAL SCIENCES

A major in geography is offered with the A.B. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses. A minor is not required of geography majors for the bachelor's degree.

MAJOR IN ARTS AND SCIENCES

Lower division: 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: 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 chairman of the department.

MINOR IN ARTS AND SCIENCES

A minor in geography is offered in arts and sciences. The minor consists of 15 to 22 units in geography, six units of which must be in courses carrying upper division credit.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in geography under the major of social science. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

***1. Introduction to Geography: Physical Elements (3) I, II**

The nature of maps, weather and climates of the world; natural vegetation; land forms and their associated soils, with reference to their climatic relationships; the seas and their coasts. One field trip. 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**

The regional differentiation of the world by human activity; areal bases of economy and nationality. A social science course in general education. Not open to students with credit for Geography 12A or 12B. Prerequisite: Geography 1, or consent of instructor.

***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) Year, I**

A study of the evolution, distinguishing cultural characteristics and physical features of the major culture regions of the world, with emphasis on the role man has played in the alteration of the natural landscape. A general education course in social science. Not open to students with credit for Geography 2.

UPPER DIVISION COURSES

100. Climatology (3) II

A survey of the principal classifications of climates of the world; regional characteristics of climate; relations to soils, vegetation, and human activities. Prerequisite: Geography 1 or 3 or consent of instructor.

120. California (3) I, II

The physiographic regions of California and the cultural landscapes developed by the successive cultural groups. Prerequisite: Geography 1 or consent of instructor.

121. United States (3) I, II

The natural regions of the United States, their formation and economic and historical development. Prerequisite: Geography 1 or consent of instructor.

122. Canada and Alaska (3) II

The physical and historical bases of Canadian and Alaskan regionalism; the economic and strategic importance of these two areas. Prerequisite: Geography 1 or consent of instructor.

123. Middle America (3) II

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. Prerequisite: Geography 1 or consent of instructor.

124. South America (3) I

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. Prerequisite: Geography 1 or consent of instructor.

125. Mediterranean Area (3) II

A study of the cultural development of the countries of Southern Europe, Western Asia, and North Africa in relation to physical background and resources. Prerequisite: Geography 1 or consent of instructor.

126. Northern Europe (3) I

A study of the cultural development of the countries of northern and eastern Europe in relation to physical background and historical evolution. Prerequisite: Geography 1 or consent of instructor.

127. Soviet Union (3) I

Analysis of natural resources, agricultural production, industrial growth, and transportation. Prerequisite: Geography 1 or consent of instructor.

128. Southern and Eastern Asia (3) II

The cultural regions of southern and eastern Asia, their physical environment and historical development. Prerequisite: Geography 1 or consent of instructor.

129. Oceania (3) II

The physical geography, peoples, economies, and trade of Oceania, Australia, and New Zealand. Prerequisite: Geography 1 or consent of instructor.

150. World Political Geography (3) I

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**

The geography of agricultural production and the extractive industries in relation to world commerce. A general education course in social science. Prerequisite: Geography 1 or 12A-12B or consent of instructor.

***152. Industrial Geography (3) II**

Principles of industrial location, with emphasis on the distribution of the world's major manufacturing regions; transportation and world trade. A general education course in social science. Prerequisite: Geography 1 or 12A-12B or consent of instructor.

***153. Conservation of Natural Resources (3) I**

Nature and extent of mineral, soil, water, forest, and wild-life resources and their conservation, with particular emphasis on the United States against a general background of world resources. Conservation philosophies and practices and their geographic bases. A general education course in social science. Prerequisite: Geography 1 or consent of instructor.

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

Refer to the Honors Program.

180. Field Geography (3) II

Directed field work in physical and cultural geography. May be repeated for a total of six units. Prerequisites: 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.

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 in reproducing maps and graphs.

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

200A-200B. Seminar (2-2) Year, I

290. Bibliography (1)

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Guidance in the preparation of a project or thesis for the master's degree.

GEOLOGY

IN THE DIVISION OF PHYSICAL SCIENCES

A major in geology is offered with the A.B. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses, except that nine units in chemistry and physics may be counted as general education. A minor is not required of geology majors for the bachelor's degree.

MAJOR IN ARTS AND SCIENCES

Lower division: Geology 1A, or 2 and 3, Geology 1B, 21, and 24; Chemistry 1A-1B; Engineering 1 (if mechanical drawing was not completed in high school), Engineering 2; Math 50, or equivalent; and Physics 2A-2B-3A-3B or 4A-4B-4C. Recommended: Chemistry 5A, Math 51, and Engineering 21.

Upper division: 24 upper division units in geology to include Geology 100, 106, and eight units of Geology 108. For the geophysics field, the following courses should be taken in addition to the major: Math 118A, Physics 103, 107, and Geology 112.

MINOR IN ARTS AND SCIENCES

A minor in geology is offered in arts and sciences. The minor consists of 15 to 22 units in geology, six units of which must be in courses carrying upper division credit.

LOWER DIVISION COURSES

1A. Physical (4) I

The composition, origin, and distribution of earth materials, and their modification through mechanical and chemical processes. Three lectures and one three-hour laboratory per week with related field study during the semester. Not open to students with credit for Geology 2.

1B. Historical (4) II

Theories of earth origin, and the evolutionary history of the earth as traced through rock and fossil records. Consideration of the Paleontologic Sequence. Three lectures and one three-hour laboratory per week. Arrangement for field study during the semester. Prerequisite: Geology 1A or equivalent.

***2. General Geology (3) I, II**

Earth materials and processes, the development of land forms, and a brief consideration of the history of the earth. Open to all students except those with previous credit in geology. No prerequisites. A physical science general education course in the area of the natural sciences.

***3. General Geology Laboratory (1) I, II**

Recognition of common earth materials with experience in both field and map relationships. Designed to accompany Geology 2, but entirely separate and complete in itself. One three-hour laboratory per week. Open to all students except those with previous laboratory credit in geology. No prerequisites. A physical science general education course meeting the laboratory requirement in the area of the natural sciences.

21. Elementary Mineralogy (4) I

Practice in the determination of the common minerals; their geologic environment, utilization and economic significance. Two lectures and two three-hour laboratories per week. No prerequisites.

24. Petrology (3) II

The origin, occurrence, identification, and classification of rocks and minerals with emphasis on hand specimen characteristics. Two lectures and one three-hour laboratory per week. Prerequisites: Geology 1A, or 2 and 3, and Geology 21. (Formerly Geology 122.)

UPPER DIVISION COURSES

100. Structural Geology (3) I

The structural and major topographical features of the earth. Faulting, folding, and orogenic forces with practical problems and illustrations. Lectures, discussions, and occasional field trips. Prerequisite: Geology 1A-1B or equivalent.

102. Geology of California (3) II (Offered in 1958-59 and alternate years)

Directed reading and group discussion of California geologic literature. Designed to acquaint students with the important structural, stratigraphic, and geomorphic units of the state and with the great variety of source materials thereon. Prerequisite: Geology 1A-1B.

104. Geomorphology (3) I (Offered in 1957-58 and alternate years)

Development and classification of land forms with consideration of processes involved. Prerequisite: Geology 1B.

106. Paleontology (3) I

Principles and methods exemplified by a study of the morphology, classification, habit, and geologic significance of fossil invertebrates. Two lectures and one three-hour laboratory per week. Prerequisite: Geology 1B.

107. Principles of Stratigraphy (3) II (Offered in 1957-58 and alternate years)

Procedures used in analysis, correlation, and classification of stratigraphic units. The chronologic significance of the important physical and biological criteria. Prerequisite: Geology 106.

108. Field Geology (4-4) I, II

Techniques of geologic mapping. Preparation of a geologic map and report of a field area. Work primarily in the local area and on week ends. Prerequisites: Geology 24 and 100. May be repeated to a total of eight units.

110. Introduction of Geophysics (2) I

Physics of the earth and its application to prospecting for oil, gas, and mineral deposits. Prerequisites: Math 3A or 50, Physics 2B and 3B or equivalent and Geology 100, or concurrent registration therein.

112. Advanced Geophysics (2) II

Theoretical principles underlying the physics of the earth and their application to the design and the operation of geophysical instruments, and to the interpretation of the geophysical records. Prerequisite: Math 52, Physics 103 and 107, and Geology 110.

120. Ore Deposits (3) I (Offered in 1957-58 and alternate years)

Geologic relations, origin, distribution, and economics of metallic and nonmetallic mineral deposits. Prerequisites: Geology 24, and completion or concurrent registration in Geology 100.

121. Petroleum Geology (3) II (Offered in 1957-58 and alternate years)

Geologic occurrence of petroleum and the application of geologic principles in its exploration and production. Prerequisites: Geology 24, or concurrent registration, and Geology 100.

124. Optical Mineralogy (3) (Offered in 1958-59 and alternate years)

Theory and use of the polarizing microscope for determining optical properties of minerals as an aid to their identification. Two lectures and one three-hour laboratory per week. Prerequisite: Geology 21. (Formerly Geology 22.)

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.

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 staff permission.

GERMAN

IN THE DIVISION OF HUMANITIES

MINOR IN ARTS AND SCIENCES

A minor in German is offered in arts and sciences. The minor consists of 15 to 22 units in German (exclusive of course equivalents), six units of which must be in courses carrying upper division credit.

MINOR IN TEACHER EDUCATION

Minor for the general elementary and kindergarten-primary credentials: A minor in foreign languages is offered for the general elementary or kindergarten-primary credential. This minor consists of a minimum of 15 units in one or more foreign languages (German, French, Spanish), six units of which must be in courses carrying upper division credit.

LOWER DIVISION COURSES

***1. Elementary (3) I, II**

Pronunciation, oral practice, readings on German culture and civilization, minimum essentials of grammar. Three hours of class work and one hour of laboratory per week. A general education course in foreign language.

***2. Elementary (3) I, II**

Continuation of German 1. Three hours of class work and one hour of laboratory per week. Prerequisite: German 1 or one year of high school German. A general education course in foreign language.

***3. Intermediate (3) I**

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. Prerequisite: German 2 or two years of high school German.

***4. Intermediate (3) II**

Continuation of German 3. A general education course in foreign language. Prerequisite: German 3 or three years of high school German.

5. Intermediate (2) I

A practical application of the fundamental principles of grammar by means of oral and written work based on German texts. Prerequisite: German 2 or two years of high school German.

6. Intermediate (2) II

Continuation of German 5. Prerequisite: German 5 or three years of high school German.

8A-8B. Scientific Reading (3-3) I

First semester, readings in scientific reader on chemistry, physics, etc.; occasional written reports on scientific subjects read outside of class; sight reading. Second semester, readings in special scientific or technical works; weekly written reports required sight reading. Prerequisite for 8A: German 2 with a grade of C or two years of high school German; for 8B: German 8A or German 3, with a grade of C, or three years of high school German.

10. Conversation (2) I

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays. Prerequisite: German 2 or two years of high school German.

11. Conversation (2) II

Continuation of German 10. Prerequisite: German 10, or German 3, or three years of high school German.

***15. German Civilization (2) I**

The major currents and characteristics of German culture, as expressed through the centuries in literature, art, philosophy, music and science. Conducted in English. No prerequisite. A general education course in the area of foreign languages.

***16. German Civilization (2) II**

Continuation of German 15. No prerequisite. A general education course in the area of foreign languages.

UPPER DIVISION COURSES

101A-101B. Conversation and Composition (3-3) Year, I (Offered 1958-59)

Translation into German of moderately difficult English prose. Free composition in German, written and oral. Outside reading of modern German plays and prose, discussions in German. Oral and written practice in conversational German. Prerequisite: German 4 and 6, or their equivalent, with a grade of C, or permission of instructor.

***115. German Civilization (2) I**

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. Prerequisite: Sophomore standing. A general education course in the area of foreign languages.

***116. German Civilization (2) II**

Continuation of German 115. A general education course in the area of foreign languages.

142. The Golden Age of German Literature (3) I, II

(Same course as Comparative Literature 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 Comparative Literature 142.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

HEALTH EDUCATION

IN THE DIVISION OF PHYSICAL EDUCATION, HEALTH EDUCATION AND RECREATION

A major in health education is offered with the B.S. degree in arts and sciences and in teacher education. 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 for the B.S. degree. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

Lower division: Health Education 65, 90; Zoology 8A-8B; Chemistry 2A-2B; and Home Economics 4A.

Upper division: 36 upper division units to include Health Education 145, 151, 152, 153, 190, 191; Bacteriology 101; Education 112 (or equivalent); Physical Education 161; Sociology 135; and seven to nine units to be selected in consultation with the departmental adviser.

MAJOR IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in health education is offered for the general secondary credential. This teaching major, which may be used for the B.S. degree, is the same as the major in arts and sciences. Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in health education, a teaching minor for the credential, and the credential requirements in a postgraduate year, to include four graduate units selected from Health Education 200, 202, 205.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

MINOR IN ARTS AND SCIENCES

A minor in health education is offered in arts and sciences. The minor consists of 15 to 22 units in health education, nine units of which must be in courses carrying upper division credit. Courses will be determined in consultation with the departmental representative.

MINOR IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in health education is offered for the general secondary credential. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units to include, in the lower division, Health Education 21, 65 and 90; and in the upper division, 15 units to be selected from Health Education 145, 151, 152, 153, 154, 190, 191, and Physical Education 161.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in health education. See the section of the catalog on the Graduate Division.

LOWER DIVISION COURSES

***21. Principles of Healthful Living (2) I, II**

An approach to the personal health problems of college students. Scientific health information is provided, and an attempt is made to promote wholesome attitudes and desirable practices relating to healthful living. Includes instruction as required by statutes on safety, fire prevention, and stimulants and narcotics. A general education course required of all freshmen.

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.

***90. 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 Teachers (2) I, II

The teacher's function in the different aspects of the school health program; environment, services, and instruction. Special attention is given to materials and material sources, and to community relationships and resources. Separate sections for elementary and secondary teachers.

152. Health Education Programs (3) I

The construction of the health education program including objectives, scope and sequence of instruction, teaching methods, source materials and evaluation procedures; practice in building 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.

175. Health in Later Maturity (3) I

The aging process of humans and the needs of an aging population, together with an examination of health problems of older adults.

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

Class discussion and supervised practical experience in local health agencies. Prerequisites: Senior standing and permission of instructor.

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

Individual study. Six units maximum credit. Prerequisite: permission of instructor.

GRADUATE COURSES

200. Evaluation Procedures in Physical Education, Health Education and Recreation (2) I (Same course as Physical Education 200)

A study of tests and measurements 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 (2) (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 (2)
(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.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II

Guidance in the preparation of a project or thesis for the master's degree.

HISTORY

IN THE DIVISION OF HUMANITIES

A major in history is offered with the A.B. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses. A minor is not required of history majors for the bachelor's degree. A reading knowledge of one foreign language is strongly recommended.

MAJOR IN ARTS AND SCIENCES

Lower division: History 4A-4B or 8A-8B. Recommended: Political Science 1A-1B or 71A-71B; or Economics 1A-1B. Both of the above named history courses are recommended for students planning to major in history. No freshman shall enroll in more than one lower division course in history during any one semester without the permission of the departmental adviser.

Upper division: 24 upper division units in history, including 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 Area and the Far East. These courses must be selected under the guidance of the chairman of the department.

MINOR IN ARTS AND SCIENCES

A minor in history is offered in arts and sciences. The minor consists of 12 to 22 units in history, nine units of which must be in courses carrying upper division credit, including a year course.

MINOR IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in history is offered for the general secondary credential. The minor is not available to students with a major in social science. The teaching minor in history, which may be used for the A.B. degree, consists of a minimum of 21 units to include the following courses: Lower division: History 4A-4B or 8A-8B or 17A-17B; six units of social science electives to be chosen from anthropology, economics, geography (except Geography 1 or 3), political science, and sociology; and from zero to three units of additional social science electives (12-15 units). Upper division: Six to nine upper division units in history to complete the 21-unit minor.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in history. See the section of this catalog on the Graduate Division.

EXPLANATION OF COURSES

NOTE: History 17A-17B does not count toward credit for a major in history.

Any history course, with the exception of History 17A-17B and 270A-270B, may be taken either semester, the A part not being a prerequisite to the B part.

LOWER DIVISION COURSES

***4A-4B. History of Europe (3-3) Year, I, II**

European society and institutions from about 1500 to the present. A general education course in social science.

***8A-8B. History of the Americas (3-3) Year, I**

Survey of the history of the western hemisphere from its discovery to the present time. This year course meets the graduation requirement in American history, institutions and ideals. 8B meets the graduation requirement in California State and local government. A general education course in social science.

***17A-17B. History of American Civilization (3-3) Year, I**

Survey of the political and social development of the United States, with emphasis upon the rise of American civilization and ideals. This year course meets the graduation requirement in American history, institutions and ideals. The first semester course, 17A, also meets the requirement in U. S. Constitution; and the second semester course, 17B, meets the requirement in California state and local government. This course is a general education course in the social sciences.

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UPPER DIVISION COURSES

111A-111B. Ancient History (3-3) Year, I

Fall semester: Greek history to the Roman conquest. Spring semester: Roman history to the fifth century A.D.

***121A-121B. Medieval History (3-3) Year, I**

European social, cultural, and political developments from the fall of Rome to the Renaissance. A general education course in social science.

131A-131B. Renaissance and Reformation (3-3) Year, I

Personalities and events connected with the social, political, cultural, economic and religious change between 1300 and 1600. Not open to students with credit for History 132-S.

132-S. 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 Seventeenth and Eighteenth Centuries (3) I

European thought, politics and international relations from the Thirty Years' War and Louis XIV to 1763.

142. The French Revolution and Napoleonic Era (3) II

France on the eve of the Revolution; the Great Revolution, 1789-1799; the Napoleonic Era.

143A-143B. Europe in the Nineteenth Century (3-3) Year, I

Reaction in Europe, the development of nationalism, the impact of industrialism and social reform.

144A-144B. Europe in the Twentieth Century (3-3) Year, I

Political and social developments from 1870 to the present.

145-S. Diplomatic History of Europe, 1870-1920 (3) Summer

Survey of treaties, alliances and ententes leading up to World War I; World War I and the subsequent international settlements to 1920.

147A-147B. Expansion of Russia (3-3) Year, I

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. (Formerly History 192).

151A-151B. History of England (3-3) Year, I

Political, constitutional, and social developments since the Norman Conquest. Recommended for prelegal students and majors in English.

156A-156B. History of British and European Imperialism (3-3) Year, I

A comparative study of the growth and decline of modern empires with emphasis on the nineteenth and twentieth centuries.

161. Mexico and Caribbean Countries (3) I

Special attention to relations between the United States and these countries, and to recent developments in Mexico.

162. South America Since Independence (3) II

Republics of South America. Development of nationality, 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.

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

Refer to the Honors Program.

171A-171B. Rise of the American Nation (3-3) Year, I

The colonial period in American history through the American revolution.

***172A-172B. Development of the Federal Union (3-3) Year, I**

Political, cultural, social, and intellectual aspects of the Confederation and Convention of 1787; the administrations of Washington, through John Quincy Adams. This year course meets the graduation requirements in American history, institutions and ideals. History 172A meets the graduation requirement in United States Constitution. History 172B includes materials which meet the requirements in California state and local government. This course is a general education course in the social sciences.

173A-173B. The Expansion of the United States (3-3) Year, I

Lectures and readings on Jacksonian democracy, territorial expansion, the Mexican War, the slavery controversy, and the causes of the Civil War.

174. Emergence of the United States as a World Power (3) I, II

Civil War, Reconstruction and the Economic Revolution to the close of the nineteenth century.

175A-175B. The United States in the Twentieth Century (3-3) Year, I

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) Year, I

Lectures and readings in the field of American foreign relations since 1776, with special emphasis, in the second semester, upon affairs since 1900. A general survey course. This year-course meets the graduation requirement in American history, institutions and ideals.

***179A-179B. Intellectual History of the American People (3-3) Year, I**

A study of the ebb and flow of ideas in the United States since the founding of the English colonies, with special attention devoted to social and political thought. This year course meets the graduation requirement in American history, institutions and ideals. A general education course in the social sciences.

181A-181B. History of the West (3-3) Year, I

The American frontier: Expansion, exploration, settlement and building of the new states, with emphasis upon frontier problems of defense, communications, finance, etc.; the development of cultural institutions. A critical examination of the causes, effects and results of the frontier experiences of the American people.

189. History of 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 California state and local government.

190A-190B. History of the Pacific Ocean Area (3-3) Year, I

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.

191A-191B. History of the Far East (3-3) Year, I

Particular emphasis during the first semester upon the history, both internal and international, of the Far East through the nineteenth century. The second semester will be devoted to a consideration of developments in the twentieth century.

193. History of China (3) I

A survey of Chinese history and institutions from antiquity to the present.

194. History of Japan (3) I

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.

198. Introduction to Historiography and Historical Method (2) II

Required of all students with a history major. To be attended during the senior year. Open to social science majors.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

270A-270B. Seminar (2-2) Year, I

Required of all candidates for the M.A. degree in history. Open to social science majors. Prerequisite: Permission of instructor. 270A is a prerequisite for 270B.

290. Bibliography (1)

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Guidance in the preparation of a project or thesis for the master's degree.

HOME ECONOMICS

IN THE DIVISION OF FINE ARTS

A major in home economics is offered with the A. B. degree in arts and sciences and a major in homemaking education with the A.B. degree in teacher education. Courses in the major are in addition to 45 units in general education courses, unless otherwise specified. A minor is not required of students majoring in home economics or homemaking education for the A.B. degree. Students planning to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

The major in home economics or the major in homemaking education provides for concentration in the field of home economics, including preparation for entry into commercial home economics or the field of teaching. Students desiring a broader type of training may wish to follow the home arts curriculum described below. This curriculum, planned around a general major, leads to the A.B. degree in home arts.

HOME ECONOMICS MAJOR IN ARTS AND SCIENCES

Lower division: Home Economics 2, 3, 15, 40, 41, 42, 43, 70; Art 6A and Economics 1A (both of which may be counted in general education); Biology 1; Chemistry 2A-2B; and Physics 5 (34 units). Twelve units in the natural sciences may be counted in general education.

Upper division: 24 upper division units to include Home Economics 100, 115, 130, 131, 150, 151, 170, 180, and five units to be selected from Home Economics 102, 116, 117, and 135. A course in marriage and the family must be included either in the major or in general education.

HOMEMAKING EDUCATION MAJORS IN TEACHER EDUCATION

Special secondary credential in homemaking education: Students taking this credential must complete a teaching major in homemaking education and additional requirements in professional education courses.

Requirements in the major: Lower division: Home Economics 2, 3, 15, 40, 41, 42, 43, 70; Art 6A and Economics 1A (both of which may be counted in general education); Biology 1; Chemistry 2A-2B; and Physics 5 (34 units). Twelve units in the natural sciences may be counted in general education. Upper division: 24 upper division units in home economics to include Home Economics 100, 115, 130, 131, 150, 151, 170, 180, 181, and three units to be selected from Home Economics 102, 116, 117, and 135. A course in marriage and the family must be included either in the major or in general education.

Professional courses in teacher education: 22 upper division units to include Education 100, 110, 120, 180, 121C, and Health Education 151.

Major for the general secondary credential: A teaching major in homemaking education is offered for the general secondary credential. Students may complete requirements for this major and the general secondary credential in one of the following ways:

(1) By taking the special secondary credential in homemaking education with the A.B. degree; completing requirements in a teaching minor for the general secondary credential; and completing other credential requirements in a postgraduate year, to include four upper division units in home economics courses to be approved by the departmental adviser in homemaking education.

(2) By completing the home economics major in arts and sciences with the A.B. degree, and in addition Home Economics 181; a teaching minor for the general secondary credential; and the credential requirements in a postgraduate year, to include four upper division units in home economics courses to be approved by the departmental adviser in homemaking education.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

HOME ARTS CURRICULUM

The curriculum in home arts is offered with the A.B. degree in arts and sciences. This curriculum is designed around the requirements for a general major. Courses in the major are in addition to 45 units in general education courses. A minor is not required of students in this curriculum for the bachelor's degree.

Lower division: Home Economics 1, 3, 15, and 70; six units from lower division courses in sociology; and six units from lower division courses in a third field to be selected with approval of the departmental adviser.

Upper division: 36 upper division units to include 15 units in home economics, 9-12 units in sociology, and 9-12 units in the third field which was selected in the lower division. All courses in the upper division must be selected with the approval of the departmental adviser in home arts.

MINOR IN ARTS AND SCIENCES

A minor in home economics is offered in arts and sciences. The minor consists of 17 units to include the following courses: Home Economics 3, 15, 70, 150, and six upper division units of electives in home economics.

MINORS IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in homemaking education is offered for the general secondary credential. This minor consists of a minimum of 21 units to include the following courses: Lower division: Home Economics 3, 15, 70, and one to four units of electives in home economics (9-12 units). Upper division: Home Economics 150, 170, and seven to nine units of upper division electives in home economics (12-14 units). A student completing this minor may use it as an arts and sciences minor in home economics for the A.B. degree.

Minor for the junior high school credential: A teaching minor in home economics is offered with the junior high school credential. This minor is the same as the minor in arts and sciences, except that the selection of elective courses must be made with approval of the departmental representative.

LOWER DIVISION COURSES

***1. General Home Arts (3) I, II**

A general education course in family life education. Consideration of necessary preparation for marriage with emphasis on a stable, happy democratic family life; family budgets 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

Introduction to the opportunities and requirements in various professional fields for home economists.

***3. Food and Nutrition (3) I, II**

Selection, purchase, and serving of meals with a consideration of nutritional needs of the family groups, food habits, and social customs; management problems. One lecture and two laboratory periods per week. 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**

Practical problems of nutrition, including food requirements, food selection, and food habits. The relation of nutrition to health. Two lectures per week. 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

Principles of nutrition applied to food preparation, meal planning, and special diets. Limited to students admitted to the nursing curriculum. One three-hour laboratory period per week.

***15. Clothing and Textiles (3) I, II**

Commercial patterns and their adaptation; fitting and construction, primarily with cotton material. Selection and care of textiles. Wardrobe planning and buying practices. Good grooming. A general education course in family life education and in practical arts in the area of literature, philosophy, and the arts.

40. Budgeting the Family Income (2) I, II

Family buying problems; finance planning, accounting; consumer credit, investments, and control of property.

41. Home Care of the Sick (1) II

Family health; mother and baby care; safety in the home.

42. Problems of Family Living (2) I

The activities of the family and the functions of the homemaker in modern society; the individual's contribution to successful family living.

43. Household Equipment (2) I

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.

***70. Children in the Home (2) I**

Development during the prenatal period, first 10 years. Nutrition, physical development, and family influences on the young child. Observation required. A general education course in family life education.

UPPER DIVISION COURSES

100. Advanced Foods (3) I

Fundamentals and practices of scientific food preparation. Development of standards in food preparation, meal planning, and service. Prerequisites: Home Economics 3 and Chemistry 2B.

101. Family Meals (3) I

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

Principles of nutrition and dietetics as related to individuals and family groups. Prerequisite: Home Economics 100.

115. Advanced Clothing (3) I, II

Fitting and construction processes applied to wool, silk, and synthetics, emphasizing fundamental principles of handling. Prerequisite: Home Economics 15.

116. Advanced Clothing Design (3) II

Principles of tailoring; planning and construction of coats and suits. Prerequisite: Home Economics 115.

117. Clothing Selection (3) I

Appropriate clothing for the individual and the family. Basic art principles, fashion trends, history of costume, buying practices; current legislation in textiles and clothing.

130. Family Housing (2) I

Choosing and furnishing a home from the standpoint of economy, comfort, and beauty. One lecture and one three-hour laboratory period per week. Prerequisites: Art 6A and Home Economics 40.

131. Home Furnishing Laboratory (2) II

Simple upholstering techniques; finishing furniture and interior woodwork. One lecture and one three-hour workshop period per week. Prerequisites: Home Economics 15 and 130. Home Economics 130 may be taken concurrently. Student supplies his own tools, furniture, and fabrics.

***135. Marriage and the Family (3) I, II** (Same course as Sociology 135)

Background factors predictive of happy and successful marriages; family forms in other cultures; principal areas of adjustment in marriage; parent-child problems; the changing adolescent; causes and results of divorce; the family of tomorrow. A general education course in family life education. Not open to students with credit for Sociology 35, 135, or other course in marriage and family.

***150. Home Management (3) I, II**

Efficient management of the home; family cooperation, establishment of goals, and productive use of money, time and energy. Open to both men and women. A general education course in family life education.

151. Home Management Laboratory (3) I, II

Five weeks' residence in a family-size unit. Practical applications and evaluative experience in home management and family living. Prerequisites: Home Economics 100, 150, permission of instructor and departmental approval.

160. Merchandise Analysis (3) II (Same course as Business Administration 160)

Characteristics, merits, limitations, care, and selling points of the more important textile and nontextile products. Stress on manufacturing processes as they affect consumer demands. Not open to home economics majors. Not open to students with credit for Business Administration 160.

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

Refer to the Honors Program.

170. Child Development Laboratory (2) II

Observation of young children; participation in child and parent education. Discussion one hour, observation and participation two hours per week. Prerequisite: Home Economics 70 or permission of instructor.

180. Demonstration Methods (1) II

Organizing materials and acquiring techniques for demonstrations; observation and evaluation of professional demonstrations. Prerequisite: Nine units in home economics courses.

181. Materials and Techniques for Teaching Home Economics (2) II

Development and use of audio-visual and other instructional materials. Prerequisite: Education 121C or concurrent registration.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

INDUSTRIAL ARTS

IN THE DIVISION OF PHYSICAL SCIENCES

Courses in industrial arts lead to the following objectives: (1) a major or minor in arts and sciences; (2) a teaching major or minor for several of the teaching credentials; and (3) general education and individual interests. Many of the courses will prove valuable to students desiring practical shop experience on an elective basis.

A major in industrial arts is offered with the A.B. degree in arts and sciences and in teacher education. Courses in the major are in addition to 45 units in general education courses. A minor is not required of industrial arts majors for the bachelor's degree. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

Lower division: Industrial Arts 11, to be taken at the beginning of the major; five courses to be selected from Industrial Arts 21, 31, 51, 61, 71, and 81 (17 units). Art 6A, which is a prerequisite for certain upper division courses, may be counted in general education.

Upper division: 24 upper division units to include nine units in *each of two* of the following fields: industrial drawing, general metalworking, general woodworking, electricity-radio, transportation, or graphic arts; and six units selected from the areas just mentioned, or from handicraft courses, photographic courses, or the general shop sequence.

MAJORS IN TEACHER EDUCATION

Special secondary credential in industrial arts: Students taking this credential must complete a teaching major in industrial arts and additional requirements in professional education courses.

Requirements in the major: The teaching major is the same as the industrial arts major in arts and sciences. Refer to the description above.

Professional courses in teacher education: 22 upper division units to include Education 100, 110, 120, 180, 121D, and Health Education 151.

Major for the general secondary credential: A teaching major in industrial arts is offered for the general secondary credential. Students may complete requirements for this major and the general secondary credential in one of the following ways:

(1) By taking the special secondary credential in industrial arts with the A.B. degree; completing requirements in a teaching minor for the general secondary credential; and completing other credential requirements in a postgraduate year, to include three graduate units in Industrial Arts 200 and one to three additional units in upper division courses selected with approval of the department chairman.

(2) By completing the industrial arts major in arts and sciences with the A.B. degree, a teaching minor for the general secondary credential, and the credential requirements in a postgraduate year, to include three graduate units in Industrial Arts 200 and one to three additional units in upper division courses selected with approval of the department chairman.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the post graduate year.

MINOR IN ARTS AND SCIENCES

A minor in industrial arts is offered in arts and sciences. The minor consists of 20 units in industrial arts to include Industrial Arts 11, 21, and 121, and one lower division and one upper division course in *each of two* of the following fields: general woodworking, general metalworking, electricity-radio, transportation, and graphic arts. Electives should be chosen in consultation with the department chairman.

MINORS IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in industrial arts is offered for the general secondary credential. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units to include the following courses: Lower division: Industrial Arts 11, 21, and nine units to be selected from at least three of the following courses: Industrial Arts 31, 51, 61, 71, and 81. Upper division: Industrial Arts 122 and four to six units of upper division elective courses in industrial arts.

Minor for the junior high school credential: This minor is the same as the minor in arts and sciences.

Minor for the general elementary and kindergarten-primary credentials: This minor is the same as the minor in arts and sciences.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in industrial arts. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

***5. General Education Shop (3) I, II**

A course in practical arts utilizing the tools and materials of the general metalworking area. Activities include individual projects, field trips, and audio-visual materials. May be counted toward general education requirements in the area of literature, philosophy, and the arts.

***6. General Education Shop (3) I, II**

A course in practical arts utilizing the tools and materials of industrial arts. Activities include individual projects, field trips, and audio-visual materials. May be counted toward general education requirements in the area of literature, philosophy, and the arts.

11. Orientation to the Industrial Arts Profession (2) I, II

Professional requirements and modern trends in industrial arts education. Problems of teaching and shop organization in the various fields of specialization, directed observation. Required of all industrial arts majors during their first semester.

21. Industrial Drawing (3) I, II

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.

31. General Metalworking (3) I, II

Development of the skills of general metal working. Experience in machine shop practice, welding, bench metal, art metal, forge, foundry and sheetmetal.

51. General Woodworking (3) I, II

Development of the skills of general woodworking. Experience in cabinetmaking, woodturning, patternmaking, carpentry, boatbuilding, and finishing.

61. Electricity-Radio (3) I, II

Development of the skills for and the understandings of the electricity-radio area. Experience with electrical and radio principles and their application.

71. Transportation (3) I, II

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 mechanical principles involved.

81. Graphic Arts (3) I, II

Development of the skills of graphic arts. Experience in hand composition, press work, and other activities such as bookbinding, photography, silk screen, relief and intaglio printing and other duplicating processes. An understanding of the composition of papers and inks.

***85. Introduction to Photography (3) I, II**

A consideration of photographic optics and chemistry; nature of light and image formation; photographic emulsions, exposure and development. Composition and lighting. Two lectures and one three-hour laboratory per week. A course in practical arts which may be counted toward general education requirements in the area of literature, philosophy, and the arts, unless used as part of the major in industrial arts. Not open to students with credit for Journalism 50.

UPPER DIVISION COURSES

101. Handicrafts for Teachers (2) I, II

For industrial arts or recreational students who desire to teach handicrafts. Skills in handicrafts are emphasized and directed toward the instructional process. Prerequisites: Permission of the instructor and some previous shop experience.

102. Materials and Techniques for Teaching Handicrafts (3) I, II

More advanced techniques of handicrafts. Development of audio-visual aids, projects, and resource material for handicrafts. Physical setting, organization, and other pertinent problems. A course of instruction is prepared. Prerequisite: Industrial Arts 101.

105-S. Construction Activities for Teachers (3) Summer

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 (2) I, II

For industrial arts students who desire to teach general shop. Skill in the general shop is emphasized and directed toward the instructional process. Prerequisites: Permission of the instructor and some previous shop experience.

112. Materials and Techniques for Teaching General Shop (3) I, II

More advanced techniques for the general shop. Development of audio-visual aids, projects, and resource material for teaching general shop. Physical setting, organization, and other pertinent problems. A course of instruction is prepared. Prerequisite: Industrial Arts 111.

121. Industrial Drawing (3) I, II

Further experience in sketching, architectural drafting, mechanical drawing, sheetmetal layout, design, planning, blackboard drawing, mapping, and other forms of graphic presentation. A high level of performance is expected. Prerequisite: Industrial Arts 21.

122. Industrial Drawing for Teachers (3) I, II

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. Prerequisites: Industrial Arts 121 and Art 6A. Not open to students with credit for Industrial Arts 122A or 122B.

123. Materials and Techniques for Teaching Industrial Drawing (3) I, II

More advanced techniques of industrial drawing. Development of audio-visual aids, projects, and resource material for industrial drawing. Physical setting, organization, and other pertinent problems. A course of instruction is prepared. Prerequisites: Industrial Arts 122 and Education 100.

131. General Metalworking (3) I, II

Further experience in machine shop practice, welding, bench metal, art metal, forge, foundry, and sheetmetal. A high level of performance is expected. Prerequisite: Industrial Arts 31.

132. General Metalworking for Teachers (3) I, II

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. Prerequisites: Industrial Arts 131 and Art 6A. Not open to students with credit for Industrial Arts 132A or 132B.

133. Materials and Techniques for Teaching General Metalworking (3) I, II

More advanced techniques of metalworking. Development of audio-visual aids, projects and resource material for metalworking. Physical setting, organization and other pertinent problems. A course of instruction is prepared. Prerequisites: Industrial Arts 132 and Education 100.

151. General Woodworking (3) I, II

Further experience in cabinetmaking, woodturning, patternmaking, carpentry, boatbuilding, and finishing. A high level of performance is expected. Prerequisite: Industrial Arts 51.

152. General Woodworking for Teachers (3) I, II

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. Prerequisites: Industrial Arts 151 and Art 6A. Not open to students with credit for Industrial Arts 152A or 152B.

153. Materials and Techniques for Teaching General Woodworking (3) I, II

More advanced techniques of woodworking. Development of audio-visual aids, projects, and resource material for woodworking. Physical setting, organization, and other pertinent problems. A course of instruction is prepared. Prerequisites: Industrial Arts 152 and Education 100.

161. Electricity-Radio (3) I, II

Further experience with electrical and radio principles and their applications. A high level of performance is expected. Prerequisite: Industrial Arts 61.

162. Electricity-Radio for Teachers (3) I, II

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. Prerequisites: Industrial Arts 161 and Art 6A. Not open to students with credit for Industrial Arts 162A or 162B.

163. Materials and Techniques for Teaching Electricity-Radio (3) I, II

More advanced techniques for electricity and radio. Development of audio-visual aids, projects, and resource material for electricity and radio. Physical setting, organization, and other pertinent problems. A course of instruction is prepared. Prerequisites: Industrial Arts 162 and Education 100.

171. Transportation (3) I, II

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. Prerequisite: Industrial Arts 71.

172. Transportation for Teachers (3) I, II

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. Prerequisites: Industrial Arts 171 and Art 6A. Not open to students with credit for Industrial Arts 172A or 172B.

173. Materials and Techniques for Teaching Transportation (3) I, II

More advanced techniques of transportation machinery maintenance. Development of audio-visual aids, projects, and resource material for transportation. Physical setting, organization, and other pertinent problems are discussed. A course of instruction is prepared. Prerequisites: Industrial Arts 172 and Education 100.

181. Graphic Arts (3) I, II

Further experience in hand composition, press work, and other activities such as bookbinding, photography, silk screen, relief and intaglio printing, and other duplicating processes. A high level of performance is expected. Prerequisite: Industrial Arts 81.

182. Graphic Arts for Teachers (3) I, II

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 program. Prerequisites: Industrial Arts 181 and Art 6A. Not open to students with credit for Industrial Arts 182A or 182B.

183. Materials and Techniques for Teaching Graphic Arts (3) I, II

More advanced techniques of graphic arts. Development of auudio-visual aids, projects, and resources material for graphic arts. Physical setting, organization, and other pertinent problems. A course of instruction is prepared. Prerequisites: Industrial Arts 182 and Education 100.

185. Photography for Teachers (3) I, II

Designed for more mature students to learn photographic skills useful in teaching.

186. Advanced Photography (3) I, II

A consideration of advanced negative control, projection printing techniques, composition and editorial content, architectural and illustrative photography, and flood photoflash techniques. Two lectures and three hours of laboratory per week. Prerequisite: Industrial Arts 85 or equivalent.

190. Experimental Shop (1 or 2) I, II

Individual shop work on complex projects on an experimental basis. Prerequisite: Permission of the instructor. May be repeated with permission of the instructor.

193. Industrial Arts Organization and Management (2) I, II

Study of the organization of Industrial Arts in secondary schools, review of project requirements and methods of developing student participation in shop management. Two lectures per week.

194. Recent Trends in Industrial Arts Education (2) I, II

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 member of the class. Two lectures per week.

198. Senior Project (3) I, II

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. Prerequisite: Permission of the instructor.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

200. Seminar (3) I, II

An intensive study of one phase of industrial education: (a) development of the industrial arts curriculum; (b) shop organization and management; (c) supervision and administration; (d) evaluation; (e) problems of shop planning; (f) history and philosophy of industrial education. May be repeated with new materials for additional credit.

201. Advanced Teaching Problems (3) I, II

Materials and advanced techniques of teaching specific activity areas, such as (a) industrial drawing; (b) general metalworking; (c) general woodworking; (d) electricity-radio; (e) transportation; (f) graphic arts; (g) photography; (h) comprehensive general shop. Stress on project design and visual materials. Prerequisites: Teaching experience in area selected and permission of instructor. May be repeated with new materials for additional credit.

267. Field Work in Industrial Arts (3) I, II

Application of the principles of shop organization, management and planning in reference to the objectives of industrial arts in development of school programs. Prerequisites: Permission of instructor, Industrial Arts 200 and industrial arts teaching experience. May be repeated with different material to a total of six units of credit.

290. 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.

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

Individual study. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II

Guidance in the preparation of a project or thesis in industrial arts for the master's degree.

JOURNALISM

IN THE DIVISION OF SOCIAL SCIENCES

A major in journalism is offered with the A.B. degree in arts and sciences. 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 bachelor's degree; however, several minors are available to increase the scope of training for careers in journalism. Available are those in business administration for students interested in advertising or newspaper management, and in speech arts (broadcasting emphasis) for those interested in radio and television news. Students planning to enter public relations should work out with their advisers a pattern of courses from other departments to supplement requirements for a major in journalism.

MAJOR IN ARTS AND SCIENCES

The major in journalism consists of 32 units to include the following: Lower division: Journalism 50, 51A and 51B (9 units); upper division: A minimum of 24 upper division units in journalism to include Journalism 102, 117, 121, 151, and one year's enrollment in 192 (or 92) in reporting, editing, make-up, or photography, or the equivalent in professional experience.

MINOR IN ARTS AND SCIENCES

A minor in journalism is offered in arts and sciences. The minor consists of 15 to 22 units to include Journalism 49, 51A-51B, 102, and 151.

LOWER DIVISION COURSES

49. Introduction to Mass Communications (3) I

A survey of the work of mass media, their interrelationships, and the services they perform for society; common problems and reponsibilities of the mass media; training and background needed in different media.

50. News and Feature Photography (3) I, II

An elementary course designed primarily for students of journalism and public relations; experience with professional photographic equipment and film processing; contact and projection printing; emphasis on composition and news value of pictures. Two hours of lecture and three hours of laboratory per week. Not open to students with credit for Industrial Arts 85.

51A. News Reporting (3) I

Study of reporting techniques, with intensive laboratory practice in gathering, evaluating, and writing the basic types of news stories. Prerequisites: Sophomore standing, or consent of instructor, and the ability to type.

51B. Advanced News Reporting (3) II

Intensive laboratory practice in writing the more complex types of news stories. Work includes some reporting for the campus newspaper, *The Aztec*. Prerequisite: Grade of C or better in Journalism 51A.

53. Advanced News and Feature Photography (2) I

Continuation of Journalism 50. Prerequisite: Journalism 50, or equivalent.

92. Newspaper Production (1-3) I, II

Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Aztec*. Laboratory periods required. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

93. Yearbook and Magazine Production (1-3) I, II

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines. Laboratory periods required. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

UPPER DIVISION COURSES

101. Magazine Article Writing (3) II

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. Prerequisite: Junior standing and permission of instructor.

102. Law of Mass Communications (3) II

Study of libel, defamation, privacy, censorship, advertising laws, postal regulations, and constitutional guaranties affecting press, radio, television; rights and responsibilities of communicators in reporting public affairs.

103. Picture Editing (2) II

Editorial problems of newspaper and magazine illustration; picture selection, cropping, captioning, layout; the picture story; use of charts, diagrams, cartoons, maps; picture sources. Students will receive credit for work on the student publications.

104. Radio and Television News (3) I (Same course as Speech Arts 187)

Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures, and kinescopes; filming, editing, and scripting news on motion pictures; using recorders to report special events. Not open to students with credit for Speech Arts 187.

105. Editorial Writing (3) I

Training in the principles and policies of editorial composition for mass communications media.

107. Technical Writing (3) II

Reporting technical developments in nontechnical language. A course in writing and editing primarily for nonmajors in journalism.

117. History of Mass Communications (3) I

American journalism from colonial times to the present, with special attention to radio and other mass media which have entered the news and entertainment field; the relation of their development to society.

121. Current Problems in Mass Communications (3) II

Forces affecting American mass communications today: Government restrictions, economics, pressure groups, censorship, mechanical developments, interrelationships of the media and society; professional ethics.

122. Public Opinion Measurement (3) II (Same course as Psychology 122)

The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience. Not open to students with credit for Psychology 122.

132. Propaganda and Public Opinion (3) II
(Same course as Political Science 122)

A study of the forces which mold the American public mind, the practice of propaganda, a description and analysis of public relations, pressure groups and their effect in American public life. Not open to students with credit for Political Science 122.

144. Reporting of Public Affairs (3) II

Coverage of the city hall, courthouse, police headquarters, federal agencies, courts, and other public and political centers. Prerequisites: Journalism 51A, 51B and 102.

145. Comparative World Journalism (3) I

Problems and practices in 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.

151. News Editing (3) I

Editing copy, writing headlines, making up pages, handling telegraph copy. Laboratory periods required. Prerequisites: Journalism 51A and 51B.

152. High School Journalism (3) II

Methods of conducting high school journalism classes. Editorial, business and mechanical aspects of school publication work, with emphasis on copy editing, headline writing and layout. Not open to journalism majors.

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

Special study open to members of the Honors Program in journalism. Refer to the Honors Program.

180. Public Relations (3) I (Same course as Business Administration 155)

Principles, methods, and objectives in the field of public relations; evaluation of the "publics" of institutions and industry; case studies of public relations problems. Not open to students with credit for Business Administration 155.

183. Problems in Public Relations (3) II

Current public relations problems of industry, public agencies, and other institutions. Prerequisite: Journalism 180 or Business Administration 155.

184. Writing for Radio and Television (3) II (Same course as Speech Arts 184)

Scripts, documentaries, music, continuity for each program type. Correlates writing with radio and television acting and announcing styles. Program formats. Prerequisites: Speech Arts 81A or equivalent. Not open to students with credit for Speech Arts 184.

191A-191B. Internship in Journalism (1-3) I, II

Prearranged and supervised work on local magazines, city and county newspapers, radio and television stations, and on public relations, publicity, and advertising staffs of civic and business groups. Prerequisites: Journalism 51A and 51B and permission of instructor. Maximum credit six units.

192. Newspaper Production (1-3) I, II

Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Aztec*. Laboratory periods required. Total credit in Journalism 92, 93, 192 and 193 limited to eight units.

193. Yearbook and Magazine Production (1-3) I, II

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines. Laboratory periods required. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

LABORATORY TECHNIQUE

IN THE DIVISION OF LIFE SCIENCES

The laboratory technique curriculum, with modifications for the types of licensures, is provided to satisfy the academic requirements to qualify for the examination given by the State of California Public Health Department for Public Health Bacteriologist, Clinical Laboratory Technician, and Medical Technologist. If the curriculum outlined by this College is followed, only six months of apprenticeship are required to complete the qualifications for the licensing examinations for Public Health Bacteriologist and Clinical Laboratory Technician. Five years of experience as a Clinical Laboratory Technician are necessary to qualify for the examination for licensure as a Medical Technologist.

MAJOR IN ARTS AND SCIENCES

The laboratory technique major is offered with the B.S. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses, except that 12 units in the natural sciences may be counted in general education. A minor is not required for the B.S. degree.

Lower division: Chemistry 1A-1B, *Chemistry 5A, Biology 3 and 4 or Zoology 1, Bacteriology 1, Biology 15 or equivalent, Zoology 8A-8B, and *Physics 2A and 3A.

Upper division: 36 upper division units to include Chemistry 101A, *Chemistry 114A-114B, Bacteriology 102, 103, 104, Biology 134, 189, *Zoology 109, Zoology 128, and courses selected from Bacteriology 105, 107, Zoology 126 and 108 to complete the major.

Students should consult with the adviser in the Laboratory Technique Curriculum for selection and arrangement of courses.

LANGUAGE ARTS

IN THE DIVISION OF HUMANITIES

A major in language arts is offered with the A.B. degree in arts and sciences and in teacher education. This 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. Courses in the major are in addition to 45 units in general education courses.

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, and (3) a 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 this minor, six units of which must be in courses carrying upper division credit, must be completed for the degree. Students taking the general secondary credential may complete the remaining units for this teaching minor in either the undergraduate or postgraduate program.

MAJOR IN ARTS AND SCIENCES

Lower division: Six units selected from English 50A-50B, 52A-52B, or 60A-60B (or a substitution of two upper division courses selected from English 116A-116B, 118A-118B, 119A-119B, 120A-120B, 126A-126B, or 143A-143B); Journalism 51A; Speech Arts 60A, or 60B, or 55A, or 55B; Speech Arts 81A or 81B (15 units).

Upper division: 27 upper division units to include English 192; English 106 or 191; English 131, or 132, or 133, or 134; English 117A, or 117B, or 152A, or 152B; Journalism 152; Speech Arts 108A or 108B, 159 and 176; Speech Arts 191, or 192A, or 192B. If the lower division sequence is taken in American Literature, the upper division course work in literature should be taken in other areas.

MAJOR IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in language arts is offered for the general secondary credential. This major, which has the same requirements as the major in arts and sciences, may be used for the A.B. degree. When this major is used for the general secondary credential, the professional education courses must include, in addition to the standard credential program, the following courses: Education 122 and Education 121 in both English and speech arts, plus a methods course (Education 121) in a teaching minor.

Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in language arts, an appropriate teaching minor for the credential, and the credential requirements in a postgraduate year, to include the following graduate courses: one 200 numbered course in speech arts (2 units); and one 200 numbered course in English (2 units).

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in a postgraduate year.

* These courses are not required for the Public Health Bacteriologist license.

LATIN-AMERICAN STUDIES

IN THE DIVISION OF SOCIAL SCIENCES

A curriculum in Latin-American studies leading to the A.B. degree is offered as a major in social science. This curriculum provides (1) a basis for a more effective understanding of the problems of international relations in the western hemisphere; (2) a basic education and training for a business or professional career involving understanding of Latin-America; and (3) undergraduate preparation for the comprehensive examinations required for appointment in the Foreign Service of the United States Department of State.

High school students preparing to enter this program should include in their high school courses of studies three years 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.

MAJOR IN ARTS AND SCIENCES

The social science major in Latin-American studies is in addition to 45 units in general education courses, except that 12 units of social science courses in the major may be counted in general education. Students must consult with the adviser in Latin-American studies in planning their programs. The following general education courses should be included in the program: Aesthetics 51, Comparative Literature 104A-104B, and Spanish 116, a general culture course. Students in this curriculum are not required to complete a minor for the bachelor's degree; however, a minor in Spanish is strongly recommended.

Lower division: Six units in *each of three* of the following fields: Anthropology 1A-1B; Economics 1A-1B; Geography 1 and 2; History 8A-8B; and Political Science 1A-1B (18 units).

Upper division: 30 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; and Political Science 175 and 182. Recommended selection of courses to complete the major include Anthropology 151B, 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.

LIBRARY SCIENCE

IN THE DIVISION OF SOCIAL SCIENCES

Major or *minor* work is not offered in library science.

LOWER DIVISION COURSES

***10. 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, together with some instruction in the preparation of bibliographies. The course will be a requirement of those students added to the library's staff of student assistants, although it will not prepare the student to become a librarian. A general education course in practical arts, in the area of literature, philosophy, and the arts.

LIFE SCIENCE

IN THE DIVISION OF LIFE SCIENCES

A major in life science is offered with the A.B. or B.S. degree in arts and sciences; and a major in life science and general science with the A.B. degree is offered in teacher education. Courses in the major are in addition to 45 units in general education courses, except that 12 units in the natural sciences may be counted in general education. Students majoring in life science are not required to complete a minor for the bachelor's degree. Students who plan to take the general secondary credential should include a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

Major with the A.B. degree: Lower division: Botany 1 and Zoology 1 or Biology 3 and 4; Chemistry 1A-1B or 2A-2B; Biology 15; 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: 24 upper division units in bacteriology, biology, botany, and zoology, including Bacteriology 101, Biology 110, 155, and 161. Six units may be from an approved related field. The plan for this major must be with the approval of the Chairman of the Division of Life Sciences.

Major with the B.S. degree: Lower division: Bacteriology 1 or 101, Botany 1, Zoology 1, Biology 15, Chemistry 1A-1B or 2A-2B, and Physics 2A-2B. Upper division: 36 upper division units in bacteriology, biology, botany, and zoology, or 27 units in these fields with nine units in an approved related field. The plan for this major must be with the approval of the Chairman of the Division of Life Sciences.

MAJORS IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in life science and general science is offered for the general secondary credential. This major may be used for the A.B. degree. Lower division requirements: Botany 1, Zoology 1, 8A-8B; Biology 15; 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: 27 upper division units to include Bacteriology 101, Biology 110, 155, 161, and 12 units chosen from Botany 114, Zoology 112, 114, 115, 117, 121, Zoology 101, and Botany 107.

Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in life science and general science, a teaching minor for the credential selected from an area other than the life sciences, and the credential requirements in a postgraduate year, to include four graduate units which may be met by two semesters of Biology 200 or by one semester of Biology 200 and two units of Zoology 298 or Botany 298.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

Major for the junior high school credential: A teaching major in general science is offered with the A.B. degree and junior high school credential. For a description of this major, refer to the section of the catalog on General Science.

OTHER CURRICULA IN THE LIFE SCIENCES

Within the life science majors, curricula are offered for the fields of entomology, fish and game, plant quarantine, and wild life. Requirements for these curricula are the same as for the B.S. degree in zoology or in botany; the specialization for a particular occupation lies within the upper division electives of the B.S. degree program.

Students in high school planning to enter any of these life science curricula should include in the high school program the following subjects: Elementary algebra, plane geometry, intermediate algebra, trigonometry, chemistry, and physics. Three years of French or German recommended.

Students planning to specialize within the area of the life sciences should consult with the departmental adviser in selection and arrangement of courses.

MINOR IN ARTS AND SCIENCES

A minor in life science is offered in arts and sciences. The minor consists of 15 to 22 units to include Biology 3 and 4, or the equivalent, and a minimum of nine units from courses in the life sciences which carry upper division credit, to be selected with approval of the Chairman of the Division of Life Sciences.

MINOR IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in life science and general science is offered for the general secondary credential. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units to include Biology 3 and 4 and Physical Science 1 and 2, or their equivalents (12 units); and nine upper division units to include Biology 160, 161, and Zoology 119-S or Botany 119-S.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered in life science, with a concentration in bacteriology, biology, botany, or zoology. See the section of this catalog on the Graduate Division.

MATHEMATICS

IN THE DIVISION OF PHYSICAL SCIENCES

A major in mathematics is offered with the A.B. degree in arts and sciences and in teacher education. Courses in the major are in addition to 45 units in general education courses. A minor is recommended but not required of mathematics majors for the bachelor's degree. A reading knowledge of French or German is desirable. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

Lower division: Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. Recommended: Business Administration 2, Engineering 2 and 21, Physics 4A-4B or 2A-2B-3A-3B.

Upper division: 24 upper division units in mathematics to include Mathematics 117 (unless taken as Mathematics 52 in the lower division); 105 or 106 or 107; Mathematics 111, 119, and 121. Six of the remaining nine units may be selected from upper division courses in related areas with the approval of the departmental adviser.

MAJORS IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in mathematics is offered for the general secondary credential. This teaching major, which may be used for the A.B. degree, is the same as the major in arts and sciences, except that the student must include in the major Mathematics 104 and an upper division course in statistics. Mathematics 119 and 121 are recommended, although these may be omitted from the major by students who have been admitted to teacher education.

Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in mathematics, a teaching minor for the credential, and the credential requirements in a postgraduate year, to include four graduate units in Mathematics 200.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

Major for the junior high school credential: A teaching major in mathematics is offered with the A.B. degree and junior high school credential to students with teaching minors in home economics or industrial arts. Students taking this credential must complete the teaching major and minor and additional requirements in professional education courses.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a description of this program, refer to Combination of Credentials in the section of the catalog on Professional Curricula in Teacher Education. Students wishing to secure the junior high school credential under conditions other than those described above should consult with the Coordinator of Secondary Education.

Requirements in the major: 24 units in mathematics, at least 18 units of which must be in courses carrying upper division credit.

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

For additional information on this credential, refer to the Junior High School Credential in the section of the catalog on Professional Curricula in Teacher Education.

MINOR IN ARTS AND SCIENCES

A minor in mathematics is offered in arts and sciences. The minor consists of 15 to 22 units in mathematics, six units of which must be in courses carrying upper division credit. Courses should be selected in consultation with the departmental representative.

MINORS IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in mathematics is offered for the general secondary credential. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units, exclusive of course equivalents, to include the following courses: Lower division: Mathematics 40, or high school equivalent, Mathematics 50 and 51; one course in related areas selected from Astronomy 1, Business Administration 2, Engineering 2 or 21, Physics 4A or 2A; and additional electives in mathematics for a total of 12 lower division units. Upper division: nine units to include Mathematics 104 and six upper division units of mathematics electives.

Minor for the general elementary and kindergarten-primary credentials: A teaching minor in mathematics is offered for the general elementary or kindergarten-primary credential. This minor consists of a minimum of 15 units in mathematics, six units of which must be in upper division courses.

THE MASTER'S DEGREE

The master of arts degree for teaching service and the master of science degree are offered with a major in mathematics. See the section of this catalog on the Graduate Division.

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. (Formerly Math X.)

***1. Fundamentals of Algebra (3) I, II**
General ideas and applications of algebra. A general education course in mathematics. (Formerly Math A.)

***2. Plane Geometry (3) I, II**
Fundamentals of plane Euclidean geometry developed by both inductive and deductive processes. A general education course in mathematics. Prerequisite: Math 1, or equivalent. (Formerly Math B.)

***3. Intermediate Algebra (3) I, II**
Review of elementary algebra, exponents, radicals, logarithms, quadratic equations, arithmetic and geometric progressions. Prerequisite: Math 1, or equivalent. (Formerly Math C.)

***4. Trigonometry (2) I, II**
Numerical and practical aspects of trigonometry. Prerequisites: Math 2 and Math 3, or their equivalents. Math 3 and 4 may be taken concurrently. (Formerly Math D.)

***3A. Analytic Geometry (3)** (Not offered after fall 1957)
An integration of algebraic and geometric concepts, with emphasis on the straight line, conic sections, and coordinate transformations. Prerequisite: Intermediate algebra at this college with grade of C or better, or qualification by examination.

***3B. First Course in Calculus (3) I, II** (Not offered after spring 1958)
Introduction to differential and integral calculus with applications. Prerequisite: Analytic geometry with grade of C or better.

4A. Second Course in Calculus (3) I, II (Not offered after fall 1958)
Differentiation, integration, and applications. Prerequisite: Math 3B with grade of C or better.

4B. Third Course in Calculus (3) I, II (Not offered after spring 1959)
Infinite series, partial differentiation, successive integration and applications. Prerequisite: Math 4A with grade of C or better. Solid geometry is recommended. Not open to students with credit for Math 117.

8. Theory and Use of the Slide Rule (1) I, II
Practice in performing the fundamental operations of the slide rule. Prerequisites: Math 1 and 2 or equivalent. (Formerly Math S.)

***10. Mathematics for General Education (3) I, II**
Basic concepts of arithmetic, algebra, and geometry with applications. Recommended for students whose scores on the competency examination, while exempting them from Mathematics A, indicate a need for further training in mathematics. A general education course in mathematics. May not be used in the major or minor. (Formerly Math G.)

12. Elementary Statistics (3) II
Tabular and graphical presentation, measures of central tendency and variability, analysis of times series, linear correlation coefficient. Applications from the fields of biology, economics, education, engineering and psychology. Prerequisite: Math 1, or equivalent.

***21. Mathematical Analysis (3) I**
Designed for students who do not intend to prepare for a professional career in physical science or in engineering. Consideration is given to the processes and applications of algebra and trigonometry. A general education course in mathematics. Prerequisite: High school algebra and plane geometry. Not open to students with credit for Math 40. (Formerly Math 7A.)

***22. Mathematical Analysis (3) II**
A continuation of Mathematics 21 including the concepts and applications of analytic geometry and an introduction to the calculus. A general education course in mathematics. Prerequisite: Math 21. Not open to students with credit for Math 50. (Formerly Math 7B.)

***40. Advanced Algebra and Trigonometry (5) I, II**
Variation, progressions, complex numbers, De Moivre's theorem, solutions of equations, binomial theorem, determinants, permutations, combinations, probability, inequalities, partial fractions, analytical trigonometry, graphs or trigonometric functions, etc. A general education course. Prerequisites: Math 3 and 4 at this college with grade of C or better, or qualification by examination. (Includes courses formerly numbered Math C and D.)

***50. Analytic Geometry and Calculus (5) I, II**
Topics in analytic geometry, differentiation and integration of algebraic functions. A general education course. Prerequisite: Math 40 at this college with grade of C or better, or qualification by examination on subject matter of Math 40.

51. Differential and Integral Calculus (4) I, II

Differentiation and integration of the elementary transcendental functions; applications. Prerequisite: Math 50 with grade of C or better, or equivalent.

52. Differential and Integral Calculus (4) I, II

Infinite series, partial differentiation, differential equations, multiple integrals, applications. Prerequisite: Math 51 with grade of C or better, or equivalent. Not open to students with credit for Math 117.

UPPER DIVISION COURSES

***104. History of Mathematics (3) I**

History of mathematics down to early modern times. A general education course in mathematics.

105. College Geometry (3) II

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. Prerequisite: Mathematics 51 or 22.

106. Projective Geometry (3) I (Not offered 1957-58)

Concurrence of lines, collinearity of points and other properties of figures not altered by projections; construction and study of ellipses, hyperbolas, and parabolas by means of projections. Prerequisites: Mathematics 51 or 22 and permission of instructor.

107. Non-Euclidean Geometry (3) I

History of attempts to prove the fifth postulate; emphasis on plane synthetic hyperbolic geometry; brief treatment of other types of non-Euclidean geometry. Prerequisite: Mathematics 51 or 22.

111. Theory of Algebraic Equations (3) I, II

Determinants, complex numbers, and theory of algebraic equations. Prerequisite: Mathematics 51 or 22.

112. Analytic Geometry of Space (3) II (Not offered 1957-58)

The coordinate systems in space; lines, planes, and quadric surfaces; applications. Prerequisite: Mathematics 51.

117. Intermediate Calculus (4) I, II

Essentially the same as Math 52. Advanced students may be assigned special work. Prerequisite: Math 51 with grade of C or better, or equivalent. Not open for credit to students with credit for Math 52.

118A. Advanced Mathematics for Engineering Students (3) I, II

Selected topics from ordinary differential equations, with applications; hyperbolic, elliptic, Bessel and gamma functions, Fourier series and integrals, electromechanical analogies, the Laplace transform, and partial differential equations. Prerequisite: Mathematics 117, or its equivalent.

118B. Advanced Mathematics for Engineering Students (3) I, II

A continuation of Mathematics 118A. Prerequisite: Math 118A.

119. Differential Equations (3) I

Ordinary differential equations with applications to geometry, physics, and chemistry. Prerequisite: Mathematics 117, or its equivalent.

121. Advanced Calculus (3) II

Fundamental concepts and selected topics. Prerequisite: Mathematics 117, or its equivalent.

124. Vector Analysis (3) I

Vector algebra, differentiation of vectors, gradient, divergence, and curl. Applications to geometry and physics. Prerequisite: Mathematics 117, or its equivalent.

134. Probability (3) II

Definitions, computation of probability by enumeration of cases, discrete and continuous chance variables, density functions, moments, limit theorems, selected distributions. Prerequisite: Mathematics 117, or its equivalent.

135. Numerical Mathematical Analysis (3) I

Accuracy in numerical calculation; interpolation; curve fitting, alignment charts; graphical and numerical differentiation and integration; harmonic analysis. Prerequisite: Mathematics 51.

140A. Mathematical Statistics (3) I

Graphical and arithmetical characterization of observed frequency distributions, moments, use of normal curve, curve fitting, correlation, etc. Prerequisite: Mathematics 117, or its equivalent.

140B. Mathematical Statistics (3) II

Theoretical discrete and continuous distributions, multiple and partial correlation, large and small sample theory including student's T, Chi-square, and the F distributions with applications. Prerequisite: Mathematics 140A.

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

Refer to the Honors Program.

177. Quality Control (3) (Same course as Business Administration 139 and Engineering 177)

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 for Business Administration 139 or Engineering 177. Prerequisites: Business Administration 134 and 135 or equivalent, and either Economics 140 or Mathematics 12.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor

GRADUATE COURSES

200. Seminar (2 or 3) I, II

An intensive study of one phase of mathematics, such as functions of a real variable, functions of a complex variable, partial differential equations, theory of numbers, matrices. May be repeated with new subject matter for additional credit.

210A-210B. Mathematics of Chemistry and Physics (3-3) Year, I

(Same course as Chemistry 210A-210B or Physics 210A-210B)

An introduction to the mathematical processes which form a basis for advanced work in one of the physical sciences. First semester: selected topics introducing the student to the mathematical approach in the solution of scientific problems. Second semester: applications of mathematical principles to specific problems in chemistry and physics. Prerequisites: Graduate standing and acceptance into Master of Science degree program.

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.

296. Directed Field Experience (1-6) I, II

Meets the requirement of directed field experience for candidates for the master of science degree, but is not limited to candidates for the degree. 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: Permission of instructor.

299. Thesis or Project (3) I, II

Guidance in the preparation of a project or thesis for the master's degree.

MUSIC

IN THE DIVISION OF FINE ARTS

A major in music is offered with the A.B. degree in arts and sciences and in teacher education. 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 in general education. A minor is not required of music majors for the bachelor's degree. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

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 thereon for classification, and continue the development of his performance ability through class or individual study for credit after admission to the program.

3. Appearance in at least one student recital during each semester in residence, according to departmental recital requirements.

4. As laboratory experience, participation in two performing groups each semester, beginning with the first semester and continuing for eight semesters for students with 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 ARTS AND SCIENCES

Lower division: Music 9A-9B, 10ABCD (may be waived in full or part by examination), 52A-52B, 59A-59B, eight units selected from courses numbered 70-88, and four units in the major instrument (30-34 units).

Upper division: 27-29 upper division units to include Music 107, 109A, 146A-146B; eight units selected from courses numbered 170-188; four units of courses in the major instrument; four units selected from Music 102A-102B, 103A-103B; and the courses in one of the following fields of emphasis: (a) Performance: four units from Music 109B, 199; (b) History and Literature: six units from Music 106A, 106B, 199; (c) Composition: six units from Music 106A, 109B, 199. The student is also held for the additional requirements in the field of emphasis, as indicated below.

Outline of Specific Requirements

First Year	*Units*
Music 9AB	6
†Music 10AB	0–2
Music organization courses numbered 70-88	4
Major instrument	2
*Health Education 21	2
*Psychology 1	3
*English 1 and Speech Arts 3	5
*Social Science	3
*Physical Education	1
Free electives	4
Total	30

Second Year	*Units*
Music 52AB	6
†Music 10CD	2
Music 59AB	6
Music organization courses numbered 70-88	4
Major instrument	2
*U. S. History, Constitution, California Government	6
*Literature or philosophy	3
*Physical Education	1
Free electives	2
Total	32

Third Year	*Units*
Music 107	3
Music 146BC	2
Four units selected from Music 102AB, 103AB	4
Major instrument	2
Music organization courses numbered 170-188	4
*Natural Science	9
‡Electives	8
Total	32

Fourth Year	*Units*
Music 109A	2
Major instrument	2
Music organization courses numbered 170-188	4
Units from one of the fields of emphasis listed below	4–6
(a) *Performance:* Four units from Music 109B, 199.	
(b) *Music History and Literature:* Six units from Music 106A, 109B, 199.	
(c) *Composition:* Six units from Music 106A, 109B, 199.	
General education electives	3
‡Electives	13–15
Total	30

* 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.

Requirements in the Field of Emphasis

Performance: Students emphasizing performance must appear in a joint recital during the junior year and must present a solo recital during the senior year. The student must pass an audition of the compositions to be performed before the music faculty preceding the recitals.

Music History and Literature: During his senior year, the student emphasizing history and literature is required to organize, prepare program notes and present two recitals consisting of recorded or "live" performances. Each will deal with representative works of a certain period or composer or with certain periods, composers, or styles to be compared. Such students must pass a preliminary audition of the material to be presented before the music faculty at least one month in advance of each performance.

Creative Activity and Composition: The student emphasizing creative activity and composition is required to present a concert of his compositions during the senior year and present the scores of works to be performed to the music faculty one month in advance of the performance.

MAJORS IN TEACHER EDUCATION

Special secondary credential in music: Students taking this credential must complete the general basic requirements for all music majors, a teaching major in music, and additional requirements in professional education courses.

In addition to the general basic requirements and before recommendation for admission to directed teaching will be granted, credential candidates must have completed all lower division courses in beginning class study of orchestral instruments and voice, Music 146A-146B, and must have passed the Minimum State Credential Requirements in voice and piano, with or without credit, which are as follows:

(a) Piano: Ability (1) to play a Bach two-part invention; (2) to play an artistic accompaniment; (3) to play at sight four-part hymns.

(b) Voice: Ability (1) to sing at least one song representative of each of the following periods of vocal literature: classic, romantic, modern; (2) to sing at sight any part of a four-part hymn.

Students whose background in piano is inadequate for these requirements must register in their first semester for appropriate private or class instruction, with or without credit. Students with insufficient background in voice must register for voice instruction no later than the third semester.

Requirements in the major: Lower division: Music 9A-9B, 10ABCD (may be waived in full or in part by examination), 15A-15B (or equivalents), 52A-52B, 59A-59B; four units selected from Music 20, 25AB, 30, 35; eight units selected from courses numbered 70-88; and four units in the major instrument (34-40 units). Upper division: 24 upper division units to include Music 109A, 146A-146B; three units selected from Music 120, 125AB, 130, 135; six units selected from courses numbered 170-188; three units in the major instrument; and eight units of upper division music electives.

Professional courses in teacher education: 26 upper division units to include Education 100, 110, 120, 121G, 125, 130D, 180, and Health Education 151.

Outline of Specific Requirements

First year	*Units*
Music 9AB	6
†Music 10AB (piano)	0–2
†Music 15AB	0–2
Music organization (courses numbered 70-88)	4
Music courses selected from 20, 25AB, 30, 35	2
Major instrument	2
*English 1 and Speech Arts 3	5
*Health Education 21	2
*Psychology 1	3
*Social Science	3
*Physical Education	1
Total	30

Second year	*Units*
Music 59AB	6
†Music 10CD (piano)	2
Music 52AB	6
Music organization (courses numbered 70-88)	4
Music courses selected from 20, 25AB, 30, 35	2
Major instrument	2
*U. S. History, Constitution, California Government	6
*Literature or philosophy	3
*Physical Education	1
Total	32

Third year	*Units*
Music 146AB	2
Music 109A	2
Music courses selected from 120, 125AB, 130, 135	2
Music organization (courses numbered 170-188)	4
Major instrument	2
*Natural Science	6
Education 100, 110	8
Education 130D	2
Education 121G	2
Education 125	2
Total	32

Fourth year	*Units*
Upper division music electives	8
Music courses selected from 120, 125AB, 130, 135	1
Music organization (courses numbered 170-188)	2
Major instrument	1
*Natural Science	3
General education electives	3
Education 120	4
Health Education 151	2
Education 180	6
Total	30

* 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.

Major for the general secondary credential: A teaching major in music is offered for the general secondary credential. Students may complete requirements for this major and the general secondary credential in one of the following ways:

(1) By taking the special secondary credential in music with the A.B. degree; completing requirements in a teaching minor for the general secondary credential; and completing other credential requirements in a postgraduate year, to include four graduate units to be selected from Music 200A-200B, 203A-203B, and 206A-206B.

(2) By completing the following requirements: (a) a music major in arts and sciences, to include these additional courses: Music 15A-15B (or equivalent); four units selected from Music 20, 25AB, 30, 35; and three units selected from Music 120, 125AB, 130, 135; (b) pass the Minimum State Credential Requirements in voice and piano, with or without credit (see description of these requirements under the special secondary credential above); (c) a teaching minor for the general secondary credential; and (d) the credential requirements in a postgraduate year, to include four graduate units to be selected from Music 200A-200B, 203A-203B, and 206A-206B.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

MINOR IN ARTS AND SCIENCES

A minor in music is offered in arts and sciences. General basic requirements: (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 seven semesters (may be waived in special cases by the department chairman). Lower division: Music 9A, 10ABCD; six units selected from 9B, 52A-52B, and 59A; and four units selected from courses numbered 70-88. Upper division: Six units selected from Music 102A-102B and 103A-103B; and three units selected from courses numbered 170-188.

MINOR IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in music is offered for the general secondary credential. General basic requirements: (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 seven semesters (may be waived in special cases by the department chairman). The minor consists of 21 units (exclusive of course equivalents) to include the following courses: Lower division: Music 9A and 52A; 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, 30. Upper division: Music 146A-146B; three units of performance group courses selected from courses numbered 170-188; and one unit selected from Music 111, 112, 116, 117, 121, 122, 126, 127, 131, 132, 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 this by completing the music minor in arts and sciences, to include Music 52A, and the following additional courses: three units from Music 15A, 20, 25A, 30; Music 146A-146B; and one unit from Music 111, 112, 116, 117, 121, 122, 126, 127, 131, 132, 150.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in music. See the section of this catalog on the Graduate Division.

ELECTIVES IN MUSIC

The Music Department offers certain courses which fulfill the needs of students who do not have music as a major or minor subject but who are interested in music as an elective study area for the enrichment of their cultural background. Courses particularly suited for these needs are Aesthetics 2 and 102 and the music courses numbered 70 to 88 and from 170 to 188; such courses are designated as general education courses 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 group. Enrollment by qualified students who wish to elect these courses is encouraged.

LOWER DIVISION COURSES

X. Music Fundamentals (3) I, II

Elementary sight singing and ear training, keyboard harmony, traditional study of intervals, triads, tonality, scales, basic rhythms, and elements of form. Not counted as a part of the music major or minor.

***7A. Musicianship—For General Elementary Teachers (3) I, II**

Elementary music theory and skills including notation, meter, rhythm, scales, intervals, triads, sight singing, ear training, dictation, elementary keyboard facility and other rudiments. State-adopted elementary music texts used. A general elementary credential requirement. Open only to candidates for the general elementary credential. A general education course in literature, philosophy, and the arts.

7B. Music Materials for the Elementary School (3) I, II

Study of all phases of elementary school music: singing, listening, reading, creative music, instruments, repertoire of songs and records, music projects. Required of all general elementary credential candidates. Prerequisite: Music 7A or consent of instructor.

9A. Elementary Harmony (3) I, II

Sight singing and ear training, keyboard harmony, traditional diatonic harmony, basic four-voice writing, analysis, the smaller homophonic forms. Prerequisites: Music X or competency in music fundamentals; adequate keyboard facility.

9B. Intermediate Harmony and Two-part Counterpoint (3) I, II

Continuation of Music 9A; harmonic alteration, further study of form, introducing variational treatment. Two-voice counterpoint based on baroque polyphony, simple chorale figuration, and the invention. Prerequisite: Music 9A.

***10A-10B. Piano—Elementary Class Instruction (1-1) I, II**

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

Continuation of Music 10A-10B.

11. Piano—Intermediate Class Instruction (1-1-1-1) I, II

Materials and techniques of intermediate level are studied in detail. Satisfactory audition before the instructor is required for admission. May be repeated to a maximum of four units of credit.

15A. Voice—Elementary Class Instruction (1) I, II

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

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. Prerequisite: Music 15A or equivalent.

16. Voice—Intermediate Class Instruction (1-1-1-1) I, II

Materials and techniques of intermediate level are studied in detail. Satisfactory audition before the instructor is required for admission. May be repeated to a maximum of four units of credit.

20. Strings—Elementary Class Instruction (1-1) I, II

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 (1-1-1-1) I, II

Material and techniques of intermediate level are studied in detail. Satisfactory audition before the instructor is required for admission. Sections are offered in violin, viola, cello bass. May be repeated to a maximum of four units of credit.

25A. Clarinet—Elementary Class Instruction (1) I, II

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

Open to all students but primarily for those whose major instrument is not flute, oboe, 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 (1-1-1-1) I, II

Materials and techniques of intermediate level are studied in detail. Satisfactory audition before the instructor is required for admission. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

30. Brass—Elementary Class Instruction (1-1) I, II

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 (1-1-1-1) I, II

Materials and techniques of intermediate level are studied in detail. Satisfactory audition before the instructor is required for admission. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

35. Percussion—Elementary Class Instruction (1) I, II

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.

50. Intermediate Individual Study (1-1-1-1) I, II

For the teaching credential performance requirement or for the requirements of the major emphasis curricula leading to the A.B. degree with a major in music. See explanation below for conditions under which credit may be given for music study under private instructors. May be repeated to a maximum of four units of credit.

Piano	Oboe	French Horn	Percussion
Organ	Clarinet	Trumpet	Violin
Voice	Saxophone	Trombone	Viola
Flute	Bassoon	Baritone Horn	Cello
		Tuba	Contrabass

52A-52B. History of Music (3-3) Year, I

Detailed study of 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. Prerequisite: Music X, or equivalent, and permission of instructor.

53. Opera Technique (2) I, II

Training in the interpretation and characterization of light and grand opera. Specific work in coordination of operatic ensemble.

59A. Advanced Harmony and Three-part Counterpoint (3) I, II

Higher harmonic alteration, analysis and writing of the intermediate forms based on classical and romantic idioms. Baroque polyphony in three-voice technique, elaborate chorale figuration, the suite, the fughetta. Prerequisite: Music 9B.

59B. Modern Harmonic Practice and Four-part Counterpoint (3) I, II

Modern idioms with compositional experience, with emphasis upon twentieth century styles. Continuation of baroque polyphony into four-voice technique; writing of canon and fugue. Prerequisite: Music 59A.

PERFORMANCE ORGANIZATION COURSES

The performance organization courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques. 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).

***70. Chamber Music (1-1-1-1) I, II**

Sections for string, woodwind, brass, piano, and mixed ensemble groups. Permission of the instructor required. May be repeated to a maximum of four units of credit.

72A. Beginning Instrumental Ensemble (½) I, II

Open to all instrumental students. Group performance of simple orchestral and band scores. Prerequisite: Music 20, 25A, 30, or equivalents, one or more.

72B. Intermediate Instrumental Ensemble (½) I, II

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. Prerequisites: Music 72A or equivalent.

***75. Symphony and Marching Band (2-2-2-2) I, II**

Permission of the instructor required. May be repeated to a maximum of eight units of credit.

***80. Symphony Orchestra (1-1-1-1) I, II**

Permission of the instructor required. May be repeated to a maximum of four units of credit.

***85. Concert Choir (1-1-1-1) I, II**

Permission of the instructor required. May be repeated to a maximum of four units of credit.

***86. Treble Clef (1-1-1-1) I, II**

Permission of the instructor required. May be repeated to a maximum of four units of credit.

***87. Men's Glee Club (1-1-1-1) I, II**

Permission of the instructor required. May be repeated to a maximum of four units of credit.

***88. College Chorus (1-1-1-1) I, II**

Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. No prerequisites. May be repeated to a maximum of four units of credit.

UPPER DIVISION COURSES

(For description of courses in the field of music appreciation, see Aesthetics.)

102A. Chamber Music Literature (2) I

Instrumental ensemble repertoire, including all ensemble combinations from sixteenth to twentieth centuries. Analysis by use of scores and recordings. Prerequisite: Music 52A-52B.

102B. Keyboard Literature (2) II

Piano, organ, and other clavier literature from the sixteenth to twentieth centuries. Recordings, scores, and guest performers. Prerequisite: Music 52A-52B.

103A. Symphonic Literature (2) I

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. Prerequisite: Music 52A-52B.

103B. Song Literature (2) II

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. Prerequisite: Music 52A-52B.

106A-106B. Sixteenth Century Counterpoint (2-2) I, II

Contrapuntal techniques of the sixteenth century, as expressed in the works of Palestrina, Lassus, and Ingegneri. Compositional exercise in setting parts of the Mass. Prerequisite: Music 59B.

107. Composition (3) I, II

Original writing in the larger homophonic and polyphonic forms, for various media. Opportunity for recital performance of original works. Prerequisite: Music 59B.

109A-109B. Instrumentation and Arranging (2-2) Year, I

Arranging of music for full orchestra. Selected works of students to be performed by standard orchestras. Prerequisites: Music 59B; 109A for 109B.

111. Piano—Intermediate Class Instruction (1-1-1-1) I, II

Materials and techniques of intermediate level are studies in detail. Satisfactory audition before the instructor is required for admission. May be repeated to a maximum of four units of credit.

112. Piano—Advanced Class Instruction (1-1-1-1) I, II

Materials and techniques of the advanced level are studied in detail. Satisfactory audition before the instructor is required for admission. May be repeated to a maximum of four units of credit.

116. Voice—Intermediate Class Instruction (1-1-1-1) I, II

Materials and techniques of the intermediate level are studied in detail. Satisfactory audition before the instructor is required for admission. May be repeated to a maximum of four units of credit.

117. Voice—Advanced Voice Instruction (1-1-1-1) I, II

Materials and techniques of the advanced level are studied in detail. Satisfactory audition before the instructor is required for admission. May be repeated to a maximum of four units of credit.

118-S. Workshop in Choral Art (6) Summer

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 the larger forms, and of styles, including performing practices of the baroque and later periods. May be taken twice for credit. Prerequisite: Permission of instructors.

120. Strings—Elementary Class Instruction (1-1) I, II

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 (1-1-1-1) I, II

Materials and techniques of intermediate level are studied in detail. Satisfactory audition before the instructor is required for admission. 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 (1-1-1-1) I, II

Repertoire includes study of standard orchestral parts, solos, sonatas, suites and concerti. Satisfactory auditions before the instructor are required for admission. Sections are offered in violin, viola, cello, and bass. May be repeated to a maximum of four units of credit.

123-S. Workshop in Instrumental Techniques and Chamber Music for String, Woodwind, and Brass Instruments (2) Summer

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. Prerequisite: Permission of instructors.

125A. Clarinet—Elementary Class Instruction (1) I, II

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.

125B. Oboe, Flute, and Bassoon—Elementary Class Instruction (1) I, II

Open to all students but primarily for those whose major instrument is not flute, oboe, 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 (1-1-1-1) I, II

Materials and techniques of intermediate level are studied in detail. Satisfactory audition before the instructor is required for admission. 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 (1-1-1-1) I, II

Repertoire includes study of standard orchestral parts, solos, sonatas, suites and concerti. Satisfactory auditions before the instructor are required for admission. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

130. Brass—Elementary Class Instruction (1-1) I, II

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 130 and/or 30.

131. Brass—Intermediate Class Instruction (1-1-1-1) I, II

Materials and techniques of intermediate level are studied in detail. Satisfactory audition before the instructor is required for admission. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

132. Brass—Advanced Class Instruction (1-1-1-1) I, II

Repertoire includes study of standard orchestral parts, solos, sonatas, suites and concerti. Satisfactory auditions before the instructor are required for admission. 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

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) Summer

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)

A review of diatonic and chromatic harmony, modulation and musical form. The material covered will serve as refresher study for the Colleague Examination under the California Plan of the Music Teachers Association of California. Not open to music majors or minors.

146A. Fundamentals of Conducting (1) I

Elements of baton technique and development of basic skills common to choral and instrumental conducting.

146B. Instrumental Conducting (1) II

Study of orchestra and band scores of graduated levels of advancement. The class will prepare and conduct instrumental works in public performances. Prerequisite: Music 146A.

146C. Choral Conducting (1) I

Representative literature and techniques for choral organizations will be studied and performed. Practical experience in typical conducting situations will be emphasized in various grade levels. Prerequisite: Music 146A.

150. Advanced Individual Study (1-1-1-1) I, II

For the teaching credential performance requirement or for the requirements of the major emphasis curricula leading to the A.B. degree with a major in music. See explanation below for conditions under which credit may be given for music study under private instructors. May be repeated to a maximum of four units of credit.

Piano	Oboe	French horn	Percussion
Organ	Clarinet	Trumpet	Violin
Voice	Saxophone	Trombone	Viola
Flute	Bassoon	Baritone horn	Cello
		Tuba	Contrabass

153. Opera Technique (2) I, II

Training in interpretation and characterization of light and grand opera. Specific work in coordination of opera ensemble.

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

To be arranged after consultation with the chairman of the department. Refer to the Honors Program.

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

Individual study. Six units maximum credit. Prerequisite: permission of department chairman.

PERFORMANCE ORGANIZATION COURSES

The performance group courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques. 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 (1-1-1-1) I, II**

Sections for string, woodwind, brass and piano ensemble groups. Permission of the instructor. May be repeated to a maximum of four units of credit.

172A. Beginning Instrumental Ensemble (½) I, II

Open to all instrumental students. Group performance of simple orchestral parts and band scores. Prerequisites: Music 20A, 25A, 30A, or equivalents, one or more.

172B. Intermediate Instrumental Ensemble (½) I, II

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. Prerequisites: Music 172A or equivalent.

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***175. Symphony and Marching Band (2-2-2-2) I, II**

Permission of the instructor. May be repeated to a maximum of eight units of credit.

***180. Symphony Orchestra (1-1-1-1) I, II**

Permission of the instructor. May be repeated to a maximum of four units of credit.

***185. Concert Choir (1-1-1-1) I, II**

Permission of the instructor. May be repeated to a maximum of four units of credit.

***186. Treble Clef (1-1-1-1) I, II**

Permission of the instructor. May be repeated to a maximum of four units of credit.

***187. Men's Glee Club (1-1-1-1) I, II**

Permission of the instructor. May be repeated to a maximum of four units of credit.

***188. College Chorus (1-1-1-1) I, II**

Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. No prerequisites. May be repeated to a maximum of four units of credit.

GRADUATE COURSES

200A-200B. Special Problems in Music (2-2) Year, I, II

A graduate course in which students may carry out projects in various fields of music under the direction of faculty members who are specialists in the field chosen. Students registering for this course must apply for work within a certain field after conference with the music faculty.

203A-203B. Musicology (2-2) I, II

Problems and methods of research in aesthetics, acoustics, theory, composition, music history, and related fields. Source materials, bibliography. Comparative investigations of musical systems. Analytical and structural studies. Completion of written project. Prerequisite: Permission of instructor.

206A-206B. Composition (2-2) I, II

Advanced composition for various media, development of original idiom, intensive study of modern music. Public performance of an extended original work as a final project. Prerequisite: Permission of instructor.

207ABC. Seminar in Choral Art (6-6-6) Summer

A study of choral and chamber music performed by seminar participants in the College Chorus, the San Diego Symphony Orchestra, and Chamber Music Concerts. Development of analytical technique; study of vocal techniques, of the larger forms, and of styles, including performing practices of the baroque and later periods. Prerequisite: Permission of instructor. Total credit for Music 118-S and Music 207ABC limited to 18 units.

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.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3) I, II

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 X, 7A, Aesthetics 2, or 102.
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.
6. Evidence that the standards of the Music Department have been met will be shown by an examination conducted by the Music Department faculty at the end of the semester.
7. Ten clock hours of lessons and adequate preparation to pass the Applied Music examinations and the curriculum requirements of the department are required for one unit of credit.

NURSING

IN THE DIVISION OF LIFE SCIENCES

The nursing program consists of a four-year course of study leading to a B.S. degree in nursing. Graduates of the program are eligible to write the examination for licensure as a registered nurse. The Department of Nursing is accredited by the California Board of Nurse Examiners.

The curriculum in nursing requires completion of a minimum of 128 semester units of work as prescribed. Opportunity for clinical laboratory practice is offered by San Diego County Hospital and other community agencies. During the first semester only, all courses are held on the San Diego State campus. Throughout the rest of the program, many laboratory courses are held in community health agencies.

Any student who is regularly admitted to the college may enter the nursing program. Students will normally enter the program in the freshman year, beginning with the fall semester. Students who enter with advanced standing credit from other colleges will be required to complete the remaining requirements in the nursing program for the degree. Graduate nurses may be integrated into the program, subject to appropriate placement examinations.

MAJOR IN ARTS AND SCIENCES

A major in nursing is offered with the B.S. degree in arts and sciences. Courses in the major are in addition to general education courses, unless otherwise specified. A minor is not required for the B.S. degree.

Lower division: Nursing 1, 20A-20B, 32, 33A-33B, 34A-34B (24 units); Bacteriology 1, Chemistry 2A-2B, Home Economics 4A-4B, Physics 6, Sociology 50 and 51, and Zoology 8A-8B (30 units).

Upper division: Nursing 112, 114, 115, 116, 118, 122, 124, 125, 130, Health Education 190, Psychology 106, 131, Sociology 135, 145, and 170 (52 units).

General education: The following courses may be counted in general education: 12 units in the natural sciences for chemistry and zoology; six units in the social sciences for sociology; three units in family life education for home economics; and two units in health education for Health Education 190. The additional units to complete the 45 units in general education will be selected from the regularly listed courses in general education.

OUTLINE OF COURSES

The following outline of courses, subject to individual adjustments to a small degree, is included as a guide to students in the nursing curriculum:

First Year

First Semester	*Units*	*Second Semester*	*Units*
English 1	3	English 2 or 3	3
Chemistry 2A	3	Chemistry 2B	3
Zoology 8A	3	Zoology 8B	3
Nursing 1	1	Home Economics 4A-4B	3
Psychology 1	3	Nursing 20A	4
Speech Arts 3	2	Physical Education	½
Physical Education	½		16½
	15½		

Second Year

First Semester	*Units*	*Second Semester*	*Units*
Bacteriology 1	4	Physics 6	3
Sociology 50	3	Sociology 51	3
Nursing 20B	3	Nursing 32	2
Nursing 33A	3	Nursing 33B	4
Nursing 34A	3	Nursing 34B	4
Physical Education	½	Physical Education	½
	16½		16½

Third Year

First Semester	*Units*	*Second Semester*	*Units*
Psychology 106	3	Sociology 145	3
Sociology 135	3	Nursing 114	5
Nursing 112	5	Nursing 116	4
Nursing 115	3	Elective	3
Nursing 130	2		15
	16		

Fourth Year

First Semester	*Units*	*Second Semester*	*Units*
U. S. History, Constitution, California Government	3	U. S. History, Constitution, California Government	3
Psychology 131	3	Health Education 190	3
Sociology 170	3	Nursing 122	3
Nursing 118	5	Nursing 124	2
Elective	2	Nursing 125	5
	16		16

LOWER DIVISION COURSES

1. Introduction to Professional Relationships (1) I

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 (4) II

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. Prerequisites: Zoology 8A, Psychology 1, and Nursing 1.

20B. Nursing Arts (3) I

Introduction to the elements of observation and the records involved in patient care, and to the application of bacteriologic principles of asepsis and disinfection. Prerequisite: Nursing 20A.

32. Pharmacology (2) II

Presentation of pharmacologic agents according to actions, uses, methods of preparation and administration. Vocabulary for reporting patient reactions to medication. Hazards of self-medication, legislation controlling use of drugs.

33A-33B. Medical Nursing (3-4) Year, I

Theory and practice of nursing care for the individual patient, and of medical therapy. Problems in total patient care. Prerequisite: Nursing 20B. Nursing 33A is a prerequisite for 33B.

34A-34B. Surgical Nursing (3-4) Year, I

Theory and practice of nursing care for the individual patient, and of surgical therapy. Problems in total patient care. Prerequisite: Nursing 20B. Nursing 34A is a prerequisite for 34B.

UPPER DIVISION COURSES

Courses numbered under 150 not open to graduate nurses; courses numbered 150 and above open only to graduate nurses.

112. Obstetrical Nursing (5) I

Study of care and treatment of the obstetric patient and newborn infant.

114. Pediatric Nursing (5) II

Nursing care of infants and children; prevention and control of disease; and instruction of parents. Prerequisite: Nursing 112.

115. Advanced Surgical Nursing (3) I

Methods and principles of surgical nursing in selected clinical areas. Emphasis on specialized therapeutic techniques. One lecture and six hours of laboratory per week. Prerequisite: Nursing 34B.

116. Communicable Disease Nursing (4) II

History, occurrence, pathology, care and treatment of communicable diseases; emphasis on tuberculosis.

118. Psychiatric Nursing (5) I

Major concepts of psychiatric nursing and mental health that are involved in care of the mentally ill; therapies and rehabilitation measures.

122. Advanced Clinical Nursing (3) II

Principles in planning patient care as practiced by an individual and by a team leader. Nine hours of laboratory per week. Prerequisites: Nursing 33B and 115.

124. Professional Relationship (2) II

A survey of the fields of nursing responsibilities of the graduate nurse in nursing service and education. Consideration of legal, social, economic aspects of nursing. Prerequisite: Nursing 130.

125. Public Health Nursing (5) II

Principles of public health nursing with practice in community health agencies, out-patient clinics, schools and homes. Two lectures and nine hours of laboratory per week. Prerequisite: Nursing 33B, 34B, and Nursing 116.

130. History of Nursing (2) II

Nursing from earliest times; emphasis on the place of nursing in world history and the present social order.

150. Trends in Nursing (2) II

A survey of recent developments and current problems in nursing service and education. Prerequisite: R.N. certificate.

151. Ward Management (3) I

Problems of organization, personnel, and operation of a hospital unit, ward or clinic. Two lectures and one three-hour laboratory per week. Prerequisite: R.N. certificate.

152. In-service Instruction (2) II

Application of the principles and methods of teaching in the various clinical services. Prerequisite: R.N. certificate.

154. Legal Aspects of Nursing (2) I

Legal responsibilities of graduate nurses. Discussion and review of legal interpretations in selected cases. Prerequisite: R.N. certificate.

OCEANOGRAPHY

IN THE DIVISION OF LIFE SCIENCES

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. Prerequisites: Introductory courses in life and physical sciences.

PERSONNEL MANAGEMENT CURRICULA

IN THE DIVISIONS 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 A.B. 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 section of the catalog on the Graduate Division for a description.

PHILOSOPHY

IN THE DIVISION OF HUMANITIES

MAJOR IN ARTS AND SCIENCES

A major in philosophy is offered with the A.B. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses. A minor is not required of philosophy majors for the bachelor's degree.

Lower division: Nine units in philosophy to include Philosophy 20.

Upper division: 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.

MINOR IN ARTS AND SCIENCES

A minor in philosophy is offered in arts and sciences. The minor consists of 15 to 22 units in philosophy, nine units of which must be incourses carrying upper division credit.

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**

The nature of philosophical inquiry as applied to problems of knowledge and reality. Through discussion procedures, the student has opportunity and is encouraged to formulate his own tentative conclusions. A general education course in literature, philosophy, and the arts. Prerequisite: Philosophy 1A.

***20. Logic (3) I**

The use of logic in science and practical life. Analysis of fallacies. Logic and language. Formation and validation of hypotheses. Interpretations of probability. The logic of experimentation. A general education course in literature, philosophy, and the arts.

UPPER DIVISION COURSES

***100A. Ancient and Medieval Philosophy (3) I**

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**

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, phiolosophy, and the arts.

***101. Contemporary Philosophy (3) II**

(Offered in 1958-59 and alternate years)

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. Prerequisite: Philosophy 1A or 1B.

***111A-111B. Theory of the State (3-3) Year, I**

(Same course as Political Science 111A-111B)

The nature of the state, its organization and activities, and its relation to the individual and to other states. A general education course in literature, philosophy, and the arts. Not open to students with credit for Political Science 111A-111B.

121. Deductive Logic (3) II (Offered in 1958-59 and alternate years)

Definition, classification, and division. The forms of reasoning. Analysis of propositions. Immediate inference. The syllogism. Dilemmas. Modern symbolic logic.

128. Theory of Ethics (3) I

A study of significant and typical value theories and systems and of the concrete problems such theories seek to explain. The emphasis will be placed on moral values. The student will be encouraged to examine critically his own system of values.

***129. Social Ethics (3) II**

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 (3) 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.

***135. Philosophy of Religion (3) II**

An impartial 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**

The nature of esthetic experience. The principal theories of art, both traditional and contemporary, are studied at length, both in relation to actual artistic production and to the role of art in society. A general education course in literature, philosophy, and the arts.

137. Philosophy of Science (3) I

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. Prerequisite: Three lower division units in philosophy.

162. Continental Rationalism (3) I (Offered in 1957-58 and alternate years)

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 1958-59 and alternate years)

The origins, content, and contemporary significance of the empirical tradition, with reference primarily to the philosophies of Locke, Berkeley, and Hume.

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: Permission of instructor.

PHYSICAL EDUCATION

IN THE DIVISION OF PHYSICAL EDUCATION, HEALTH EDUCATION AND RECREATION

A major in physical education is offered with the A.B. degree in arts and sciences and in teacher education. Courses in the major are in addition to 45 units in general education courses.

A minor in a field other than physical education is required of physical education majors for the A.B. degree in arts and sciences. Students taking the special secondary credential are not required to complete a minor for the A.B. degree. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

Major for men: Lower division: Two units of physical education activity courses (may be counted in general education); Physical Education 53, 63, 64, 72; Zoology 8A-8B. Upper division: 26 upper division units to include seven units from physical education courses numbered 141 to 148, inclusive; Physical Education 167, 168, 169, 170A or 170B; and eight units selected from courses in health education, physical education, or recreation.

Major for women: Lower division: Four units of physical education activity courses to include Physical Education 1A, 2A-2B, 3A-3B, 5A-5B, and 6 (two of these units may be counted as general education); Physical Education 53, 72, and Zoology 8A-8B. Upper division: 26 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.

MAJORS IN TEACHER EDUCATION

Special secondary credential in physical education: Students taking this credential must complete a teaching major in physical education and additional requirements in professional education courses.

Major for men: Lower division: In addition to two units of physical education activity courses in general education, the student shall complete Physical Education 53, 63, 64, 72, Health Education 65, and Zoology 8A-8B (17 units). Upper division: 25 upper division units to include Physical Education 141, 142, 145, 146, 161, 167, 168, 169, 170A or 170B, 190, and two units of upper division electives.

Major for women: Lower division: Physical Education 1A, 2A, 2B, 3A, 5A, 5B, 6, 12A, 13A, 14A, 18A, 53, 72, and Zoology 8A-8B (16 units). Two units of physical education activity courses may be counted in general education. Upper division: 28 upper division units to include Physical Education 142, 151, 154A-154B, 155, 156A-156B, 160, 161, 167, 168, 170B, and 190.

Professional courses in teacher education: 22 upper division units to include Education 100, 110, 120, 180, 121H for men or 121J for women, and Health Education 151.

Major for the general secondary credential: A teaching major in physical education is offered for the general secondary credential. Students may complete requirements for this major and the general secondary credential in one of the following ways:

(1) By taking the special secondary credential in physical education with the A.B. degree; completing requirements in a teaching minor for the general secondary credential; and completing other credential requirements in a postgraduate year, to include four graduate units in physical education courses to be selected with approval of the adviser.

(2) By completing (a) the A.B. degree with a physical education major in arts and sciences and including or adding the following courses: for men, Health Education 65, Physical Education 141, 142, 145, 146, 161, and 190; for women, Physical Education 12A, 13A, 14A, 18A, and Physical Education 142, 154A, 154B, 155, 161, 170B, and 190; (b) a teaching minor for the general secondary credential; and (c) the credential requirements in a postgraduate year, to include four graduate units in physical education courses to be selected with approval of the adviser.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

MINOR IN ARTS AND SCIENCES

A minor in physical education is offered in arts and sciences. The minor consists of 15 to 22 units in physical education, nine units of which must be in courses carrying upper division credit. The minor should be planned in consultation with the department chairman.

MINORS IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in physical education is offered for the general secondary credential. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units.

Minor for men: Lower division: Physical Education 53, 72, and two to four units of physical education electives. Upper division: four units of professional activity courses to be selected in consultation with the departmental representative; Physical Education 161, 170A or 170B, and five to seven units of upper division electives in physical education.

Minor for women: Lower division: Physical Education 1A, 2A-2B, 3A, 5A-5B, 6, 53, and three to four units of physical education electives. Upper division: Physical Education 151, 156A-156B, and five to six units from Physical Education 154A-154B, 170B, and 190.

Minor for the general elementary and kindergarten-primary credentials: This minor is the same as the minor in arts and sciences. Courses should be selected in consultation with the departmental representative.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in physical education. See the section of this catalog on the Graduate Division.

REQUIRED ACTIVITY COURSES

To meet general education requirements, all lower division students must enroll in an activity course each semester. Four semesters of activity courses are required. Two units are needed for general education and graduation, but no more than one activity course in any one semester may be counted toward this requirement. An activity course taken in the summer session may be counted in lieu of a semester.

Veterans of the United States armed forces are exempted from the general education requirement in physical education. Students carrying fewer than 12 units during any semester may apply to the Chairman of the Physical Education Department for a postponement of the physical education activity requirement. For reasons of health, the Director of Health Services may postpone the enrollment of a student in a physical education activity course. Permanent postponement from the activity requirement will not be made and a postponement does not eliminate the graduation requirement.

A health history record and chest X-ray are required of each student entering college. Individually adapted physical education classes to care for special needs are offered. The content of the required courses is planned to give each student an opportunity to participate in many activities of carry-over value, developmental nature, and recreational interest. An opportunity is afforded for students to participate in competitive sports and intramural programs.

MEN'S DEPARTMENT

Freshmen are required to choose from courses numbered 1-10. Sophomores and upper division students may choose from all courses offered. An activity course may be taken for credit once only.

LOWER DIVISION COURSES

ACTIVITY COURSES

All activity courses are general education courses.

1ABCD. Individual Adaptation (½) I, II
2. Basketball (½) I, II
3. Boxing (½) I, II
4. Gymnastics (½) I, II
5. Soccer (½) I, II
6. Softball (½) II
7. Touch Football (½) I, II
8. Track and Field (½) I, II
9. Volleyball (½) I, II
10. Wrestling (½) I, II
13. Archery (½) I, II
14AB. Badminton (½) I, II
15. Fencing (½) I, II
16AB. Golf (½) I, II
17. Handball (½) I, II
18AB. Tennis (½) I, II
19. Bowling (½) I, II
20AB. Swimming (½) I, II
21. Life Saving (1) I, II
24. Hiking (½) I, II
25. Baseball (½) I, II

INTERCOLLEGIATE SPORTS

30. Baseball (½) II
31. Basketball (½) I
32. Cross Country (½) I
33. Football (½) I
34. Golf (½) II
35. Gymnastics (½) II
36. Tennis (½) II
37. Track (½) II
38. Wrestling (½) II
39. Swimming (½) II

WOMEN'S DEPARTMENT

Freshmen may choose from courses numbered 1-11 or 20A-B. Sophomores may choose from all courses offered. An activity course may be taken for credit once only.

The individual activities, tennis, golf, archery, badminton, and swimming are offered through the year. Candidates for the special secondary credential in physical education must select one as a major activity and two others as minors. Skills in the activities must be maintained as prerequisite to the senior course, Physical Education 155.

UPPER DIVISION COURSES

ACTIVITY COURSES

All activity courses are general education courses.

1A-1B. Fundamental Skills (½) I, II
Practice in efficient fundamental body movements.

2A-2B. Folk Dancing (Men and Women) (½) I, II
2A is a prerequisite for 2B.

3A. Modern Dance (Men and Women) (½) I, II
A beginning course in creative movement designed to develop control and intelligent use of the body as an instrument of expression.

3B. Modern Dance (Men and Women) (½) I, II
Skill techniques, qualities and style of movement, beginning compositional form. Prerequisite: 3A.

5A. Soccer, Speedball, Hockey (½) I, II

5B. Softball, Volleyball (½) I, II

6. Basketball (½) I, II

11A-11B. Ballroom Dancing (Men and Women) (½) I, II
11A is a prerequisite for 11B.

12A. Advanced Modern Dance (Men and Women) (1) I, II
Skill techniques, rhythmic form and analysis. Materials of design and group composition. Criticism of student sketches, studies and completed dances. Prerequisites: 3A, 3B, except for physical education majors who are not required to take 3B.

12B. Advanced Modern Dance (Men and Women) (1) I, II
Advanced skill techniques and group choreography. The use of percussion instruments and various forms of accompaniment. Discussion, lectures, practice. Prerequisites: 3A, 3B, 12A.

13A-13B. Archery (½) Year, I, II

14A-14B. Badminton (½) Year, I, II

16A-16B. Golf (½) I, II

18A-18B. Tennis (Beginning, Intermediate) (½-½) I, II
18A is a prerequisite for 18B.

19. Bowling (½) I, II

20A. Swimming (For non-swimmers only) (½) I, II

20B. Swimming (Intermediate) (½) I, II

21. Life Saving (1) I, II
Standard American Red Cross course in life saving and water safety, designed to qualify superior swimmers for Senior Life Saving Certificate.

24. Hiking (½) I, II

MEN AND WOMEN

PROFESSIONAL THEORY COURSES

LOWER DIVISION COURSES

53. Physical Education in the Elementary School (2½) I, II
(Same course as Recreation 53)
The state program in physical education for the elementary school forms the basis of the course. Candidates for the elementary credential are required to take the course section which includes two lectures and two laboratory periods per week. Candidates for the special secondary credential in physical education may take the course section which includes two lectures without laboratory periods. Not open to students with credit for Recreation 53.

63. Professional Activities (men) (2) II (Same course as Recreation 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 Recreation 63.

64. Professional Activities (men) (2) I

The acquisition of skills and teaching techniques, and the development of knowledge and interest in the combative activities, primarily wrestling and boxing.

72. Introduction to Physical Education (2) I, II

History and principles of physical education and sports. Study of the objectives of modern physical education with a view toward the development of a basic philosophy and background for professional education.

UPPER DIVISION COURSES

***122. Water Safety Instruction (1) II**

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. Prerequisite: P.E. 20B or equivalent, and American Red Cross Senior Life Saving Certificate.

141. Professional Activities: Gymnastics (men) (2) I

The skills and teaching techniques in gymnastics. The place of tumbling, apparatus, self-testing and calisthenics in the school program. Knowledge of the rules for competition in gymnastics. Prerequisite: P.E. 4, or consent of instructor.

142. Professional Activities: Swimming (men and women) (1) I, II

The development of skills in swimming with emphasis on the teaching techniques. Scope of course is from beginning swimming to life saving techniques. Prerequisite: Intermediate swimming, or consent of instructor.

143. Professional Activities: Coaching Track (men) (1) I

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

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

The skills, rules, teaching techniques, officiating, and organization of materials in such sports as soccer, touch football, softball, hockey, basketball, and other sports.

146. Professional Activities: Individual Sports (men) (2) II

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

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

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 Dancing Materials and Advanced Techniques (women) (2) I

Folk customs, festivals, and costumes. Selection of dance materials for various age groups. Analysis of teaching techniques. Prerequisites: Physical Education 2A-2B.

153A-153B. Problems in Modern Dance (men and women) (2-2) I, II

The construction and critical evaluation of the more complex forms of choreography. Prerequisites: Physical Education 12A-12B, or permission of instructor.

154A-154B. Methods of Teaching Modern Dance (2-2) I, II

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. Prerequisites: Physical Education 3A and 12A.

155. Techniques of Individual Sports (women) (1) II

Review of individual playing techniques, knowledge, rules, and teaching methods in tennis, archery, badminton, and golf. Designed for senior majors in physical education, who are expected to demonstrate a high degree of competency in the sports indicated.

156A-156B. Sports Methods (women) (2-2) I, II

Analysis of skills, teaching techniques, officiating, and the organization of materials in team sports for women. Prerequisites: Physical Education 5A, 5B, 6.

157A-157B. Choreography in Contemporary Dance (men and women) (3-3) I, II

Experimentation in the dance, relating contemporary theories to other art forms. The study of force and time-space relationships as factors in choreography. Production problems. Two lectures and three hours of laboratory work per week. Prerequisite: Permission of instructor.

160. Teaching of Body Mechanics (women) (3) II

Efficient use of the body in daily living; evaluation and classification of exercises, study of methods, and practice in planning and presenting material. Prerequisite: P.E. 167.

161. Instructor's Course in First Aid (2) I, II

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

Anatomical and kinesiological analysis of human structure and movement. Application of analysis relative to mechanical principles as influenced by efficiency factors of body functions. Prerequisites: Zoology 8A-8B.

168. Physiology of Exercise (3) II

A nonlaboratory course emphasizing the relation of physiology to muscular exercise in physical activities. Prerequisites: Zoology 8A-8B.

169. Adapted Activities (3) II

The adaptation of programs for the atypical individual, including physical examinations, training and prescribed exercises, follow-up, instructional problems, and evaluation. Three lectures and two laboratory periods per week. Prerequisite: Zoology 8A-8B and Physical Education 167.

170A-170B. Recreational Leadership (2-2) Year, I

(Same course as Recreation 170A-170B)

Principles and practices in recreational leadership. Methods of instruction and special techniques in the activities of the recreation program. Attention to crafts, music, social programs, drama, special projects, dance, sports, campcraft, and outdoor education. Not open to students with credit for Recreation 170A-170B.

190. Administration of Physical Education in the Secondary School (3) I, II

Problems and practices in the organization and administration of the secondary school activity program. Study, selection and adaptation of activities, examination, and grouping of pupils, use and evaluation of tests. Selection and maintenance of equipment and facilities.

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

Individual study. Six units maximum credit. Prerequisite: Permission of department chairman.

GRADUATE COURSES

200. Evaluation Procedures in Physical Education, Health Education and Recreation (2) 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 (2)

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. Prerequisite: Physical Education 167.

203. Problems in Physical Education (2)

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 (2) (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 (2)

(Same course as Health Education 205)

Analysis of current curricula in physical education and health education, with special emphasis upon curriculum construction and evaluation.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Guidance in the preparation of a project or thesis for the master's degree.

PHYSICAL SCIENCE

IN THE DIVISION OF PHYSICAL SCIENCES

A major in physical science is offered with the A.B. degree in arts and sciences and in teacher education. Courses in the major are in addition to 45 units in general education courses, except that nine units in chemistry, physics, and mathematics may be counted in general education. A minor for the bachelor's degree is not required of students with a physical science major. Students who plan to take the general secondary credential are advised to complete a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

The major in physical science with the A.B. degree in arts and sciences is available to students who have been admitted to teacher education and have completed at least eight units of professional education courses by date of degree candidacy.

Lower division: Chemistry 1A-1B, Physics 4A-4B-4C or 2A-2B-3A-3B, Mathematics 40 and 50. Recommended: Mathematics 51.

Upper division: 24 upper division units to include a minimum of seven units in each of chemistry and physics. The following courses must be included: Chemistry 101A, two units of Physics 120, and either Physics 101 or Physical Science 130. Recommended: Physical Science 150 and Industrial Arts 185. Additional courses to complete the major must be selected with approval of the adviser. Recommended electives: Geography 153, Zoology 119-S.

MAJOR IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in physical science and general science is offered for the general secondary credential. Requirements for this teaching major may be met by completing in arts and sciences a major in physical science with the A.B. degree or a major in chemistry or physics with the A.B. or B.S. degree, and in addition to the major, the following lower division courses: Astronomy 1, Biology 3 and 4, and Geology 2 or 1A. These courses may be counted in general education. Recommended: Industrial Arts 5, 6, or 85.

Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in physical science and general science, a teaching minor for the credential, and the credential requirements in a postgraduate year, to include four graduate units selected from Chemistry 200 (2-4 units) and Physics 200 (2-4 units).

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

MINOR IN ARTS AND SCIENCES

A minor in physical science is offered in arts and sciences to students who have been admitted to teacher education and have completed at least eight units of professional education courses by date of degree candidacy. The minor consists of a minimum of 20 units to include three or more units in at least three of the following fields: Astronomy 1; Biology 3 and 4; Chemistry 2A-2B or 1A-1B; Geology 2 or 1A; Physics 2A-2B-3A-3B or 4A-4B-4C.

MINOR IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in physical science and general science is offered for the general secondary credential. This minor, which may be used for the A.B. degree, is available to students who have been admitted to teacher education and have completed at least eight units of professional education courses by date of degree candidacy. The minor consists of a minimum of 26 units to include the following courses: Astronomy 1; Biology 3 and 4; Chemistry 2A-2B or 1A-1B; Geology 2 or 1A; Physics 2A-2B-3A-3B or 4A-4B-4C. Recommended electives: Astronomy 9, Geology 3, Chemistry 101A, Geography 3, 153, Physical Science 130, 150, Physics 101, Botany 119-S or Zoology 119-S, and Industrial Arts 5, 6, and 85.

LOWER DIVISION COURSES

***1. Introduction to Physical Science (3) I, II**

The nature of the physical universe, through concepts of the whole field of physical science, rather than emphasis on its separate divisions. Materials chosen primarily from astronomy and physics. No prerequisites. Not open to students with previous credit for or concurrent enrollment in a college lecture course in physics or astronomy, or Physical Science 5. This course is a general education course in physical science which may be followed by or taken with Astronomy 9 for laboratory credit in natural science.

***2. Introduction to Physical Science (3) I, II**

Continuation of Physical Science 1, with emphasis on materials chosen primarily from chemistry and geology. It is recommended but not required that Physical Science 1 be taken first. Not open to students with previous credit for or concurrent enrollment in a college lecture course in chemistry or geology. This course is a general education course in physical science which may be followed by or taken with Geology 3 for laboratory credit in natural science.

***5. Man and His Physical World (3) I, II**

Selected topics in physical science. The relations of physical science to modern life through emphasis on the scientific method. Designed for those intending to take only one semester of physical science. A general education course in physical science. May be followed by or taken with Astronomy 9 or Geology 3 for laboratory credit in natural science. Physical Science 5 is not open to students with credit for Physical Science 1 or 2.

UPPER DIVISION COURSES

***130. Modern Physical Science (3) II**

Recent and current developments in the physical sciences. Discussions concerning such phenomena as radioactivity, cosmic rays, nuclear energy, tracer techniques, radio telescopy, supergalaxies. Prerequisite: Upper division standing. Not open to students who have credit for Physics 4A-4B-4C, or equivalent.

140S. 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. These lectures are open to the public.

***150. Readings in the Physical Sciences (3) I**

Reading from selected materials with informal class discussion of topics.

PHYSICS

IN THE DIVISION OF PHYSICAL SCIENCES

Arts and sciences: A major in physics is offered with the A.B. or B.S. degree in arts and sciences. Courses in the major are in addition to 45 units in general education courses, except that nine units in physics, chemistry, and mathematics 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. The major is described below.

Teacher education: A teaching major in physical science and general science, with physics as the basic major, is offered for the general secondary credential. The major for this credential is described below. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

Major with the A.B. degree: Lower division: Physics 4A-4B-4C, Chemistry 1A-1B, or their equivalents. Recommended: a reading knowledge of French or German. Upper division: 24 upper division units in physics to include Physics 101, 103, 105, 107, and 110; two units each of Physics 120 and 198. Students who plan to do advanced work in physics should include Physics 106, 112, 151, 170, and 175 to have minimum preparation acceptable at most graduate schools. A minor in mathematics is required, consisting of Mathematics 50, 51, and 52, or their equivalents, and Mathematics 118A-118B. Recommended: three units from Mathematics 104, 111, 119, 121, or 124.

Major with the B.S. degree: Lower division: Physics 4A-4B-4C, Chemistry 1A-1B, Mathematics 50, 51, and 52, or their equivalents. Upper division: 36 upper division units to include Physics 101, 103, 105, 107, 110, and 198; Mathematics 118A-118B. The program, planned in consultation with the departmental adviser for this degree, must be designed to provide a four-year terminal program for the student. The following courses are required as part of two options approved under this degree: *Applied Physics:* Physics 106, 112, 114, and four units of Physics 120. Recommended: Physics 151, 170. *Electronics:* Physics 104A-104B, 123, 124, 160. Recommended: Physics 170.

MAJOR IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in physical science and general science is offered for the general secondary credential. Requirements for this teaching major may be met by completing the A.B. or B.S. degree in arts and sciences with a major in physics or chemistry, or the A.B. degree with a major in physical science, and in addition to the major, the following lower division courses: Astronomy 1, Biology 3 and 4, and Geology 2 or 1A. (These courses may be counted in general education.)

Recommended lower division electives: Astronomy 9, Geography 3, Geology 3, Industrial Arts 5, 6, 85. Recommended upper division electives, if not included as part of the major: Botany 119-S, Chemistry 101A, Physics 101, 120, Zoology 119-S, and Geography 153.

Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in physical science and general science, a teaching minor for the credential, and the credential requirements in a postgraduate year, to include four graduate units selected from Physics 200 (2-4 units) and Chemistry 200 (2-4 units).

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

MINOR IN ARTS AND SCIENCES

A minor in physics is offered in arts and sciences. The minor consists of 15 to 22 units in physics, six units of which must be in courses carrying upper division credit.

THE MASTER'S DEGREE

The master of arts degree for teaching service and the master of science degree are offered with a major in physics. See the section of this catalog on the Graduate Division.

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) Year, I, II**

This course is for liberal arts and certain preprofessional students who do not desire intensive physics preparation. Lectures, demonstrations and discussions. 2A, properties of matter, mechanics, heat, and sound; 2B, light, electricity, magnetism, and atomic physics. A physical science general education course in the area of natural science. Prerequisite: Two years of high school mathematics. Physics 2A is a prerequisite for 2B. Recommended concurrent registration in Physics 2A and 3A, and in Physics 2B and 3B.

***3A-3B. Physical Measurements (1-1) Year, I, II**

A laboratory course to accompany Physics 2A-2B. 3A: properties of matter, mechanics, heat and sound. 3B: electricity, magnetism, and light. One three-hour laboratory per week. A physical science general education course, either semester of which meets the laboratory requirement in natural science. Prerequisite for 3A: Concurrent or previous registration in Physics 2A. Prerequisite for 3B: Concurrent or previous registration in Physics 2B.

4A-4B-4C. Principles of Physics

The following sequence of three courses is designed to give a thorough background in the fundamental principles of physics, with applications to practical problems. Each course consists of three lectures and one three-hour laboratory per week.

4A. Mechanics and Sound (4) I, II

The mechanics of solids and fluids; wave motion and sound. Prerequisites: Mathematics 3A and credit or concurrent registration in Mathematics 3B or 50.

4B. Electricity (4) I, II

Magnetism, electricity and elementary electronics. Prerequisites: Physics 4A with a grade of C or better and credit or concurrent registration in Mathematics 4A or 51.

4C. Heat, Light and Introduction to Modern Physics (4) I, II

Heat and thermodynamics, kinetic theory, light and introduction to modern physics. Prerequisites: Physics 4B with a grade of C or better, and credit or concurrent registration in Mathematics 4B or 52.

***5. Physics of the Home (4) I**

Everyday applications of physics in heating, lighting, insulating, cooking, refrigeration, air-conditioning, sound, music, mechanical and electrical appliances. Not open to students with credit for Physics 2A, 2B, 4A, 4B, or 4C. Three lectures and three hours of laboratory per week. A general education course in physical science which also meets the laboratory requirement in natural science.

6. Physics for Nurses (3) I

Selected topics in mechanics, heat, light, electricity, and atomic physics applicable to nursing. Discussions, demonstrations, and laboratory practice. Two three-hour periods per week.

14. Acoustics of Music (3) II

Fundamentals of acoustics and audition underlying musical phenomena presented in descriptive and nonmathematical terms. Prerequisite: A technical understanding of music.

UPPER DIVISION COURSES

101. Modern Physics (3) I, II

Modern developments in physics, including an introduction to the quantum and relativity theories, and to the fields of atomic, nuclear and solid state physics. Industrial applications of nuclear power. Prerequisites: Physics 4C; or Physics 2B and a working knowledge of the calculus.

103. Basic Electronics (3) I, II

A qualitative survey of electron tubes, amplifiers, and electronic systems. Prerequisites: Physics 4B, or 2B and 3B, and a working knowledge of the calculus.

104A-104B. Vacuum Tube Circuit Design (3-3) I, II

The theory of coupled circuits, transients and networks. Resistance loaded amplifiers; negative feedback and applications to regulated power supplies, cathode followers, and DC amplifiers. Power amplifiers, oscillators, modulators and detectors. Prerequisites: Physics 103 and 110, or permission of the instructor.

105. Analytical Mechanics (3) I, II

Principles of Newtonian mechanics developed through the use of vector methods. Statics and dynamics of particles and rigid bodies. Prerequisites: Physics 4C and Mathematics 118A.

106. Optics (3) II

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. Prerequisite: Physics 2B-3B or 4C.

107. Electrical Measurements (2) I, II

Laboratory techniques in the measurements of current, voltage, resistance, capacitance, inductance, power, and magnetism. Solution of associated problems; data handling and error analysis. One hour lecture and one three-hour laboratory per week. Prerequisites: Concurrent registration in Physics 110, or permission of the instructor.

110. Electricity and Magnetism (3) I, II

Analysis of direct and alternating current circuits using the operator "j" and circuit theorems; introduction to coupled circuits, resonance and transients. Electrostatics; dielectrics and conductors. Chemical, photo and thermal effects. Electromagnetism, and magnetic properties. Prerequisites: Physics 4C, and concurrent registration in Mathematics 118A, or permission of the instructor.

112. Thermodynamics and Kinetic Theory (3) I

Thermal properties of matter, laws of thermodynamics, kinetic theory of gases, and an introduction to statistical mechanics. Prerequisites: Physics 4C and Mathematics 4B or 52.

114. Acoustics (3) II

Wave motion and its application to the production, transmission and reception of sound. Development of acoustic circuits using electro-acoustic analogues. Prerequisites: Physics 103, 105, and 110.

120. Advanced Laboratory (2-4) I, II

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. Prerequisite: Consent of the instructor.

123. Electronics Laboratory (2) I, II

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. An hour lecture and a three-hour laboratory per week. Prerequisites: Physics 107 and concurrent registration in Physics 104A; or permission of the instructor.

124. Radio Measurements (2) I, II

Laboratory measurements of the parameters of resonant circuits at radio frequencies. Study of the properties of oscillators, modulators, detectors and wave guides. An hour lecture and a three-hour laboratory per week. Prerequisites: Physics 123 and previous or concurrent registration in Physics 104B; or permission of the instructor.

151. Atomic and Nuclear Physics (3) I

A study of the wave model of the atom and its application to spectroscopy. Nuclear phenomena, theory of the nucleus, cosmic rays, and high-energy reactions of particles. Prerequisites: Physics 101 and 105.

153. Servo-System Design (3) I

Regulatory systems, including servomechanisms by the Laplace Transform. System performance and stability. Practical components and examples of typical designs. Prerequisites: Differential equations and Physics 103, or permission of the instructor.

154. Television Circuits (3) II

The principles, analysis and design of television transmitting and receiving systems. Special operational mathematics techniques will be included. Prerequisite: Physics 104B.

155. Analogue Computers (3) II

Electronic integration and differentiation; solution of differential equations; multiplication, division and function generation; simulation of mechanical systems varying with time, solution of typical problems; auxiliary equipment, layout of large installations. Prerequisites: Differential equations, and Physics 103.

156. Digital Computers (3) I

The binary number system; electronic and magnetic flip-flop circuits; memory devices; programming; complete computer systems. Auxiliary equipment for inserting information and reading out results rapidly. Typical applications and limitations. Prerequisites: Differential equations, and Physics 103.

160. Circuit Analysis (3) I, II

Filter design, transmission lines, and network analysis. Prerequisite: Physics 104A, or permission of the instructor.

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

An individual study arrangement for students admitted to the Honors Program. Enrollment through the department chairman, subject to the approval by the Committee on Honors. Refer to the Honors Program.

167. Transistor Circuits (3) I

Properties of transistors and their application to amplifiers, oscillators and trigger circuits. Prerequisite: Physics 104B or permission of the instructor.

170. Electromagnetic Theory (3) II

Electrostatics and magnetostatics treated by vector methods; motions of ions in electric and magnetic fields; electromagnetic induction, radiation, and wave propagation. Prerequisites: Physics 110, and concurrent registration in Mathematics 118B, or permission of the instructor.

171. Introduction to Microwaves (3) I

A study of the generation and amplification of microwaves. Prerequisites: Physics 104B and Physics 160.

175. Advanced Mechanics (3) II

Generalized coordinates Lagrangian and Hamiltonian functions, vibrations, elasticity, elementary nonlinear systems, introduction to quantum and wave mechanics. Prerequisites: Physics 105 and concurrent registration in Mathematics 118B; or permission of the instructor.

180. Solid State Physics (3) II

Theory of the elastic, thermal, electric, and magnetic properties of solids, with emphasis on ferroelectric crystals, ferromagnetism, conduction and semiconductors. Prerequisites: Physics 110 and 175, or permission of the instructor.

196. Advanced Physics (2 or 3) I, II

Selected topics in classical and modern physics. Prerequisite: Permission of the instructor. May be repeated with the approval of the instructor for a total of 6 units.

198. Senior Report (2) I, II

Each student will work on a project in physics and make oral reports to the class. A complete written report is required on each project. One discussion period and one three-hour laboratory per week. Prerequisite: Permission of instructor. May be repeated to a total of four units of credit.

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) I

An intensive study of mechanics utilizing vector and tensor methods. Study of the motion of rigid bodies, vibration, coupled circuits. Lagrange's and Hamilton's equations. Principle of least action. Prerequisite: Physics 175, or permission of the instructor.

210A-210B. Mathematics of Chemistry and Physics (3-3) Year, I

(Same course as Chemistry 210A-210B or Mathematics 210A-210B)

An introduction to the mathematical processes which form a basis for advanced work in one of the physical sciences. First semester: selected topics introducing the student to the mathematical approach in solution of scientific problems. Second semester: applications of mathematical principles to specific problems in chemistry and physics. Prerequisites: Graduate standing and acceptance into Master of Science degree program.

251. Nuclear Physics (3) II

Applications of quantum theory to nuclear physics. Theory of nuclear forces, nuclear reactions, interaction of radiation with matter, radioactivity, nuclear structure and high energy physics. Prerequisites: Concurrent registration or credit in Physics 275, or permission of the instructor.

260. Advanced Electronics (3) II

Selected advanced topics in contemporary electronics. Prerequisite: Physics 104B and 160, or permission of the instructor.

270. Electromagnetic Theory (3) I

Boundary value problems; time varying electric and magnetic fields; propagation of radiation; antennas, wave guides. Prerequisite: Physics 170, or permission of the instructor.

275. Quantum Mechanics (3) II

The physical basis of quantum mechanics. Schroedinger's wave equation, and Heisenberg's matrix mechanics. Quantum theory of radiation, molecular, and nuclear systems. Approximation methods. Prerequisites: Physics 151 and 175 or permission of the instructor.

290. Bibliography (1)

Exercise in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

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. Required in addition to the 30-unite requirement for the degree.

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

Individual study. Six units maximum credit. Prerequiste: Permission of staff; to be arranged with department chairman and instructor

299. Thesis (3)

Guidance in the preparation of a project or thesis in physics for the master's degree.

POLITICAL SCIENCE

IN THE DIVISION OF SOCIAL SCIENCES

Three majors leading to the A.B. degree are offered by the Department of Political Science: (1) a major in political science, (2) a major in public administration, and (3) a major in public personnel management. Courses in the major are in addition to 45 units in general education courses. Students majoring in political science are required to complete a minor approved by the department chairman. A minor is not required of students majoring in public administration or in public personnel management.

Two certificate (nondegree) programs are also offered by the Department of Political Science: (1) certificate in public administration and (2) certificate in public welfare administration.

Students preparing to work in government service may wish to follow one of the programs named above, take minor work in political science or public administration, or advanced study for a master's degree. Also available is a program in inter-American relations, offered as a social science major by the Division of Social Sciences.

MAJORS IN ARTS AND SCIENCES

Major in political science: Lower division: Political Science 1A-1B or 71A-71B. Upper division: 24 upper division units to include (a) three units in Political Science 197 or 199 and (b) 21 upper division units in political science distributed among at least three of the following groups: 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 195; *Provided*, that at least two units of the required 21 shall be taken from Group I.

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: Lower division: Political Science 71A-71B and Economics 1A-1B. Upper division: 36 upper division units to include Political Science 140A-140B and 197 or 198, Economics 131 and 140, and additional courses selected with approval of the departmental adviser. Four additional units in upper division electives are required to complete the minimum of 40 upper division units required for graduation. A program in public administration can also be obtained through a major in political science by including appropriate courses. Students electing the field of public administration should plan their programs in consultation with the adviser in public administration.

Major in public personnel management: Lower division: Political Science 71A-71B, Economics 1A-1B, Psychology 1 (may be counted in general education) and Psychology 11. Upper division: Political Science 140A-140B, 144, 145, 146, 198; Economics 150, 151, 185; Psychology 104A, 105, 121, 152 (37 units). Another political science course may be substituted for 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.

MINORS IN ARTS AND SCIENCE

Minor in political science: A minor in political science is offered in arts and sciences. The minor consists of 15 to 22 units in political science, nine units of which must be in courses carrying upper division credit.

Minor in public administration: A minor in public administration is offered in arts and sciences. The minor consists of Political Science 71A-71B in the lower division; and Political Science 140A-140B and three units from 197 or 199 or other approved upper division political science course.

CERTIFICATE (NON-DEGREE) PROGRAMS

Certificate in public administration: Admission to candidacy for the certificate in public administration is open to all public service employees without reference to previous academic experience, if also eligible for enrollment in the college. Candidacy will be established by approval of the Coordinator of Public Administration. To receive the certificate in public administration, the candidate must complete an approved pattern of eight courses, with a grade point average of 2.5.

Certificate in public welfare administration: Admission to candidacy for the certificate in public welfare administration will be established by approval of the 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 science 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.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in political science under the social science major. For information on the master of science degree in public administration or the master of arts degree in personnel supervision and training, see the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

***1A. Introduction to Government (3) I, II**

Theories and principles 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) Year, 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 history, 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)

***105. American Political Thought (3) I, II**

A survey of the development of American ideas concerning political authority from the period of colonial foundation to the present time. A general education course in the social sciences.

***107A-107B. Constitutional Government (2-2) Year, I**

Modern government and politics; its theoretical foundations, institutions and problems. Emphasis will be on American experience with useful comparisons with other countries. Either semester may be taken first. A general education course in social science. This year course meets the graduation requirement in the United States Constitution. The second semester course, 107B, also meets the graduation requirement in California state and local government.

***111A-111B. Theory of the State (3-3) Year, I**

(Same course as Philosophy 111A-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 in 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)

***115. American Institutions (3) I, II**

The principles of the Constitution of the United States of America, and a survey of the political and social institutions which have developed under the Constitution. A general education course in social science which also meets the graduation requirement in the United States Constitution and California state and local government. (Formerly Political Science 101.)

120. Political Parties (3) I

A critical analysis of the political party as a part of the process of government; party organization and activities; nominating and campaign methods; theories and functions of the party system; party responsibility. Special emphasis will be placed upon the function of the two-party system in American government.

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 consideration of a selected group of current major political problems in terms of their possible future implications and of their relationship to established American democratic principles and ideals.

Public Law (Group III)

136. Administrative Law (3) II

The law of public office and public officers, powers of administrative authorities, scope and limits of administrative powers, remedies against administrative action.

***138. 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) Year, I**

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) Year, I

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 capital outlay, budget procedures, organization and administration of personnel programs, controls over administrative behavior, responsible bureaucracy and professionalism in the public services. Not open to students with credit in Political Science 147A-147B.

141. Government Report Writing (2) I

Actual writing problems in government, including surveys, recommendations, studies, analyses, 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

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

An introduction to the field, giving general coverage of the problems involved in recruitment, placement, supervision, etc., of public employees. Prerequisite: Permission of instructor.

145. Human Relations in Management (3) I, II
(Same course as Business Administration 145)

Human factors in supervision and management. Problems of incentives, attitudes, communication, and other personal relations between employee and employer. Bases of effectiveness of various types of leadership. Discipline and grievances. Prerequisite: Permission of instructor. Not open to students with credit for Business Administration 145.

146. Wage and Salary Administration (3) I
(Same course as Business Administration 146)

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

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.

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. Techniques of Administrative Analysis (3) I, II

Areas and problems of administrative research; methods of analyzing structures and procedures in organizations; planning and administration of programs; design of forms; job classification and salary surveys; preparation of administrative reports.

153. Case Studies in Public Administration (3) II

Analysis, 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. Prerequisite: One course in public administration or permission of instructor.

155. Supervisory Staff and Employee Training (3) II
(Same course as Business Administration 147)

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.

E-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.

159. Public Welfare Administration (3) II (Same course as Sociology 194)

The philosophy of modern public welfare and the structure of public welfare agencies; administrative techniques, including personnel administration, federal-state-local relationships, finances. Prerequisites: Political Science 140A and 140B, or Sociology 190, or permission of instructor. Not open to students with credit for Sociology 194.

160. Principles of Planning (2 or 3) I

An introduction to community planning: regional, county, and city. Consideration of the Master Plan, including its purposes, contents, and method of adoption.

161. Field Studies in Government (3) II, Summer

Study of organization, policies and functions of selected government agencies. Discussion by responsible officers and inspection of work operations and facilities in management, public safety, public works and utilities, and other major governmental operations. Prerequisite: Permission of instructor.

162. Finance Administration (2 or 3) I

Principles and practices studied from the administrator's viewpoint. Problems of revenue, debt and treasury management, current and capital budget preparation and administration; purchasing and stores supervision; accounting and control and financial reporting.

E-163. Governmental Budgeting (2 or 3) I (Extension)
Procedures for budget preparation including expenditure and revenue estimating; budgetary studies; capital budgeting; problems in administrative and legislative consideration of the budget; consideration of performance budgeting techniques and practice.

Honors Course

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

International Relations (Group V)

165. Dynamics of Modern International Crises (3) I
The determination and analysis of facts surrounding international crises since World War II; the evaluation of these crises and their effects upon external policies of the United States and the operations of the United Nations. Prerequisite: Consent of the instructor.

***168-S. Institute on World Affairs (3) Summer**
Contemporary problems in international relations. May be repeated once for course credit with permission of the instructor. A general education course in social science.

***170A-170B. International Relations (3-3) Year, I**
A historical and analytical consideration of the basic factors—historic, geographic, economic, ideologic, and strategic—which underly and condition the modern conflict between the "sovereign state" and the "community of nations." Fall semester: Origins and development through the nineteenth century. Spring semester: Twentieth century experimentation and conflict. A general education course in social science.

171. Administration of American Foreign Affairs (3) II
An examination of the legal, administrative, and political organizations by which American foreign policies are formulated and implemented.

172. International Organization (3) I
A critical analysis of the organization by which the international community seeks to provide for the exercise of legislative, administrative and judicial functions on the international level: diplomatic and counsular 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. Governments 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. Governments of Asia (3) I, II
Governments of leading and representative Asian states. Emphasis on current political institutions and philosophies.

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
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences. Admission by permission of the instructor.

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

GRADUATE COURSES

200A-200B. Seminar in Government (3-3) Year, I

240A-240B. Seminar in Public Administration (3-3) Year, I

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

291. Problem Analysis (3) I, II
Analytical treatment of selected problems in political science. Review of methods for investigation and reporting of data. Consideration of problems in preparation of project or thesis.

296. Internship in Public Administration (1-6) I, II
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences. Admission by permission of the instructor. Required in addition to the 30 units for candidates for the master of science degree in public administration who lack practical experience.

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

299. Thesis (3)
Guidance in the preparation of a project or thesis for the master's degree.

PSYCHOLOGY

IN THE DIVISION OF LIFE SCIENCES

A major in psychology is offered with the A.B. degree in arts and sciences and in teacher education. 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. Students who plan to take the general secondary credential with psychology as the major are advised to include two teaching minors for the credential in the undergraduate program.

Two plans are provided for the major in arts and sciences: one for those students expecting to pursue the study of psychology beyond the A.B. degree; the other for those students who wish to extend their general education in the field of psychology.

MAJOR IN ARTS AND SCIENCES

Lower division: Psychology 5 and 6. Recommended selection of courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

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.

Upper division requirements for Plan A: Psychology 106, 131, 145, and electives to complete the major. It is expected that each student under Plan A will select, with the assistance of his adviser, a pattern of courses in line with his particular objectives in pursuing Plan A. For most students in Plan A, the following courses will be found particularly helpful: Psychology 105A, 107, 122, 150, and 152.

To facilitate the purpose of Plan A the following courses in other departments are recommended as electives: Anthropology 1A-1B; Biology 1 or Zoology 1; Economics 1A-1B and 102; Health Education 90; Philosophy 1A-1B; Biology 160 and 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 personnel, 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.

Upper division requirements for all Plan B majors: Psychology 104A, 105, 160 or 161, and 178, and 12 additional units to complete the major, 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.

Preclinical: 12 units to be selected from Psychology 106, 145, 150, 151, 152, 160, and 175, Recommended courses: Anthropology 1A-1B; Biology 3 and 4, or Zoology 8A-8B; Philosophy 1A-1B, 20, and 129; Sociology 135 and 170; Speech Arts 176 or 179; and Zoology 165. A natural science minor is recommended.

Pre-industrial and personnel: 12 units to be selected from Psychology 104B, 121, 122, 124, 145, 152, 161, and 178. Recommended courses: Business Administration 144 and 146; Economics 1A-1B, 100A, 150, 151, 170, and 185; Philosophy 20; Political Science 144 and 145; Sociology 50 and 51; six units selected from Sociology 135, 170, 180, 190; and Speech Arts 4. A minor in business administartion, economics, political science, or sociology is recommended.

Theoretical-experimental: 12 units to be selected from Psychology 104B, 142, 145, 150, 160, 161, 170, 175, and 177. Recommended courses: Chemistry 2A-2B; foreign language; Mathematics 40, 50, and 51; Philosophy 1A, 20 and 137; Physics 2A--2B and 3A-3B; Zoology 1, 8A-8B, 100 and 165. A mathematics or natural science minor is recommended.

MAJOR IN TEACHER EDUCATION

Major for the general secondary credential: A nonteaching major in psychology is offered for the general secondary credential if completed with two teaching minors for the credential. Lower division: Psychology 5 and 6. Upper division: 24 upper division units to include Psychology 104A, 105, 131, 151, 160, and nine upper division units in psychology to be selected with approval of the departmental adviser.

Students taking the A.B. degree in psychology under Plan A or Plan B may also meet the requirements for the nonteaching major by including the following courses in the major: Psychology 104A, 105, 131, 151, and 160.

Requirements for the general secondary credential include completion of a bachelor's degree, the nonteaching major in psychology, two teaching minors for the credential, and the credential requirements in a postgraduate year, to include Psychology 201 (3 units) and six upper division or graduate units in subject fields commonly taught in junior and senior high schools.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

MINOR IN ARTS AND SCIENCES

A minor in psychology is offered in arts and sciences. The minor consists of 15 to 22 units in psychology, nine units of which must be in courses carrying upper division credit.

THE MASTER'S DEGREE

The master of arts or master of science degree is offered with specialization in various occupational areas of psychology. Refer to the section of the catalog on the Graduate Division for further information.

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 and Psychology 178.

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, 160, 161, 175, 177, and 178. Transfer students from other colleges are also required to take Psychology 201, preferably during their first semester here.

LOWER DIVISION COURSES

***1. General (3) I, II**

An introduction to some of the facts, principles, and concepts which are basic to understanding human behavior. A required general education course in psychology.

2. Psychology Laboratory (1)

Application of experimental methods to psychological problems. Includes design and execution of experiments. One lecture and three laboratory hours. Prerequisite: Psychology 1.

5. Principles of Psychology: Basic Organization of Behavior (3) I, II

The basic sensory neural and motor mechanisms and their functions in human behavior. Prerequisite: Psychology 1 and sophomore standing.

6. Principles of Psychology: Learning and Integrated Behavior (3) I, II

Attending, perceiving, and learning, including social learning, personality development, and conditions of efficient work. Prerequisite: Psychology 1 and sophomore standing.

***11. Applied Psychology (3) I, II**

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. Prerequisite: Psychology 1.

***12. Psychology of Individual Adjustment (3) I, II**

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. Prerequisite: Psychology 1.

UPPER DIVISION COURSES

104A. Statistical Methods in Psychology (3) I, II

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. Prerequisite: Psychology 1. Not open to students with credit for Economics 140 or Sociology 103.

104B. Advanced Statistics (3) II

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. Prerequisites: Mathematics 3 and Psychology 104A, or permission of instructor.

105. Psychological Testing (3) I, II (Same course as Education 150)

The basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement. Prerequisite: One of the following courses: Psychology 104A, Education 151, 152, 120, or a semester of statistical methods in any other department. Not open for credit to students with credit for Education 150.

***106. Developmental Psychology (3) I, II**

A study of the psychological development of the normal individual from conception through childhood, adolescence, maturity, and old age. Stress is laid upon the interdependence of the various periods of the individual's life. A general education course in psychology or in family life education. Prerequisite: Psychology 1.

***107. Psychology of Later Maturity (3) II**

The psychological, physiological, and sociological factors influencing behavior in the later years of life. A general education course in psychology. Prerequisite: Psychology 1.

109. Mental Deficiency (3) I, Summer

The nature and causes of mental retardation, including the psychological effects of brain injury. Characteristics of the mentally defective. Prerequisite: One of the following: Psychology 106, Education 110, 112, 113, or an equivalent.

121. Personnel and Industrial Psychology (3) I, II

Psychological principles applied to problems of selection and assignment of industrial personnel, employee training, and fatigue. Prerequisite: Psychology 104A, or Economics 140, or Sociology 103.

122. Public Opinion Measurement (3) I (Same course as Journalism 122)

The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience. Not open to students with credit for Journalism 122.

124. Engineering Psychology (3) II

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. Two lectures and one three-hour laboratory period per week. Prerequisite: Psychology 1 and upper division standing.

130. Educational Psychology (2) I, II (Same course as Education 111)

To develop understanding of the applications of psychological research for effective classroom teaching. Observation and field work required. Prerequisite: Psychology 1. Not open to students with credit for Education 111.

131. Psychology of Personality (3) I, II

The principles of personality and their application to problems of adaptation and mental hygiene. Prerequisite: One full year of psychology or equivalent.

141. Neural Bases of Behavior (3) I

Elements of neurology, with particular attention to the psychophysiology of sensory mechanisms and motor systems. Prerequisites: Psychology 5 and 6; or Psychology 5 or 6 plus six units in biological sciences; or nine units in biological sciences.

142. Physiological Psychology (3) II

The neurophysiology of emotion, sleep bodily needs, instinctive patterns or behavior, and of learning; brain and behavior disorders. Prerequisites: Psychology 141 or consent of instructor.

***145. Social Psychology (3) I, II** (Same course as Sociology 145)

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 145.

150. Abnormal Psychology (3) I, II

The psychology of behavior disorders, with emphasis on the amentias, neuroses, and psychoses. Prerequisite: One full year of psychology.

151. Introduction to Clinical Appraisal (3) I, II

A study of diagnostic devices in psychology, tests of clinical significance, ratings, and interviewing. Projective and case study analyses; problems of insight, rapport, empathy, and prediction of individual behavior. Prerequisites: Psychology 105A and 150, or Education 170 plus Education 151 or 152 or 120; one additional course in psychology selected from the following: Psychology 106, 131, 140, 105, or 150.

152. Introduction to Methods of Counseling (3) I, II

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. Prerequisites: Senior or graduate standing in psychology or pre-social work, and permission of the instructor.

160. Experimental Psychology: Learning and Cognition (3) I

Demonstrations of the principles and conditions of learning, perceiving, problem solving, and thinking. Methodology and design of experiments. Six hours of laboratory and one lecture per week. Prerequisites: Psychology 5, 6, and 104A.

161. Experimental Psychology: Sensation and Perception (3) II

Demonstration of laws governing various sensory experience and motor activities. Experiments in space perception, errors of judgment, and conditions of work and fatigue. Six hours of laboratory and one lecture per week. Prerequisites; Psychology 5, 6, and 104A.

162. Experimental Psychology: Motor Processes and Fatigue (3) II

Demonstrations of the loss of control of motor integrations. Study of work of the integrated organism and fatigue. Emphasis upon motor processes. One lecture and two three-hour laboratory periods per week. Prerequisites: Psychology 5, 6, and 104A.

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

Refer to the Honors Program.

170. Comparative Psychology (3) I, II

A study of the behavior of animals with a view to gaining a better understanding of human behavior. An analysis of the leading experimental work on sensory discrimination, learning, and intelligence of each animal group, from amoeba to man. Prerequisites: Psychology 5 and 6, and one of the following: Psychology 160, 161, 175, or permission of the instructor.

175. Theories of Learning (3) I

A critical study of the facts, principles, and major theories of learning. Prerequisites: Psychology 1, 5, 6, 104A, or consent of the instructor.

177. History of Psychology (3) II

A survey of the historical background of modern psychology. Limited to psychology majors with senior standing and graduate students.

178. Theories of Personality (3) I

Integration of the findings from perception, learning, motivation, and from physiological and social psychology through a systematic treatment of personality theories and of related experimental data. Prerequisite: Major in psychology with senior or graduate standing.

180-S. Contemporary Problems in Psychology (1) Summer

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. Enrollment for credit limited to upper division and graduate majors in psychology or by special permission of instructor. Lectures open to the public. May be repeated to a total of three units.

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 permission of instructor.

GRADUATE COURSES

201. Seminar (3) I

A review, integration, and supplementation of the student's knowledge of psychology. Prerequisites: 24 units in psychology, which may include educational psychology courses in the Education Department.

204. Individual Psychological Testing (3)

Principles of individual testing. Instruction and practice in the administration and scoring of the Stanford-Binet, Wechseler-Bellevue, and some similar tests. One lecture and six hours of laboratory per week. Prerequisite: Psychology 105 and permission of instructor.

205. Advanced Mental Testing (3) II

The theory of mental testing and a comprehensive survey of various verbal and nonverbal individual mental tests. Supervised administration, scoring and interpretation of some individual psychological tests. Tests other than the Wechsler-Bellevue and the Stanford-Binet are stressed. One two-hour lecture and one three-hour laboratory per week. Prerequisites: Psychology 104A, 105, 151, and 204, or equivalents.

211. Advanced Clinical Psychology (3) I

Seminar integrating psychological testing, counseling, and clinical research. Includes supervised laboratory experience in counseling and in integrating data involved in clinical cases. One two-hour seminar and one three-hour laboratory per week. Prerequisites: Psychology 151 and 152, or equivalents.

220. Human Relations in Industry (3) II

Applications of psychological principles and methods of investigation to problems of industrial relations and motivation of employees; factors influencing morale and employee productivity; criteria of job proficiency; psychological aspects of worker-management relationships and leadership. Prerequisites: Psychology 121 and consent of the instructor.

221. Problems in Social Psychology (3) II

Factors influencing the formation of attitudes, opinions, and stereotypes; the establishment of roles during socialization of the individual; social crises, change, and resistance to change; the causes and alleviation of interpersonal conflict. Prerequisite: Psychology 104A, 145, 160 or 161, and 175, or consent of the instructor.

222. Theoretical Psychology (3) I

Basic concepts and principles integrating information in the areas of learning, emotion, motivation, personality, and social interaction. Relationships of scientific methods to the formation and testing of hypotheses and other conceptualizations. Limited to students who have a qualifying score on the Psychology Department Comprehensive Examination. Prerequisites: Psychology 175 and 178.

223. Experimental Design (3) I

Principles and methods of planning and carrying out systematic investigations to answer questions concerning human behavior with stress on the interdependence of experimental design and statistical evaluation of results. Practice in formulation of testable hypotheses, techniques of equating groups, solution of sampling problems, and interpretation of results. Limited to students who have a qualifying score on the Psychology Department Comprehensive Examination. Prerequisites: Psychology 104B and 160 or 161.

224. Advanced Experimental (3) I

Methods, techniques, and apparatus applicable to questions of various types. Special attention is given to sources of error, limitations on interpretation, and psychophysical methods. Students will design and carry out experiments in preparation for original independent investigations. Prerequisites: Psychology 104B and 160 or 161.

225. Principles of Test Construction (3) II

Detailed consideration of adequate sampling techniques, item construction, item analysis, determination and enhancement of reliability and validity of tests. Prerequisites: Psychology 104B and 105.

233. Guidance Counseling Techniques (3) I, II (Same course as Education 233)

Designed for school counselors. To stress the understandings and procedures necessary for effective interviewing. Prerequisite: Education 230, or equivalent. Not open to students with credit for Education 233.

234. Projective Psychology (3) I

Introduction to the theory and principles underlying use of projective techniques by clinical psychologists; a review of the structure and dynamics of personality as interpreted by projective devices. Prerequisites: Psychology 104A, 105, 151, 178, and 204, or equivalents.

235. The Rorschach Method (3) II

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. Prerequisites: Psychology 104A, 105, 151, 204, and 234, or equivalents.

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.

296. Directed Field Experience (1-6)

Meets the requirement of directed field experience for candidates for the master's degree, but is not limited to candidates for the degree. Required in addition to the 30-unit requirement for the degree. Prerequisites: Limited to graduate students in psychology, with appropriate qualifications in a field of professional skill, and approved by the practicum committee of the Psychology Department.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II

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. Enrollment is not to be construed as admission to candidacy, nor as favoring candidacy. Prerequisites: Completion of at least 12 units toward the master's degree.

PUBLIC ADMINISTRATION

IN THE DIVISION OF SOCIAL SCIENCES

The program in public administration can be obtained by completion of the major in public administration or through a major in political science. In either case, the student will include in his program a sequence of work dealing with the principles and problems of organization for the carrying out of the functions of government, and public management. This latter aspect deals primarily with the directing and coordinating of work operations, the staffing of public agencies, the processes of budgeting and financial control, and the dynamics of management, namely planning, research, communications, leadership, and human relations in the administrative process.

The public administration curriculum may be adapted to several goals, one being the taking of junior administrative examinations for entrance into the government

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service at the local, state or federal levels, and preparation for advancement up the governmental ladder. It is designed also to prepare students for graduate work in public administration.

Selected students may participate in an internship program in government offices. Working under the close supervision of governmental officials and an adviser in public administration, the intern deals with actual administrative procedures and problems in government.

Two certificate (non-degree) programs are offered to public service employees. These programs are described below.

MAJOR IN PUBLIC ADMINISTRATION

A major in public administration is granted with the A.B. degree in arts and sciences. The major is in addition to 45 units in general education courses.

Specific requirements for the major: Lower division: Political Science 71A-71B, Economics 1A-1B. Upper division: 36 upper division units, including Political Science 140A-140B and 197 or 198, Economics 131 and 140, and additional courses selected with approval of the departmental adviser. Four additional units in upper division electives are required to complete the minimum of 40 upper division units required for graduation.

Students planning to enter the field of public administration should consult with an adviser in public administration.

MINOR IN ARTS AND SCIENCES

A *minor in public administration* is offered in arts and sciences for 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, 199, or other political science course in the upper division.

CERTIFICATE (NON-DEGREE) PROGRAMS

Certificate in Public Administration: Admission to candidacy for the certificate in public administration is open to all public service employees who are eligible to enroll in the college, without reference to previous academic experience. Candidacy will be established by approval of the Coordinator of Public Administration. To receive the certificate in public administration, the candidate must complete an approved pattern of eight courses, with a grade point average of 2.5.

Certificate in Public Welfare Administration: Admission to candidacy for the certificate in public welfare administration will be established by approval of the 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 with a grade point average of 3.0. Prerequisites for admission to candidacy are 20 units in approved social science 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.

THE MASTER'S DEGREE

The master of science degree is offered with a major in public administration. See the section of this catalog on the Graduate Division.

RECREATION

IN THE DIVISION OF PHYSICAL EDUCATION, HEALTH EDUCATION AND RECREATION

A major in recreation is offered with the A.B. degree in arts and sciences. The recreation curriculum is designed to provide a program of training for recreation and camp leadership, work with youth groups, and related activities. Courses in the major are in addition to 45 units in general education courses, unless otherwise specified. A minor is not required of recreation majors for the bachelor's degree.

MAJOR IN ARTS AND SCIENCES

Lower division: Recreation 53, 61A, and 80; in addition, men must complete Recreation 63. Women must include Physical Education 2A, 5A-5B, and 6. Required in related fields: 12 units selected from the fields of art, industrial arts, music, physical education, and speech arts, with a maximum of five units in any one field. General education courses in related fields may be counted in general education requirements.

Upper division: 36 upper division units distributed as follows: Recreation 165, 170A-170B, 184A-184B; Psychology 106, 145; Education 140; Physical Education 161; Political Science 143; Sociology 148; and six units selected from Sociology 110, 174, 187, 190, 191, and 193. Four additional upper division units in electives are required to complete the 40 upper division units for graduation. Students should consult with the adviser in the recreation curriculum for selection and arrangement of courses.

MINOR IN ARTS AND SCIENCES

A minor in recreation is offered in arts and sciences. The minor consists of 15 to 22 units to include the following courses: Lower division: two units of physical education activity courses; Recreation 53; and two units chosen from Recreation 61A, or fields of dance, drama, or music. Upper division: Recreation 165, 170A-170B, and 184A or 184B. Recommended: Physical Education 161. Consultation with the departmental chairman is advised.

LOWER DIVISION COURSES

53. Physical Education in the Elementary School (2 or 2½) I, II

(Same course as Physical Education 53)

The state program in physical education for the elementary school forms the basis of the course. Two lectures per week. May be taken with two additional hours of laboratory per week for the extra one-half unit. Not open to students with credit for Physical Education 53.

61A. Crafts (2) I, II

(Same course as Art 61A)

A foundation course which develops unification of work on the elementary school level through activities and experiences growing out of environmental activities; includes work with clay, lumber and tools, textiles, and cardboard construction. Designed for special secondary art majors and recreation majors. Prerequisite: Art 6A. Not open to students with credit for Art 10, 61A, 110, or 161A.

63. Professional Activities: 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 63.

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.

170A-170B. Recreational Leadership (2-2) Year, I

(Same course as Physical Education 170A-170B)

Principles and practices in recreational leadership. Methods of instruction and special techniques in the activities of the recreation program. Attention to crafts, music, social programs, drama, special projects, dance, sports, camp-craft and outdoor education. Courses may be taken separately. Not open to students with credit for Physical Education 170A-170B.

184A-184B. Field Work in Recreation (3-3) Year, I

Observation and participation in supervised group activities in the field. Practical experience in the various public and semi-public community recreation agencies. For recreation majors and minors. Others only with permission of instructor.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

204. Problems in Recreation (2) (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.

ROMANCE LANGUAGES

IN THE DIVISION OF HUMANITIES

A major in Romance languages is offered with the A.B. degree in arts and sciences and in teacher education. Courses in the major are in addition to 45 units in general education courses, except that six units in French or Spanish from courses numbered 1, 2, 3, and 4 may be counted in general education. A minor to be approved by the departmental adviser is required of students majoring in Romance languages for the bachelor's degree.

MAJOR IN ARTS AND SCIENCES

Lower division: French 1, 2, 3, 4 (or equivalents), 5, 6; and Spanish 1, 2, 3, 4 (or equivalents), 5, 6. Recommended: History 4A-4B, or for students emphasizing Spanish in the upper division, History 8A-8B.

Upper division: 24 upper division units in French and Spanish, including French or Spanish 198. At least nine units of upper division courses must be taken in each language.

MAJORS IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in Romance languages is offered for the general secondary credential. This major may be used for the A.B. degree if the student also completes a minor in a field other than French or Spanish and has the approval of his departmental adviser.

A student planning to take the general secondary credential who completes this teaching major in Romance languages, plus the requirements in 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 the student have credit for a minimum of 36 units in the teaching major field of concentration and 20 units in the other language field, which will be the teaching minor, exclusive of course equivalents.

Before taking directed teaching (Education 180 or 316A), the candidate for a teaching credential in Romance languages is expected to pass a proficiency examination, administered by the Foreign Language Department, in both languages and in French and Spanish civilizations.

Lower division: Requirements are the same as those in the arts and sciences major.

Upper division: 33 upper division units to include French 101A-101B; Spanish 101A-101B; nine units from courses in French literature selected with approval of the adviser; nine units from courses in Spanish literature or Spanish-American literature selected with approval of the adviser; French or Spanish 198 (in the teaching major field of concentration); and upper division electives in French or Spanish to complete the major.

In the postgraduate year, the student will complete requirements for the credential, including two graduate courses in the teaching major field of concentration (French or Spanish) to be selected from the following courses: French 214 and 220; or Spanish 201 and 204. (Total of 4 units.)

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

Major for the junior high school credential: A teaching major in foreign languages (French and Spanish) is offered with the A.B. degree and junior high school credential to students with teaching minors in home economics or industrial arts. Students taking this credential must complete the teaching major and minor and additional requirements in professional education courses.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential For a description of this program, refer to Combination of Credentials in the section of the catalog on Professional Curricula in Teacher Education. Students wishing to secure the junior high school credential under conditions other than those described above should consult with the Coordinator of Secondary Education.

Requirements in the major: 24 units in one or more foreign languages (French, German, or Spanish), to include 18 units in courses carrying upper division credit.

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

For additional information on this credential, refer to the Junior High School Credential in the section of the catalog on Professional Curricula in Teacher Education.

THE MASTER OF ARTS DEGREE

The master of arts degree for teaching service is offered with a concentration in Romance languages under the major of foreign language. See the section of the catalog on the Graduate Division.

GRADUATE COURSES

290. Romance Language Bibliography (1) I

Exercises in the use of basic reference books, journals, and specialized bibliographies in the field of the Romance languages. Prerequisite: Nine units of upper division French or Spanish and graduate status.

SOCIAL SCIENCE

IN THE DIVISION OF SOCIAL SCIENCES

A major in social science is offered with the A.B. degree in arts and sciences and in teacher education. 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 in general education. A minor is not required of students with a major in social science for the bachelor's degree. Students who plan to take the general secondary credential are advised to include an appropriate teaching minor for the credential in the undergraduate program.

SOCIAL SCIENCE MAJOR IN ARTS AND SCIENCES

Lower division: Six units in *each of three* of the following fields: (1) economics, (2) geography, (3) history, (4) political science, and (5) anthropology and/or sociology.

Upper division: 30 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.

CURRICULUM IN LATIN-AMERICAN STUDIES

Latin-American Studies. A curriculum in Latin-American Studies is offered with a major in social science. For a description of this curriculum, refer to the section of this catalog on Latin-American Studies. A student completing this curriculum will be graduated with a major in social science (Latin-American Studies).

MAJORS IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in social science is offered for the general secondary credential. This teaching major, which may be used for the A.B. degree, is the same as the major in arts and sciences. Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in social science, a teaching minor for the credential

selected from an area other than the social sciences, and the credential requirements in a postgraduate year, to include four to six units of upper division or graduate courses to be selected from the social sciences with approval of the department adviser.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

Major for the junior high school credential: A teaching major in social science is offered with the A.B. degree and junior high school credential to students with teaching minors in home economics or industrial arts. Students taking this credential must complete the teaching major and minor and additional requirements in professional education courses.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a description of this program, refer to Combination of Credentials in the section of the catalog on Professional Curricula in Teacher Education. Students wishing to secure the junior high school credential under conditions other than those described above should consult with the Coordinator of Secondary Education.

Requirements in the major: 24 units selected from courses in anthropology, economics, geography (except Geography 1 and 3), history, political science, and sociology, 18 units of which must be in courses carrying upper division credit. Twelve units in social science courses must be concentrated in one field, six units of which must be in courses carrying upper division credit.

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

For additional information on this credential, refer to the Junior High School Credential in the section of the catalog on Professional Curricula in Teacher Education.

MINORS IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in social science is offered for the general secondary credential. This minor may be used for the A.B. 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 to include the following: Lower division: a six-unit sequence from *each of three* of the following fields: Anthropology 1A-1B, Economics 1A-1B, Geography 1 and 2 or 12A-12B, History 4A-4B or 8A-8B, Political Science 1A-1B or 71A-71B, and Sociology 50 and 51. Upper division: six units in an upper division sequence course in U. S. history and three upper division units of social science electives.

Minor for the general elementary and kindergarten-primary credentials: A teaching minor in social science is offered for the general elementary or kindergarten-primary credential. This minor consists of a minimum of 15 units selected from anthropology, economics, geography (except Geography 1 and 3), history, political science, and sociology, to include at least six upper division units in history and/or geography.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in social science. See the section of the catalog on the Graduate Division.

SOCIAL SERVICE CURRICULUM

(PRESOCIAL WORK)

IN THE DIVISION OF SOCIAL SCIENCES

The professional curriculum in social service 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 work; social work in public schools including preparation for a teaching credential; family and children's private case work agencies; social settlement work; county probation work; child welfare agencies; statistical and investigational work in private and public agencies; work in public institutions for the defective and delinquent; medical social service and psychiatric social work in hospitals and clinics; executive positions in social work; and social work in numerous other organizations.

The lower division requirements of the arts and sciences curricula include the general requirements of recognized professional schools of social work and should therefore ordinarily be met in full.

A major in social service is offered by the Sociology Department to students preparing to enter the field of social work. A certificate (non-degree) program in public welfare administration is offered by the Political Science Department to prepare persons professionally engaged in the field of social work. The major and the certificate program are described below.

MAJOR IN ARTS AND SCIENCES

A major in social service is offered with the A.B. degree in arts and sciences. The major is in addition to 45 units in general education courses, except as otherwise specified. Students majoring in social service are not required to complete a minor for the bachelor's degree.

Lower division: Sociology 50 and 51; Economics 1A-1B; and Political Science 71A-71B or 1A-1B. Recommended: Biology 3 or 4, and courses from anthropology, foreign languages, and speech arts. Twelve units in the social sciences may be counted in general education.

Upper division: Sociology 103, 190, 196, and either 191, 193, or 195 plus an upper division elective course in sociology (15 units); Psychology 145, 150 and six units chosen from 106, 107, 131, 151, or 152 (12 units); six units selected from Economics 102, 131, 150, 151, 170, 185, and 195; six units selected from Political Science 140A, 140B, 142, or 143; and Zoology 165 (2 units). Students should consult with the adviser in the social service 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.

SOCIOLOGY

IN THE DIVISION OF SOCIAL SCIENCES

MAJOR IN ARTS AND SCIENCES

A major in sociology is offered with the A.B. degree in arts and sciences. 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: Sociology 50 and 51. **Upper division:** 24 upper division units in sociology to include Sociology 103, 110, 135, 152, 153, and 173 or 174.

MINOR IN ARTS AND SCIENCES

A minor in sociology is offered in arts and sciences. The minor consists of 15 to 22 units in sociology, nine units of which must be in courses carrying upper division credit.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in sociology under the major of social science. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

***35. Courtship and Marriage (3) I, II**

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 social science and also in family life education. Not open to students with credit for Sociology 135 or Home Economics 135 or other course in Marriage and the Family.

***50. Contemporary Social Problems (3) I, II**

Survey of modern social problems recognizing the sociological factors involved. Emphasis on the scientific method of approach. An evaluation of various causes and solutions of problems. A general education course in social science. Prerequisite: Sophomore standing.

***51. Principles of Sociology (3) I, II**

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 social science. This course is a prerequisite for upper division courses in sociology. Prerequisite: Sophomore standing.

UPPER DIVISION COURSES

103. Elementary Social Statistics (3) I, II

Analysis and presentation of elementary material in the fields of sociology and social work. Tabular and graphic presentation, analaysis of frequency distributions, trends, simple correlation, sampling and reliability techniques. Prerequisites: Mathematics A-B and Sociology 51. Mathematics 3 or 21 recommended. A prerequisite for most upper division sociology courses. Not open to students who have credit for Economics 140 or Psychology 104A or 104B.

***110. Race Relations (3) I**

A study of the Negro, Oriental, and other minority groups in the United States. A study of mental capacities, education, cultural achievement, family life, delinquency and other social factors of each group. Race prejudice, racial consciousness, theories of racial superiority and inferiority will be considered. A general education course in social science. Prerequisite: Sociology 51.

120. Industrial Sociology (3) II

Analysis of group relationships within economic organizations. Problems of leadership, morale and conflict. Some attention to the sociology of occupations and professions. Prerequisite: Sociology 51.

***135. Marriage and the Family (3) I, II**

(Same course as Home Economics 135)

Background factors predictive of happy and successful marriages; family forms in other cultures; principal areas of adjustment in marriage; parent-child problems; the changing adolescent; causes and results of divorce; the family of tomorrow. A general education course in social science or in family life education. Not open to students with credit for Sociology 35 or Home Economics 135 or other course in marriage and the family.

***145. Social Psychology (3) I, II** (Same course as Psychology 145)

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 social science. Not open to students with credit for Psychology 145.

146. Collective Behavior (3) II

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. Prerequisite: Sociology 51 or 145, or Psychology 145.

148. Small Groups (3) I

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. Prerequisites: Sociology 51 and 145.

152. History of Social Thought (3) I

The origin and development of social theory in Europe and America; consideration of the fields and specialization and research in contemporary American sociology. Prerequisite Sociology 51.

153. Modern Social Theory (3) II

A study of theories basic to modern sociological research, including the viewpoints of European and American thinkers. Prerequisites: Sociology 51 and 152, or permission of instructor.

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

Refer to the Honors Program.

170. Social Disorganization (3) I

Survey of many alleged abnormal phenomena in society as seen in society today in various forms of individual, family, community and world disorganization, such as crime, prostitution, extreme alcoholism, migratory workers, divorce, revolution and war. Prerequisite: Sociology 51.

173. Criminology and Penology (3) I

The extent and characteristics of crime; consideration of physical, mental, economic, and sociological causes of crime; study of methods of penal discipline, prison labor, parole, and probation; programs of prevention. Prerequisite: Sociology 51, or permission of instructor.

174. Juvenile Delinquency (3) II

The nature and extent of delinquency; the causative factors involved; methods of control and prevention, with special attention to the protective and remedial measures offered by the school, home, juvenile court, correctional institutions and camps, probation and parole, and recreational agencies. Prerequisite: Sociology 51, or permission of the instructor.

176. Contemporary Correctional Administration (3) II

A study of the problems encountered in administering modern correctional programs, including juvenile and adult probation, courts and correctional institutions, forestry and road camps, detention homes, and jails. Prerequisite: Sociology 173 or 174, or consent of instructor.

180. Population Problems (3) I

Problems of population increase, migration, shifts in composition of population relative to age, sex, and racial distribution. Population practices and theories. Biological and geographical aspects of population problems. International population movements. Prerequisite: Sociology 51 and 103.

184. Methods of Social Research (3) II

Research methods and interpretation used in the study of communities, institutions and social conditions. Prerequisites: Sociology 51, 103 or equivalent, or permission of instructor.

187. Urban Sociology (3) II

A study of the structure and function of the modern city; types of neighborhoods; forms of recreation; social forces in a metropolitan area; types of urban personalities and groups; rural-urban conflicts of culture. Practical field studies required. Prerequisites: Sociology 51 and 103.

190. Fields of Social Work (3) I

A survey of the nature of social work and the various kinds of social work which are found in the modern urban life. The student is familiarized with the various social agencies in the community, their problems and methods of work, by readings and field trips. Volunteer social work in some social agency recommended. Prerequisite: Sociology 51.

191. Community Welfare Organization (3) II

An analysis of the structure and process of community organization for social welfare as well as the functional relationships between public and private welfare agencies. Field work will be required to study some of the social agencies of San Diego. Prerequisites: Sociology 51 and 103, or permission of instructor. (Formerly Sociology 185.)

192. Social Work and the Law (3) II

Trends and current developments in social legislation; laws regarding poor relief, child labor, and the family, including marriage and divorce laws, illegitimacy, adoption, guardianship. Prerequisite: Sociology 190 or permission of instructor.

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193. Social Group Work (3) II

The role of the social worker with the group and its individuals; understanding group processes; use of program media for the development of inter-personal relations and group structure. Discussion includes process recording. Prerequisite: Sociology 190 or permission of the instructor.

194. Public Welfare Administration (3) I

(Same course as Political Science 159)

The philosophy of modern public welfare and the structure of public welfare agencies; administrative techniques, including personnel administration, federal-state-local relationships, finances. Prerequisites: Sociology 190, or Political Science 140A and 140B, or Political Science 147A or 147B, or permission of instructor. Not open to students with credit for Political Science 159.

195. Methods of Social Casework (3) II

Introduction to the techniques and skills used in casework agencies, with emphasis on discussion of case materials. Designed to be taken prior to or concurrently with Sociology 196, Field Assignment. Prerequisites: Sociology 196, or concurrent registration, and Sociology 190.

196. Field Assignment in Social Work (3) II

Approximately 10 hours weekly spent in an approved local social agency in the field of casework, group work, or community organization, under the supervision of an experienced agency worker and including periodic consultations with the faculty adviser. Prerequisite: Sociology 190; also 191, or 193, or 195, or concurrent registration in one of these courses.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

200A-200B. Seminar (2-2)

230. Principles of Social Case Work (3) I

A study of the principles and practices of social case work; problems of case recording and analysis. Directed field work and case studies. Prerequisites: Sociology 190 or Psychology 152 or Education 233.

231. Field Work in Social Case Work (3) II

Supervised practice in local social work agencies. Prerequisite: Sociology 190 and 230.

235A-235B. Case Work Supervision (3-3) Year

Discussion and analysis of cases and problem situations encountered by social case work supervisors. Review of basic case work techniques and principles of personnel supervision as applied to social case work. Prerequisite: Sociology 230 or permission of instructor.

290. Bibliography (1)

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Guidance in the preparation of a project or thesis for the master's degree.

SPANISH

IN THE DIVISION OF HUMANITIES

A major in Spanish is offered with the A.B. degree in arts and sciences and in teacher education. Courses in the major are in addition to 45 units in general education courses, except that six units in elementary French or German may be counted in general education. A minor to be approved by the departmental adviser is required of Spanish majors for the bachelor's degree. Students who plan to take the general secondary credential are advised to include a teaching minor for the credential in the undergraduate program.

MAJOR IN ARTS AND SCIENCES

Lower division: Spanish 1, 2, 3, 4 (or equivalents), 5, 6; and French 1 and 2, or German 1 and 2, or Latin 1 and 2 (or equivalents). Recommended: History 4A-4B or 8A-8B.

Each year course in high school foreign language may be counted as the equivalent of three semester units of pattern credit in college. Year courses in foreign languages completed in high school may not be repeated in college for credit, except that the last year course in the foreign language sequence may be repeated in college for graduation credit, not to exceed a total of three units of repeated work.

Upper division: 24 upper division units, at least 21 units of which must be in Spanish, including Spanish 198. With the approval of the departmental adviser the remaining three units may be selected from the following courses: Spanish 115, 116; Anthropology 151B; Geography 123, 124, 125; History 161, 162; Political Science 182; or Comparative Literature 101A, 140A-140B, 152A-152B.

MAJORS IN TEACHER EDUCATION

Major for the general secondary credential: A teaching major in Spanish is offered for the general secondary credential. This major, which may be used for the A.B. degree, is the same as the major in arts and sciences, except that Spanish 101A-101B must be included in the major. By date of credential candidacy, the student must have completed at least 36 units in Spanish, exclusive of course equivalents. Before taking directed teaching (Education 180 or 316A), the candidate for a teaching credential in Spanish is expected to pass a proficiency examination, administered by the Foreign Language Department, in the language and in Spanish civilization.

Requirements for the general secondary credential include completion of a bachelor's degree, the teaching major in Spanish, a teaching minor for the credential, and the credential requirements in a postgraduate year, to include Spanish 201 and 204 (4 units).

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

Major for the junior high school credential: A teaching major in foreign languages (Spanish) is offered with the A.B. degree and junior high school credential to students with teaching minors in home economics or industrial arts. Students taking this credential must complete the teaching major and minor and additional requirements in professional education courses.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a description of this program, refer to Combination of Credentials in the section of the catalog on Professional Curricula in Teacher Education. Students wishing to secure the junior high school credential under conditions other than those described above should consult with the Coordinator of Secondary Education.

Requirements in the major: 24 units in one or more foreign languages (French, German, or Spanish), to include 18 units in courses carrying upper division credit.

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

For additional information on this credential, refer to the Junior High School Credential in the section of the catalog on Professional Curricula in Teacher Education.

MINOR IN ARTS AND SCIENCES

A minor in Spanish is offered in arts and sciences. The minor consists of 15 to 22 units in Spanish (exclusive of course equivalents), six units of which must be in courses carrying upper division credit.

MINORS IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in Spanish is offered for the general secondary credential. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units (exclusive of course equivalents) to include the following courses: Spanish 1, 2, 3, 4, 5, 6; and Spanish 101A-101B.

Minor for the general elementary and kindergarten-primary credentials: A teaching minor in foreign languages is offered for the general elementary or kindergarten-primary credential. This minor consists of a minimum of 15 units in one or more foreign languages (Spanish, French, German), six units of which must be in courses carrying upper division credit.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in French under the major of foreign language. See the section of the catalog on the Graduate Division.

LOWER DIVISION COURSES

***1. Elementary (3) I, II**

Pronunciation, oral practice, readings on Hispanic culture and civilization, minimum essentials of grammar. Three hours of class work and one hour of laboratory per week. A general education course in foreign language.

***2. Elementary (3) I, II**

Continuation of Spanish 1. Three hours of class work and one hour of laboratory per week. Prerequisite: Spanish 1 or one year of high school Spanish. A general education course in foreign language.

*** 3. Intermediate (3) I**

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. Prerequisite: Spanish 2 or two years of high school Spanish.

***4. Intermediate (3) II**

Continuation of Spanish 3. A general education course in foreign language. Prerequisite: Spanish 3 or three years of high school Spanish.

5. Intermediate (2) I

A practical application of the fundamental principles of grammar by means of oral and written work based on Spanish texts. Prerequisite: Spanish 2 or two years of high school Spanish.

6. Intermediate (2) II

Continuation of Spanish 5. Prerequisite: Spanish 5 or three years of high school Spanish.

10. Conversation (2) I

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays. Prerequisite: Spanish 2 or two years of high school Spanish.

11. Conversation (2) II

Continuation of Spanish 10. Prerequisite: Spanish 10, or Spanish 3, or three years of high school Spanish.

***15. Spanish Civilization (2) I**

The major currents and characteristics of Hispanic life and culture, as expressed through the centuries in literature, art, philosophy, music and science. Conducted in English. No prerequisite. A general education course in the area of foreign languages.

***16. Spanish Civilization (2) II**

Continuation of Spanish 15 with emphasis on Spanish America. No prerequisite. A general education course in the area of foreign languages.

UPPER DIVISION COURSES

101A-101B. Conversation and Composition (3-3) Year, I

Translation into Spanish of moderately difficult English prose passages. Free composition in Spanish. Outside reading of modern Spanish plays, with written reports in Spanish. Oral practice in colloquial Spanish with extensive use of phonograph recordings. Prerequisite: Spanish 4 and 6, or their equivalent, with a grade of C, or permission of instructor.

102A-102B. Introduction to Spanish Classics (3-3) Year, I (Offered 1958-59)

Reading from several types of classical literature. Lazarillo de Tormes and other novels of Roguery; selections from Don Quixote, and the Cien Mejores Poesias Castellanas; one drama each from the works of Lope de Vega, Calderon, Alarcon, and Moreto; collateral reading and reports. Prerequisite: Spanish 4 and 6, or their equivalent, with a grade of C.

104A-104B. Spanish-American Literature (3-3) Year, I (Offered 1958-59)

Reading from representative Spanish-American authors during the colonial, revolutionary and modern periods. Lectures, class reading, collateral reading and reports. Prerequisite: Spanish 4 and 6, or their equivalent, with a grade of C.

105A-105B. Modern Spanish Drama (3-3) Year, I (Offered 1959-60)

The development of the drama of Spain from the beginning of the nineteenth century to the present time. Prerequisite: Spanish 4 and 6, or their equivalent, with a grade of C.

110A-110B. Novel and Short Story in Spain (3-3) Year, I

The development of the novel and short story in Spain from 1830 to the present time. Prerequisite: Spanish 4 and 6, or their equivalent, with a grade of C.

***115. Spanish Civilization (2) I**

An advanced course in Hispanic 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. Prerequisite: Sophomore standing. A general education course in the area of foreign languages.

***116. Spanish Civilization (2) II**

Continuation of Spanish 115 with emphasis on Spanish America. Prerequisite: Sophomore standing. A general education course in the area of foreign languages.

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

Refer to the Honors Program.

198. Comprehensive Reading and Survey Course (3) II

Designed to fill up the gaps in the reading done in courses. Class meeting once a week for guidance, reports, and quizzes. Required of all seniors majoring in Spanish.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

201. Old Spanish (2) I

A study of the language and literature of Spain from the 12th to the 15th centuries. Prerequisite: Nine units of upper division Spanish and graduate status.

204. Seminar in Spanish-American Literature (2) II

Intensive investigation of some phase of Spanish-American literature. A single country, an author, or some special problem will be studied and reported upon. Prerequisites: Nine units of upper division Spanish and graduate status.

290. Bibliography (1) See Romance Languages

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff, to be arranged with department chairman and instructor.

299. Thesis (3)

Master's degree candidates in Spanish 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.

SPEECH ARTS

IN THE DIVISION OF FINE ARTS

Two majors are offered in the Department of Speech Arts: (1) a major in speech arts with the A.B. degree in arts and sciences and in teacher education; and (2) a major in radio and television broadcasting with the B.S. degree in arts and sciences. Courses in either major are in addition to 45 units in general education courses. A minor is not required of students in these majors for the bachelor's degree. Students who plan to take the general secondary credential in speech arts are advised to include a teaching minor for the credential in the undergraduate program.

MAJORS IN ARTS AND SCIENCES

Major in Speech Arts With the A.B. Degree

Lower division: In addition to Speech Arts 3, which is a general education requirement, a minimum of 13 units of lower division courses in speech arts, specializing in the fields of dramatic art, radio, public speaking, or a guided combination of the three.

Upper division: 24 upper division units in speech arts, including Speech Arts 150, with an emphasis of at least 12 units in one area of concentration (theater, radio, public address, or speech pathology). Requirements in the various areas of emphasis are described below.

Areas of Emphasis

Public address: Lower division: Speech Arts 1, 4, 60A-60B, and 61 (A, B, C, or D). Upper division: 24 upper division units in speech arts to include Speech Arts 130, 150, 162, 191, 192A, and 192B.

Speech pathology: Lower division: 13 units in speech arts to include Speech Arts 4 and 60A-60B. Upper division: 24 upper division units in speech arts to include Speech Arts 150, 170, 174, 176, 177, 178, and 179.

General theater: Lower division: Speech Arts 1, 4, 11A, 80, 55A or B, and 56A. Upper division: 24 upper division units in speech arts to include Speech Arts 118A, 150, 154A, 155, 159, and nine units from Speech Arts 108, 118B, 140A, 140B, 145, 152, 154B, 156, 160, 163, 180.

Design for theater: Lower division: 13 units in speech arts to include Speech Arts 54, 55A or B, 56A, and 57. Upper division: 24 upper division units in speech arts to include Speech Arts 140A, 140B, 145, 150, 152, 154A, 154B, and 159.

Radio and television broadcasting: Lower division: 13 units in speech arts to include Speech Arts 81A-81B and two units from Speech Arts 82A, 82B, 83A, 83B. Upper division: 24 upper division units in speech arts to include Speech Arts 150, 185, 186, 187, 189; 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.

Design for television: Lower division: Speech Arts 56A-56B, 81A, 83A, and Art 14B. Upper division: 24 upper division units in speech arts to include Speech Arts 140A, 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 150.

Major in Radio and Television Broadcasting with the B.S. Degree

This curriculum in radio and television broadcasting provides training in all phases of radio and television station operation, programming and production in which the personnel of broadcasting stations and/or contributing organizations will be involved in providing a broadcast service.

Lower division: Speech Arts 1 (which may be substituted for Speech Arts 3 in general education), Speech Arts 4, 80, 81A, 81B, 82A or B, 83A or B, three units from General Language 30, 31, 32, 33, and Business Administration 71 or qualification by examination (22-25 units). Recommended: Art 6A to be taken in general education.

Upper division: Speech Arts 159, 182A or B, 183A or B, 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).

MAJORS IN TEACHER EDUCATION

Special secondary credential in speech arts: Students taking this credential must complete a teaching major in speech arts and additional requirements in professional education courses.

Requirements in the major: Lower division: 19 units to include Speech Arts 11A, 55A or B, 56A, 60A or B, 63A, 80 or 81A, and three units of speech arts electives. Upper division: 27 upper division units to include Speech Arts 110, 140A, 150, 151, 159, 170, 191, 192A or B, and six units selected from Speech Arts 108, 118A, 118B, 130, 145, 152, 154A, 154B, 155, 162, 182A, 182B, 183A, 183B.

Professional courses in teacher education: 22 upper division units to include Education 100, 110, 120, 180, 121L, and Health Education 151.

Major for the general secondary credential: A teaching major in speech arts is offered for the general secondary credential. Students may complete requirements for this major and the general secondary credential in one of the following ways:

(1) By taking the special secondary credential in speech arts with the A.B. degree; completing requirements in a teaching minor for the general secondary credential; and completing other credential requirements in a postgraduate year, to include four units in Speech Arts 200 or 298.

(2) By completing the following: (a) a speech arts major in arts and sciences with the A.B. degree, to include the specific courses outlined for the teaching major and special secondary credential, with a concentration of 12 units in one area (theater, radio, public speaking, or speech pathology); (b) a teaching minor for the general secondary credential; and other credential requirements in a postgraduate year, to include four units in Speech Arts 200 or 298.

Refer to the section of the catalog on Professional Curricula in Teacher Education for a description of requirements in the postgraduate year.

CREDENTIAL TO TEACH EXCEPTIONAL CHILDREN

Credential to teach exceptional children: This credential is available to students who hold a basic credential in kindergarten-primary, general elementary, junior high school, or general secondary education. The student taking this credential may specialize in one of the following areas: (a) speech correction and lip reading in remedial classes, or (b) teaching of the mentally retarded. For a complete description of this credential, refer to the section of the catalog on Professional Curricula in Teacher Education.

MINORS IN ARTS AND SCIENCES

Minor in speech arts: A minor in speech arts is offered in arts and sciences. The minor consists of 15 to 22 units in speech arts, nine units of which must be in courses carrying upper division credit.

Minor in broadcasting: A minor in broadcasting is offered in arts and sciences. The minor 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, 83A, or 83B (8 units); upper division: three units selected from Speech Arts 185 and 186; six units selected from Speech Arts 181, 182A or B, 183A or B, 184, 185, 186, 187, and 189 (9 units).

MINORS IN TEACHER EDUCATION

Minor for the general secondary credential: A teaching minor in speech arts is offered in teacher education for the general secondary credential. This minor, which may be used for the bachelor's degree, consists of a minimum of 21 units to include Speech Arts 3, 4, 11A, 55A or B, 81A or B, zero to one unit from courses numbered 61 and 63, and six to seven upper division units in speech arts courses to be selected in consultation with the departmental representative.

Minor for the general elementary and kindergarten-primary credentials: This minor is the same as the minor in arts and sciences. The student may emphasize creative speech arts or speech correction. The minor with emphasis in speech correction must be planned in consultation with the adviser for the credential for teaching exceptional children.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a major in speech arts. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

1. Voice and Diction (3) I

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.

1-X. Speech for International Students (3) I

Training in production of American speech sounds, blending and assimilation, American prose rhythm and oral communication. Emphasis on clarity and intelligibility. Practical work in aural 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.)

2. Oral Communication Laboratory (1) I, II

Those who fail 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.

***3. Oral Communication (2) I, II**

Training in fundamental processes of oral expression; method of obtaining and organizing material; outlining principles of attention and delivery; practice in construction and delivery of various forms of speeches.

4. Extemporaneous Speaking (3) I, II

Practice in extemporaneous speaking on subjects of current interest, both national and local, with stress laid on the organization and delivery of content material. Forum discussion will provide speakers with the opportunity of assembling facts quickly to meet such questions as any audience situation might demand.

11A. Fundamentals of Interpretation (3) I, II

Application of the principles involved in "making words come alive": response to thought and mood, sensory association, emphasis, climax. Practice selections in poetry and prose.

11B. Intermediate Interpretation (3) I, II

Oral reading of various types of material suitable for popular audiences: stories, humorous sketches, light and sentimental verse. Prerequisite: 11A or 55A.

54. Stage Make-up (2) I

Practice in the application of stage make-up including straight and character. Two laboratory periods per week.

55A. Elementary Acting (3) I, II

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. (32 hours of laboratory required.)

55B. Intermediate Acting (3) I, II

Continuation of 55A emphasizing more emotional material from longer scenes. (32 hours of laboratory required). Prerequisite: 55A or permission of instructor.

56A-56B. Dramatic Production (3-3) Year, I

Technical practices and organization of production for theater and television. Practice in drafting and construction of stage scenery for the college dramatic productions. Prerequisite for 56B: 56A or permission of the instructor.

57. Elementary Stage Costume (3) II

A study of pattern drafting, draping, color harmony and the use of fabrics for stage costuming. Students will receive practical training in the construction of stage costumes. Two lecture-demonstration and recitation hours and one laboratory per week.

60A-60B. Argumentation and Debate (3-3) Year, I, II

Obtaining and organizing of evidence and the construction and use of the brief; study and discussion of current issues; the presentation of formal and informal debates. Attention to intramural and intercollegiate debating.

61A-61B-61C-61D. Intercollegiate Debate (1-1-1-1) I, II

Students are limited to four units, including lower and upper division courses.

63A-63B-63C-63D. Verse Choir (1-1-1-1) I, II

Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Students are limited to four units, including lower and upper division courses.

80. Backgrounds in Broadcasting (3) I

The theory and operation of radio and television broadcasting; history of broadcasting and types of programs. Relates the four major phases of broadcasting; administration, programming, engineering, and advertising.

81A-81B. Survey of Radio and Television Techniques (3-3) I, II

Station operation methods; techniques of announcing, acting, directing, sound effects, music integration; radio and television scripting and continuity.

82A-82B. Radio Workshop (2-2) I, II

Radio program production, with experience in announcing, recording, acting, engineering, sound effects, music, and writing for programs produced over local commercial radio stations. Four units maximum credit in 82A, 82B, 182A, 182B. Prerequisite: Speech Arts 81A or 81B, or equivalent. (Speech Arts 81A or 81B may be taken concurrently with the workshop.)

83A-83B. Television Workshop (2-2) I, II

Television program production, with experience in announcing, acting, production art, lighting, video and audio techniques, special effects, telecine, and writing for programs produced over local commercial television stations. Four units maximum credit in 83A, 83B, 183A, 183B. Prerequisites: Speech Arts 81A or 81B and Speech Arts 55A or 56A, or equivalent, and permission of instructor. (Speech Arts 81A or 81B may be taken concurrently with the workshop.)

UPPER DIVISION COURSES

108. Advanced Interpretation (3) I, II

Analysis of techniques of literary composition as guides to oral interpretation. Achievements of the creative artist as they affect the interpretative artist. Prerequisite: 11A or 11B or permission of instructor.

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.

116. Field Work in Clinical Practices (4-6) I, II

Supervised work with representative speech problems; "staffing" of such cases; speech testing; record keeping. Maximum credit six units. Prerequisites: Speech Arts 150, 170, 176, and 179.

118A. Play Analysis (3) I

Deals with the one-act play and its technique. New plays are read and discussed in class during their period of development.

118B. Playwriting (3) II

Analyses of long plays. Students engage in creative writing.

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

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. Prerequisites: 56A and 56B, or permission of instructor.

142A-142B. Summer Theater Workshop (3 or 6) Summer

A theater laboratory for those who wish to devote their entire time to training and a variety of experiences in the summer theater program including acting, design, stagecraft, lighting, directing, and stage management. Prerequisite: Permission of the instructor.

145. Stage and Television Lighting (3) II

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 light crews for departmental productions.

150. Phonetics (3) I, II

Auditory and kinesthetic analysis of the sounds of the English language. Valuable as a corrective course in pronounciation and articulation. Required of speech majors and those seeking the speech correction credential.

151. Management of Speech Arts Activities (1) I, II

Planning, preparation, management and supervision of speech and drama tournaments, festivals and other inter-scholastic and intra-scholastic activities under the supervision of the speech arts staff. May be repeated for a maximum of two units.

152. History and Design of Costume (Stage) (3) I

A study of costume from Egypt 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) Year, I, II

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) I

Problems in characterization: acting styles of the Elizabethan and Eighteenth Century periods. Prerequisite: 55A-55B or the equivalent.

156. Advanced Dramatic Production (3) II

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. Prerequisites: Speech Arts 56A and 56B, or permission of instructor.

159. Stage Direction (3) I

Planned for prospective directors of plays in schools, colleges and community theaters. Through lectures, discussions, and exercise projects the student will become acquainted with the principles, procedure and methods of stage direction.

160. Stage Direction Laboratory (1) I, II

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. Prerequisite or corequisite: 159. May be repeated once for credit.

161A-161B-161C-161D. Advanced Intercollegiate Debate (1-1-1-1) I, II

Students are limited to four units, including lower and upper division courses.

162. Advanced Argumentation (3) I

Presents a further and more detailed study in the preparation of briefs and the organization of evidence; opportunity for participation in intramural debates, intercollegiate debate, and community speaking activity. Prerequisite: 60A or 60B or permission of instructor.

163A-163B-163C-163D. Advanced Verse Choir (1-1-1-1) I, II

Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Students are limited to four units, including lower and upper division courses.

164-S. Verse Choir Directing (2) I, II

Organizing a given group as a verse choir, considering age, voice quality, background, selection and arrangement of material, and techniques of directing. Demonstrations and practice.

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 preschool and school children; basic techniques for their prevention and correction.

174. Clinical Methods in Speech Correction (3) II

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. Prerequisites: Speech Arts 150, 170, 176, and 179.

E 175. The Role of Parents in Problems of Speech Correction (1) (Extension)

Assistance to parents in understanding the speech-handicapped child. Open to parents of children admitted to the speech clinic.

176. Advanced Speech Correction (3) II (Same course as Education 176)

Etiology and treatment of the more severe speech deviations such as cleft palate, voice disorders, aphasia and cerebral palsy. Prerequisites: Speech Arts 150 and 170. Not open to students with credit for Education 176.

177. The Teaching of Lip Reading (2) (Same course as Education 177)

History, theory and methods of lip reading. Aids for the classroom teacher; program and materials of instruction for the specialized teacher. Not open to students with credit for Education 177.

178. Aural Rehabilitation (3) Irregular (Same course as Education 178)

The adjustment of the hard-of-hearing group with emphasis on the public school child. State and county hearing programs; audiometric techniques with practice; educational, classroom, and social problems. Meets audiometric certification requirement.

179. Nervous Speech Disorders (3) I (Same course as Education 179)

Clinical survey of newest methods of speech correction with special emphasis given to stuttering. (Minimum of 25 laboratory hours required.) Required course for special corrective credential. Not open to students with credit in Education 179.

180A-180B. Rehearsal and Performance (1) I, II

One unit of technical practice followed by one unit of acting. One unit may be repeated, making a total of three units.

181. Radio and Television Station Management and Advertising (3) I
(Same course as Business Administration 156)

Administrative and commercial methods of radio and television station operation. Advertising trends in broadcasting, audience and program measurement, publicity and promotion; traffic. Prerequisites: Speech Arts 81A and 81B, or equivalent, and permission of instructor. Not open to students with credit for Business Administration 156.

182A-182B. Radio Workshop (2-2) I, II

Radio program production with experience in announcing, recording, acting, engineering, sound effects, music, and writing for programs produced over local commercial radio stations. Four units maximum credit in 82A, 82B, 182A, 182B. Prerequisite: Speech Arts 81A or 81B, or equivalent. (Speech Arts 81A or 81B may be taken concurrently with the workshop.)

183A-183B. Television Workshop (2-2) I, II

Television program production, with experience in announcing, acting, production art, lighting, video and audio techniques, special effects, telecine, and writing for programs produced over local commercial television stations. Four units maximum credit in 83A, 83B, 183A, 183B. Prerequisites: Speech Arts 81A or 81B and Speech Arts 55A or 56A, or equivalent, and permission of instructor. (Speech Arts 81A or 81B may be taken concurrently with the workshop.)

184. Writing for Radio and Television (3) II (Same course as Journalism 184)

Scripts, documentaries, music, continuity for each program type. Correlates writing with radio and television acting and announcing styles. Program formats. Prerequisites: Speech Arts 81A and 81B, or equivalent. Permission of the instructor. Not open to students with credit for Journalism 184.

185. Radio Production Directing (3) I

Directing procedure for all types of radio programs. Production of radio workshop programs. Prerequisites: Speech Arts 81A and 81B, and two units from 82A-82B-182A-182B; or equivalent. Permission of the instructor.

186. Television Production Directing (3) II

Directing procedure and analysis for all types of television programs. Production of television workshop programs. Prerequisites: Speech Arts 81A, 81B and 159, and two units from 83A-83B-183A-183B; or equivalent. Permission of the instructor.

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, editing and scripting news on motion pictures; using recorders to report special events. Not open to students with credit for Journalism 104.

188. Field Training in Radio and Television (2-4) I, II

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. Prerequisites: Senior standing and permission of instructor. Maximum credit four units.

189. Motion Picture Techniques for Television (3) II

The use of films in television production. Motion picture production techniques as they apply to television. Kinescope recording and operation of the telecine equipment.

190S. Rhetorical Theory (3) Summer

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 of rhetorical criticism, culminating in a critical evaluation of contemporary oratory.

191. Organized Discussion (3) II

Consideration of the symposium, the panel, the open forum, the business session, and varieties of conference speaking. Emphasis upon organization and presentation. Attention to parliamentary procedure for informal groups. Prerequisite: Speech Arts 60 or equivalent.

192A-192B. Advanced Public Speaking (3-3) Year, I, II

Careful attention given to the preparation and delivery of longer speeches, using as models classics in the field of oratory. Prerequisite: 4.

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

Individual study. Six units maximum credit. Prerequisite: Permission of instructor.

GRADUATE COURSES

200. Seminar (2) I, II

An intensive study of one phase of speech arts: (a) broadcasting techniques; (b) history of oratory; (c) articulatory problems of speech; (d) technical practice for theater and television; (e) stage direction; (f) oral interpretation; (g) scene design for stage and television. May be repeated with new materials for additional credit.

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.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3) I, II

Guidance in the preparation of a project or thesis for the master's degree.

ZOOLOGY

IN THE DIVISION OF LIFE SCIENCES

A major in zoology is offered with the A.B. degree in arts and sciences. 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. Zoology majors are not required to complete a minor for the bachelor's degree.

MAJOR IN ARTS AND SCIENCES

Major with the A.B. degree: Lower division: Zoology 1; Botany 1; Biology 15; Chemistry 1A-1B or 2A-2B; and Physics 2A-2B and 3A-3B. Recommended: French or German, and Mathematics 21 and 22. Upper division: 24 upper division units, at least 18 of which must be in zoology and biology, including Zoology 100, 101, 106, and Biology 155; and six units of which may be in related courses selected with the approval of the departmental adviser.

Major with the B.S. degree: Lower division: Zoology 1 and Botany 1, or Biology 3 and 4; Biology 15; Chemistry 1A-1B or 2A-2B; and Physics 2A-2B and 3A-3B. Recommended: French or German, and Mathematics 21 and 22. Upper division: 36 upper division units in zoology and biology, or approved related fields, including Zoology 100, 101, 106, and Biology 155.

MINOR IN ARTS AND SCIENCES

A minor in zoology is offered in arts and sciences. The minor consists of 15 to 22 units in zoology, six units of which must be in courses carrying upper division credit.

THE MASTER'S DEGREE

The master of arts degree for teaching service is offered with a concentration in zoology under the major of life science. See the section of this catalog on the Graduate Division.

LOWER DIVISION COURSES

1. General Zoology (5) I, II

Introduction to animal biology for those who expect to do advanced work in this field. Three hours of lecture and six hours of laboratory per week. Not open to students with credit for Biology 3 and 4.

8A. Human Anatomy (3) I, II

Systems of the human body and their interrelationships. Two hours of lecture and three hours of laboratory per week. Prerequisites: An introductory course in high school or college chemistry, and an introductory course in high school or college biology or zoology.

8B. Human Physiology (3) I, II

Functions of the human body; emphasis on the circulatory and nervous systems. Two hours of lecture and three hours of laboratory per week. Prerequisite: Zoology 8A. Not open to students with credit for Zoology 22.

22. Principles of Human Physiology (3) II

The principles of human physiology with special emphasis on nerve and muscle physiology. Three hours of lecture per week. Prerequisite: A college course in biology or human anatomy. Not open to students with credit for Zoology 8B.

23. Human Physiology Laboratory (1) II

Laboratory work in human physiology. One three-hour laboratory per week. Prerequisite: Zoology 22 or equivalent or concurrent enrollment. Not open for credit to students with credit in Zoology 8B.

UPPER DIVISION COURSES

100. Embryology (4) I, II

The development of vertebrates as illustrated by the frog, chick, and pig. Six hours of laboratory and two hours of lecture and quiz per week. Prerequisite: Zoology 1, or Biology 3 and consent of instructor.

101. Animal Physiology (4) I, II

Fundamental animal functions at the cellular, tissue, organ, and organismal levels. Two hours of lecture and six hours of laboratory per week. Prerequisites: Zoology 1, or Biology 3 and 4; Biology 15; and Chemistry 1A-1B or 2A-2B.

106. Comparative Anatomy of the Vertebrates (4) I, II

Dissection, study and comparison of organ systems of typical vertebrates. Two hours per week of lecture and six hours of laboratory. Prerequisite: Zoology 1, or Biology 3 and consent of instructor.

108. Histology (4) I

A study of the microscopic structures and differentiation of tissues and organs of the vertebrates, especially mammals. Two hours of lecture and six hours of laboratory per week. Prerequisites: Either Zoology 1, or Biology 3 and 4; recommended Zoology 100.

109. Hematology (3) I

Microscopic and chemical examination of blood. One lecture and six hours of laboratory per week. Prerequisites: Biology 3 and 4, or Zoology 1.

112. Marine Invertebrates (4) I

Identification and study of behavior and life histories of invertebrates of the San Diego region. Frequent collecting trips to the beaches required. Two hours of lecture and six hours of laboratory or field work per week. Prerequisite: Zoology 1, or Biology 4 and consent of instructor.

114. Natural History of the Vertebrates (4) II

Natural history, distribution, and classification of vertebrate animals; emphasis on local forms. Two hours of lecture and six hours of laboratory per week. Prerequisite: Zoology 1, or Biology 3 or 4.

115. Ichthyology (4) I

Evolution, interrelationships, structure, identification, habits, and ecology of fishes. Two hours of lecture and six hours of laboratory per week. Prerequisites: Zoology 1, or Biology 3 and 4.

117. Ornithology (4) II

The study and identification of birds, especially those of the Pacific Coast and the San Diego region. One hour of lecture and six hours per week of laboratory, or field excursions, and a field project. Prerequisite: Zoology 1, or Biology 4 and consent of instructor.

119-S. Field Zoology (4) Summer

Observational methods; collecting techniques; identification, ecology, and behavior of Southern California animals. Primarily for students not majoring in the Life Science Division. Two units of lecture and two units of laboratory. Prerequisite: a course in college biological science or permission of the instructor.

121. General Entomology (4) II

Structure, physiology, natural history, and classification of insects. Two hours of lecture and six hours of laboratory per week. Prerequisite: Zoology 1, or Biology 4. Recommended: Biology 102.

125. Economic Entomology (4) II

Course designed for students of agriculture and horticulture. Emphasis is placed on determination and control of insects affecting plants. Quarantine measures are also studied. Two hours of lecture and six hours of laboratory per week. Prerequisite: Zoology 1, or Biology 4 and consent of instructor.

126. Medical Entomology (3) I

The role of insects and other arthropods in transmission and causation of human diseases. Two hours of lecture and three hours of laboratory per week. Prerequisite: Zoology 1, or Biology 4 and consent of instructor.

128. Parasitology (4) I

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. Two hours of lecture and six hours of laboratory per week. Prerequisite: Zoology 1, or Biology 4 and consent of instructor.

***165. Human Heredity (2) I, II**

Presentation of selected principles of heredity as related primarily to human inheritance. Designed primarily for nonscience 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; permission of instructor.

GRADUATE COURSES

290. Bibliography (1) II

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

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

Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Guidance in the preparation of a project or thesis for the master's degree.

SCHOLARSHIPS

Scholarships are granted on the basis of adequate scholarship, special skills, and/or need, according to the wishes of the friends of the college making these scholarships and awards possible. Request for an application form should be sent to the place designated in the scholarship description. Additional information may be secured from the office of the Dean of Activities, San Diego State College.

SCHOLARSHIPS AVAILABLE TO FRESHMEN

ATHLETICS

AZTEC CLUB 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. Secure applications from the office of the Dean of Activities.

INTERFRATERNITY COUNCIL BASKETBALL SCHOLARSHIP. Three $25 scholarships awarded annually to three entering basketball players. The scholarships will be given at the beginning of either the fall or spring semester. Only students having regular status will be considered for the scholarships. Secure applications from the office of the Dean of Activities.

GENERAL

(No specified major required)

ALPHA PHI OMEGA. A $50 scholarship awarded each semester. If to an entering freshman student, he must have had a "B" average in high school. The Committee on Scholarships will select three applicants for recommendation to Alpha Phi Omega for final selection. Secure application forms from the office of the Dean of Activities.

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.

BLUE KEY. A scholarship of $50 is given annually to an entering male freshman student preferably from San Diego County. Secure application forms from the Office of the 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.

ESCONDIDO BUSINESS AND PROFESSIONAL WOMEN'S CLUB. Two $100 scholarships given annually to two high school graduates who plan to attend San Diego State College. These students are selected by the club on basis of good citizenship, good grades and participation in activities. Apply directly to donor.

KAPPA ALPHA PSI FRATERNITY—SAN DIEGO ALUMNI. An annual $50 scholarship ($25 per semester) awarded to a student graduating from high school for fees at San Diego State College. Apply directly to donor.

KAY JEWELERS SCHOLARSHIP. $30 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, 1957, 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.

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.

LA MESA EVENING WOMEN'S CLUB. A $75 scholarship awarded a senior in high school who is entering San Diego State College. Apply directly to donor.

LA MESA JUNIOR WOMEN'S CLUB. Two $100 awards made to graduates of Grossmont and Helix high schools. Apply directly to donor.

LINKLETTER, ART. Four $50 scholarships made available each June to students graduating from San Diego City and County high schools: (1) one to a girl and one to a boy graduating from high schools with enrollment of 1,000 or over; and (2) one to a boy and one to a girl 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.

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.

TOWN AND COUNTRY CLUB—ESCONDIDO, CALIFORNIA. A $200 scholarship given an outstanding student graduating from Escondido High School who plans to attend San Diego State College. Apply directly to donor.

DE WITT BISBEE WILLIAMS MEMORIAL SCHOLARSHIPS. One $100 scholarship will be awarded to each high school in San Diego City and County having a chapter of the California Scholarship Federation. Selection will be made during the student's senior year in high school by high school authorities. Eligibility requires that the student graduate from a high school in San Diego County, have been a member of the California Scholarship Federation for at least two semesters during the student's high school career and be admitted to San Diego State College. Application should be made to the high school counselor.

MERCHANDISING

SCOTT FOUNDATION—MERCHANDISING. A scholarship in the amount of $500 available to men students planning on careers in retail trade and interested in remaining in the San Diego Area. The recipient can be accepted for the scholarship during the freshman, sophomore, or junior year. The award will be paid at the rate of $50 a semester for each of the first three years and $100 a semester during the senior year.

WALKER, RALF MARC. A scholarship in the amount of $500 made available by the Walker-Scott Corporation in memory of the late Mr. Ralf Marc Walker to a woman student majoring in merchandising or retail trade at the San Diego State College. The scholarship is presented to a girl in Walker's Hi-Debber Council each year. The total scholarship is deposited in the San Diego State College Foundation and is paid to the recipient at the rate of $50 a semester for each of the first three years and $100 a semester for the two senior semesters.

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.

NURSING

CORONADO WOMAN'S CLUB. $150 given to a woman student majoring in nursing. Apply directly to donor.

9—49843

SCIENCE

KINTEL (formerly Kay-Lab, Inc.). An annual $50 award given to a freshman student majoring in physics. The scholarship is awarded on basis of performance in the competitive physics test given high school seniors by the Southern California Section of the American Association of Physics Teachers. Secure application forms from the office of the Dean of Activities.

SPEECH

BURGENER, CLAIR W., SPEECH SCHOLARSHIP. A four-year scholarship of $50 per semester awarded to an entering freshman 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. Secure application forms from Office of the Dean of Activities.

SENN, PERCIE BELL, SCHOLARSHIP IN PUBLIC SPEAKING. An annual scholarship of from $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. Secure application forms from Office of the Dean of Activities.

SCHOLARSHIPS AVAILABLE TO STUDENTS WITH ADVANCED STANDING

Secure applications and additional information about these scholarships from the Office of the Dean of Activities, San Diego State College, unless otherwise indicated in description of the scholarship.

ATHLETICS

AZTEC CLUB 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.

INTERFRATERNITY COUNCIL BASKETBALL SCHOLARSHIP. Three $25 scholarships awarded annually to three entering basketball players. The scholarships will be given at the beginning of either the fall or spring semester. Only students having regular status will be considered for the scholarships.

BUSINESS EDUCATION

EXECUTIVES' SECRETARIES, INC., SAN DIEGO CHAPTER. Two annual $100 scholarships for upper division women students majoring in business education. Must have a "B" average. The group selects the candidates from recommendations of the San Diego State College Committee on Scholarships.

EDUCATION MAJORS

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN—SAN DIEGO BRANCH. A scholarship awarded annually by Mrs. W. O. 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. The Scholarship Committee of the San Diego Branch of A. A. U. W. makes final selection.

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.

CAMPUS LABORATORY SCHOOL PARENTS ORGANIZATION. A $50 scholarship to a student admitted to Elementary Teacher Training, showing need.

CLAIREMONT WOMEN'S CLUB. $50 to an upper classman working for a teaching credential. Particular weight given to financial need.

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, have good recommendations and be single. Final selection of the recipient will be made by a committee of Tri Delta Alumnae.

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.

EXCHANGE CLUB OF SAN DIEGO, COLLEGE CENTER BRANCH. $75 scholarship awarded annually to a deserving student who is majoring in any branch of the teaching field.

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. Final selection rests with a scholarship committee of Kappa Beta Nu.

KAPPA DELTA PI. Two $25 scholarships awarded annually by Kappa Delta Pi of San Diego State College for students in teacher education. Selection for awards is made by the group.

LEMON GROVE DISTRICT TEACHERS ASSOCIATION. $100 given annually for scholarships of $50 a semester to students admitted to teacher education, to be selected by the San Diego State College Committee on Scholarships.

LEMON GROVE WOMAN'S CLUB JUNIORS. A $50 scholarship for upper division woman student in teacher education. Financial need is first consideration in awarding this scholarship.

PACIFIC BEACH JUNIOR WOMEN'S CLUB. $400 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. An annual scholarship of $50 given to a senior student in education. Final selection is made by the fraternity.

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 TEACHERS ASSOCIATION. Four $100 scholarships made available annually. Awards are made to students in the field of education.

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 public schools of California; and (3) the award shall be limited to students in the junior and senior years.

ENGINEERING

ENGINEERS CLUB OF SAN DIEGO. $100 awarded annually to student majoring in engineering. This award is made in the second semester.

SAN DIEGO STATE COLLEGE ALUMNI ENGINEERS ORGANIZATION. A $50 scholarship given annually to a student majoring in engineering. He must have completed between 30 and 89 units when he applies. He must have a "C" grade average. Final selection is made by this organization.

WEST COAST ELECTRONIC MANUFACTURERS ASSOCIATION. A scholarship of $300 awarded to a freshman, sophomore or junior without discrimination as to race, creed or color. Student selected must be interested in electronic engineering or allied branches and be preparing for a technical education.

GENERAL

(No specified major required)

ANONYMOUS (B). A scholarship of $100 given each year to be divided among students in financial need, at the discretion of the Committee on Scholarships. The committee gives consideration to scholastic attainment, financial need, and character.

BLUE KEY. A scholarship of $50 given annually to a male student in the lower division who has completed at least one semester (12 units) of work at San Diego State College.

CAP AND GOWN. One $50 scholarship awarded annually to an 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.

FACULTY DAMES. Two scholarships of $50 each given annually to deserving women students.

KIWANI-ANNES (College Area). A $50 scholarship awarded annually.

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.

MARCY, MAY FINNEY. Fifty-dollar scholarships awarded to women students in upper division. Awards are made upon recommendation of the faculty Committee on Scholarships to Mrs. Marcy and a committee of members of Cap and Gown on San Diego State College campus.

PSI CHI. $50 awarded annually to a student with over-all 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.

SAN DIEGO CITY PANHELLENIC. Two $50 scholarships awarded annually to two upper division women students.

SOUTHLAND CLUB SCHOLARSHIP. $50 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.

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.

HISTORY

PHI ALPHA THETA (BETA KAPPA CHAPTER). A $50 scholarship awarded to a history major. Applications should be made during the last semester of junior year to the Chairman of the History Department.

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.

SIGMA ALPHA IOTA MARGARET SWOPE SCOTT MEMORIAL SCHOLARSHIP. A $50 scholarship awarded a deserving woman student majoring in music. Special consideration will be given to one specially gifted in some phase of musical performance.

SIGMA ALPHA IOTA, San Diego State College Chapter. $25 a semester will be given to a student majoring in music. Must be a student who is not a member of this organization. Group will make final selection.

NURSING

CORONADO WOMAN'S CLUB. $50 given to a woman student majoring in nursing.

PREPROFESSIONAL CURRICULA

WOMAN'S AUXILIARY OF SAN DIEGO DENTAL SOCIETY. An annual award of $200 made in June to an outstanding male student in predentistry and $100 to a young woman preparing to become a dental hygienist.

WOMAN'S AUXILIARY TO THE SAN DIEGO COUNTY OPTOMETRIC SOCIETY. One $50 scholarship to a sophomore preoptometric student who has a 2.5 grade point average or better, is in financial need, and has qualities of character indicating high moral integrity.

SCIENCE

KINTEL (formerly Kay-Lab, Inc.). An annual award of $50 given to an upper division student majoring in physics.

SOCIAL SERVICE (PRESOCIAL WORK)

SAN DIEGO SOCIAL WORKERS CLUB. A scholarship of $50 each semester for an upper division student intending to enter the field of social work, who has above average scholarship and shows evidence of financial need.

SPEECH ARTS

BURGENER, 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, PERCIE 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 AVAILABLE TO GRADUATE STUDENTS

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN. One scholarship of $100 given each year in June to a graduating senior 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.

HIGH TWELVE INTERNATIONAL. Full tuition scholarships in the School of Government at George Washington University are sponsored by High Twelve International under grants of the Wolcott Foundation. Scholarships are awarded on a competitive basis nationally to young men and women seeking careers in the United States Foreign Service. Graduating seniors are invited to submit applications through any local High Twelve Club.

OSTEOPATHY AUXILIARY—SAN DIEGO COUNTY. An annual award of $100 to a student who has graduated from the San Diego State College and has been accepted for enrollment in the College of Osteopathy in Los Angeles.

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.

The recipient must continue work in the San Diego State College, or in any other accredited college or university, toward a higher degree or credential. The selection is made by the Department of History with approval by the Committee on Scholarships.

TEACHER EDUCATION SCHOLARSHIP. An award of $400 will be given to a fifth-year student training to teach on a general secondary credential. This is a gift of California Congress of Parents and Teachers.

UNCLASSIFIED SCHOLARSHIPS

Special qualifications for each scholarship are listed below. Secure additional information from the office of the Dean of Activities, San Diego State College.

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN—SAN DIEGO BRANCH —GERTRUDE SUMPTION BELL SCHOLARSHIP. A $50 scholarship given annually to a woman student majoring in English, Psychology or Education. Final selection is made by the Scholarship Committee of A. A. U. W.

ANONYMOUS (E). A $50 scholarship awarded each semester. A public spirited citizen who prefers to assist a student majoring in science or education makes this award possible.

CALIFORNIA STATE EMPLOYEES, CHAPTER 17. A $60 award given each semester to a senior student who plans to go into public service. The recipient must have a "C" average over-all and "B" in major.

CHI OMEGA FRATERNITY. A $50 scholarship awarded annually to a student outstanding in the Sociology or Psychology Department.

CONVAIR—A DIVISION OF GENERAL DYNAMICS CORPORATION. Nine scholarships each year for students from the fields of accounting, chemistry, engineering, mathematics, physics, business, personnel and industrial management. Each scholarship will provide $75 a semester for each semester in college as long as the student maintains a standard of superior academic performance. Freshmen, sophomores and juniors are eligible.

FLEISCHNER, ANNA S., SCHOLARSHIP, given by Dr. and Mrs. Charles A. Fleischner. An award of $150 given annually to a needy, physically handicapped student, irrespective of race, color or creed.

KIWANIS CLUBS. Many students have secured scholarships from Kiwanis Clubs in their communities. Apply directly to Kiwanis Club in your city.

LIONS CLUBS. Scholarships of varying amounts have been given students. Applications should be made to the Lions Club in your vicinity.

P.E.O. SCHOLARSHIPS. Various chapters of this organization assist worthy students in amounts ranging from $15 a month to $50 a semester. Apply directly to donor.

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.

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.

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.

SOROPTIMIST 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.

AWARDS

ALPHA GAMMA DELTA. An annual $50 award to the student in Alpha Gamma Delta sorority with the highest grade point average.

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 over-all scholarship equal to or above all men's average.

DANCE CLUB OF SAN DIEGO STATE COLLEGE. A $50 scholarship awarded to an outstanding dancer from the club to be used for tuition at a recognized summer school of the dance. Application should be made to the Women's Physical Education Department, San Diego State College.

DAUGHTERS OF THE AMERICAN REVOLUTION. Two scholarships of $50 each presented each spring, one to a young man and the other to a young woman outstanding in citizenship and Americanism. Presentation of awards is made at a luncheon on Flag Day, which is given by the Daughters of the American Revolution.

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.

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.

PRESBYTERIAN WESTMINSTER FOUNDATION. A scholarship of $50 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.

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.

SAN DIEGO UNION-TRIBUNE CHARITIES. A total of 20 scholarships are available: $100 a year for one junior each in six fields of study: editorial (journalism), advertising, business, electronics, engineering, and general executive training; $100 a year scholarship each to most deserving junior who has been graduated from (a) San Diego Junior College and Vocational School, (b) Palomar College, (c) Oceanside-Carlsbad Junior College and (d) Imperial Valley College; $200 a year scholarships each to most deserving senior who has been graduated from (a) San Diego Junior College and Vocational School, (b) Palomar College, (c) Oceanside-Carlsbad Junior College and (d) Imperial Valley College.

STEINMAN INTERFAITH AWARD. $50 awarded annually to a student at San Diego State who has promoted interfaith cooperation on the campus. Selection of the student is made by three faculty members who have served as advisers 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 cooperation on the campus. Selection of the student is made by three faculty members who have served as advisers 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 Epsten.

DIRECTORY

1956-57

LOVE, MALCOLM A. (1952) — President
A.B., Simpson College; M.A., Ph.D., University of Iowa; LL.D., Simpson College.

ACKLEY, JOHN W. (1947) — Professor of Speech Arts
A.B., University of Redlands; M.A., Ph.D., University of Southern California.

ADAMS, EILEEN (Mrs. Bert) (1949) — Librarian II
A.B., Williamette University; B.S. in L.S., University of Denver.

ADAMS, JOHN R. (1928) — Chairman, Division of Humanities; Professor of English
A.B., A.M., University of Michigan; Ph.D., University of Southern California.

ADAMS, WILLIAM J. (1955) — Assistant Professor of Speech Arts
B.S., McMurray College; M.A., Northwestern University; Ph.D., Stanford University.

ALCORN, MARVIN D. (1941) — Professor of Education
A.B., Southwestern College; A.M., Teachers College, Columbia University; Ed.D., University of Southern California.

AMSDEN, GEORGIA C. (1925) — Associate Professor of Business Education
Diploma, Gregg College, Chicago; special secretarial training in various colleges.

ANDERSON, EVANS L. (1954) — Assistant Professor of Education
B.A., Gustavus Adolphus College; M.A., University of Minnesota; Ed.D., University of Denver.

ANDERSON, GRAYDON K. (1949) — Associate Professor of Economics
A.B., Williamette University; Ph.D., University of Wisconsin.

ANDERSON, KEITH P. (1956) — Librarian II
B.A., Pomona College; M.A. and additional graduate study, Claremont Graduate School; M.S. in L.S., University of Southern California.

ANDERSON, MELVIN A. (1956) — Assistant Admissions Officer; Assistant Professor of Education
B.Ed., Northern Illinois State College; M.A., Northwestern University; Ed.D., University of California at Los Angeles.

ANDERSON, PAUL S. (1955) — Assistant Professor of Education
A.B., Colorado State College; M.S., Ph.D., University of Wisconsin.

ANDERSON, PAUL V. (1954) — Assistant Professor of Music
B.M., North Texas State College; M.M., University of Wisconsin.

ANDERSON, W. CARLISLE (1955) — Assistant Professor of Industrial Arts
B.S., Nebraska State Teachers College; M.A., Ph.D., University of Minnesota.

ANDREWS, JULIA G. (Mrs. F. S.) (1947) — Associate Professor of Art
A.B., Northwestern University; M.A., Columbia University; additional graduate study at Teachers College, Columbia University.

APPLE, JOE A. (1947) — Professor of Education
A.B., Southeastern State College; M.A., University of Oklahoma; Ed.D., Teachers College, Columbia University.

ARCHER, ELLIS C. (1956) — Assistant Professor of Business Education
B.S., Northwestern State College; M.S., University of Kansas; Ed.D., Stanford University.

ATKINSON, BEATRICE (1954) — Assistant Professor of Nursing
B.S., College of St. Scholastica.

BABILOT, GEORGE (1956) — Instructor in Economics
A.B., Hastings College; M.A., University of Nebraska; additional graduate study at University of Oregon.

BACON, GUINIVERE KOTTER (Mrs. George) (1928) — Associate Professor of Education
B.S., Utah Agricultural College; M.A., Stanford University; additional graduate study.

BAKER, CLIFFORD H., JR. (1937) — Assistant Professor of Spanish
A.B., San Diego State College; M.A., and additional graduate study at the University of California.

BAKER, DOUGLAS L. (1954) — Assistant Professor of Education
A.B., Lynchburg College; M.S., Ed.D., University of Southern California.

BAKER, JAMES R. (1956) — Instructor in English
B.A., M.A., Ph.D., University of Denver.

BALLANTINE, FRANCIS A. (1949) — Associate Professor of Education
A.B., Michigan State Normal College; A.M., Ph.D., University of Michigan.

BARCKLEY, ROBERT E. (1955) — Assistant Professor of Economics
B.S., University of North Dakota; M.A., Columbia University; additional graduate study at University of Illinois.

*** BARNHART, KENNETH EDWIN (1939)** — Professor of Sociology
A.B., Southwestern University; B.D., Southern Methodist University; Ph.D., University of Chicago.

BARHAM, ERIC G. (1956) — Instructor in Zoology
B.A., San Diego State College; Ph.D., Stanford University.

BAUER, EDWARD G. (1956) — Assistant Professor of Engineering
B.S., U. S. Naval Academy; M.S., University of California.

BECKER, CALLIE D. (Mrs. E. J.) (1946) — Assistant Librarian
A.B., Shorter College; A.B. in L.S., Emory University.

BENJAMIN, ROBERT L. (1953) — Assistant Professor of Speech Arts
A.B., M.S., University of California; Ph.D., University of Wisconsin.

*** BENTON, CARL W. (1948)** — Assistant Professor of Physical Education
B.S., University of California at Los Angeles; M.S., University of Southern California.

BIGELOW, MARYBELLE S. (Mrs. K. G.) (1956) — Assistant Professor of Art
A.B., M.A., University of California at Los Angeles.

† BIGGER, WILLIAM R. (1952) — Associate Professor of Political Science
B.A., M.A., University of Wisconsin; Ph.D., University of California at Los Angeles.

BILTERMAN, HENRY L. (1956) — Instructor in Engineering
B.S., University of Iowa; graduate study at San Diego State College.

BIRCH, AILEEN J. (Mrs. C. E.) (1949) — Assistant Professor of Education
A.B., M.A., San Diego State College.

BLOCK, EDWARD A. (1946) — Professor of English
A.B., M.A., Ph.D., University of California.

BOHNSACK, KURT K. (1956) — Assistant Professor of Zoology
B.S., Ohio University; M.S., Ph.D., University of Michigan.

BRANSTETTER, R. DEANE (1955) — Assistant Professor of Mathematics
B.S., B.A., Northeast Missouri State Teachers College; M.S., State University of Iowa; Ph.D., Iowa State College.

BRIDENSTINE, DON C. (1956) — Instructor in Economics
B.S., University of Oregon; A.M., University of Southern California.

BROADBENT, HARRY H. (1949) — Associate Professor of Physical Education
A.B., University of Oklahoma; M.S., University of Pennsylvania.

BRODSHATZER, ARTHUR (1956) — Assistant Professor of Accounting
B.B.A., City College of New York; M.B.A., New York University.

BROOKS, BAYLOR (1931) — Assistant Professor of Geology
B.A., Stanford University; additional graduate study at University of Arizona and Stanford University.

BROOKSHIRE, MARJORIE S. (1954) — Assistant Professor of Economics
B.A., M.A., Ph.D., University of Texas.

BROWN, BRUCE E. (1955) — Assistant Professor of Accounting
B.S., Iowa State College; M.A., State University of Iowa; additional graduate study at Stanford University and University of California at Los Angeles. Certified Public Accountant.

BROWN, ELIZABETH McPIKE (Mrs. L. P.) (1926) — Professor of French
Ph.B., M.A., Ph.D., University of Chicago; additional graduate study at the Sorbonne, Paris, France; Certificat d'Etudes Françaises; Diplôme de l'Association Générale de Phonétique, Paris, France; Officier d'Académie.

BROWN, EUGENE P. (1947) — Professor of Accounting and Management
B.S., Southeastern Teachers College; B.A., M.A., University of Oklahoma; additional graduate study at University of Chicago, University of Southern California, University of Mexico, and University of Vermont. Public Accountant.

BROWN, LESLIE PARKER (1922) — Professor of Spanish and French
B.A., Yale College; M.A., Harvard University; Ph.D., University of Southern California.

BRYDEGAARD, MARGUERITE A. (Mrs. H.) (1936) — Associate Professor of Education
A.B., San Diego State College; M.A. and graduate study at Claremont College.

BURNETT, GAIL A. (1947, except 1951-52) — Associate Professor of English
A.B., Randolph-Macon Woman's College; M.A., University of California at Los Angeles; Ph.D., University of Southern California.

CAMERON, ROY ERNEST (1929) — Professor of Economics
A.B., Ph.D., University of California.

CAMPBELL, LOIS B. (1947) — Associate Professor of Education
A.B., University of California; M.A., Teachers College, Columbia University.

CAPP, MARTIN P. (1953) — Professor of Engineering
B.S., M.S., University of Colorado. Registered Professional Engineer and Land Surveyor.

* On leave Semester I.
† On leave 1956-57.

CAREY, CHARLOTTE C. (1956) — Assistant Professor of Education
B.S., Wisconsin State College; M.S. and additional graduate study at University of Wisconsin.

CARLSON, HILDING B. (1948) — Professor of Psychology
Ph.B., M.S., Ph.D., University of Chicago.

CARLSON, THORSTEN R. (1948) — Professor of Education
B.E., St. Cloud State Teachers College; M.A., Ph.D., University of Minnesota.

CARMICHAEL, A. MAX (1956) — Visiting Professor of Education
B.A., University of Iowa; M.A., Teachers College, Columbia University; Ph.D., University of Iowa.

CARRICK, PAUL M., JR. (1955) — Assistant Professor of Marketing
B.B.A., Northwestern University; Ph.D., University of California.

CASTETTER, ROBERT K. (1954) — Assistant Professor of Management
B.A., Washington and Jefferson College; L.L.B., Salmon P. Chase College of Law; L.L.M., Indiana University.

CAVE, MARY F. (1946) — Assistant Professor of Physical Education
B.S., University of North Dakota. Graduate study at Bennington College and University of California at Los Angeles.

CAWTHON, MILDRED G. (1956) — Assistant Professor of Music
B.M., Certificate in Piano, Florida State University; M.M., Cincinnati Conservatory; additional graduate study at Teachers College, Columbia University.

CHADWICK, LEONARD E. (1949) — Assistant Professor of Economics
B.S. and additional graduate study at the University of California.

CHICK, GWENDOLYN (1956) — Librarian I
A.B., San Diego State College; graduate study at University of Southern California.

CLARK, HELEN S. (Mrs. J. G.) (1952) — Assistant Professor of Mathematics
B.A., Macalester College.

COMIN, NORITA N. (1949) — Associate Professor of Home Economics
B.S., University of Minnesota.

CRAWFORD, MAURICE L. (1954) — Assistant Professor of Business Education
B.S., M.S., University of Utah; additional graduate study at University of California at Los Angeles.

CRAWFORD, RONALD W. (1953) — Assistant Professor of Zoology
A.B., San Diego State College; Ph.D., Cornell University.

CROUCH, JAMES ENSIGN (1932) — Professor of Zoology
B.S., M.S., Cornell University; Ph.D., University of Southern California.

CRUM, CLYDE E. (1955) — Assistant Professor of Education
B.S., M.S., Kansas State Teachers College; Ed.D., University of Colorado.

CUMMINS, CARL C. (1953) — Assistant Professor of Industrial Arts
A.B., Santa Barbara College, University of California; M.S., University of Southern California.

CUNKLE, ELIZABETH C. (Mrs. L.) (1948) — Librarian III
A.B., University of California; B.S. in L.S., Columbia University. Graduate study, University of California.

CUNNINGHAM, CORNELIUS C. (1947) — Professor of Speech Arts
A.B., Beloit College; M.A., Northwestern University; Ph.D., University of Iowa.

DANIEL, LARK O., III (1955) — Assistant Professor of Psychology
B.A., M.A., Southern Methodist University; Ph.D., Purdue University.

DANIELS, MORRIS J. (1956) — Assistant Professor of Sociology
B.A., Southern Methodist University; M.A., Ph.D., University of Texas.

DELORA, JACK R. (1955) — Assistant Professor of Sociology
B.S., Bowling Green State University; M.A., Western Reserve University; additional graduate study at Michigan State College.

DIRKS, JOHN H. (1947) — Assistant Professor of Art
A.B., San Diego State College. Graduate study at University of Southern California.

DORRIS, HELEN L. (1952) — Assistant Professor of Home Economics
B.S., Southern Illinois University; M.S., University of Illinois.

EAGLE, JOHN E. (1946) — Professor of Mathematics
B.S., Montana State College; M.A., Ed.D., Stanford University.

* EARNEST, SUE W. (Mrs. L. E.) (1947) — Professor of Speech Arts
A.B., San Diego State College; M.A., Ph.D., University of Southern California.

EDES, NANCY A. (1956) — Assistant Professor of Education
B.S., M.Ed., University of Minnesota

EIDEMILLER, DONALD I. (1956) — Assistant Professor of Geography
B.A., San Diego State College; M.A., University of California; Ph.D., Indiana University.

EMERSON, ARTHUR T. (1952) — Assistant Professor of Mathematics
B.S., U. S. Naval Academy; additional graduate study at Naval War College.

* On leave 1956-57.

* EVENSON, PATTEE E. (1949) — Associate Professor of Music
B.S., University of Minnesota; M.M., University of Michigan; specialized training at Universities of Minnesota, Michigan, Southern California, and Eastman School of Music; private instruction in Paris, London and the United States.

EZELL, PAUL H. (1956) — Assistant Professor of Anthropology
B.A., M.A., Ph.D., University of Arizona.

FELLERS, DANIEL I. (1956) — Assistant Professor of Accounting
B.S., M.S., University of Denver; additional graduate study at Louisiana State University.

FISHBURN, CLARENCE E. (1955) — Assistant Professor of Education
A.B., Arizona State College, Tempe; M.A., Arizona State College, Flagstaff; Ed.D., Stanford University.

FISHER, J. SHERRICK (1953) — Assistant Professor of Education
B.S., Bethany College; M.A., Teachers College, Columbia University; Ph.D., University of Pittsburgh.

FLAGG, DENIS A. (1955) — Assistant Professor of Economics
B.A., Harvard College; Ph.D., University of California.

FLYE, RICHARD C. (1950) — Assistant Professor of Music
B.A., University of Virginia; M.A., and Professional Diploma, Columbia University.

FORD, WALTER B. (1953) — Assistant Professor of Industrial Arts
B.E., Santa Barbara State College; graduate study at Claremont Graduate School.

FOSTER, CLIFFORD D. (1955) — Assistant Professor of Education
B.S., Northeast Missouri State Teachers College; M.A. and additional graduate study at University of Washington.

FOX, DOROTHEA B. (1951) — Librarian II
B.A., San Diego State College; B.S. in L.S., M.A., University of Southern California; graduate study at University of New Mexico.

FREY, LEONARD H. (1956) — Instructor in English
A.B., Dartmouth College; M. A. and additional graduate study at the University of Oregon.

FRIEDRICH, KURT (1949) — Professor of Education
A.B., Columbia College; M.A., Columbia University; Ed.D., Columbia Teachers College.

FULKERSON, E. GLEN (1954) — Assistant Professor of Education
B.E., 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 California at Los Angeles.

GALLUP, AVERY H. (1952) — Assistant Professor of Botany
A.B., San Diego State College; M.A., Claremont Graduate School; Ph.D., University of Michigan.

GANONG, CONSTANCE L. (1954) — Assistant Professor of Nursing
B.S., University of Minnesota.

GARRISON, JOHN D. (1956) — Assistant Professor of Physics
B.A., M.A., University of California at Los Angeles; Ph.D., University of California.

GATES, GERALD F. (1955) — Assistant Professor of Education
B.F.A., Syracuse University; M.F.A., University of Colorado; M.A., Ed.D., University of Denver.

GEGA, PETER C. (1955) — Assistant Professor of Education
A.B., M.S., Ed.D., University of Southern California.

GELDREICH, EDWARD W. (1947) — Associate Professor of Psychology
A.B., M.A., University of Cincinnati; Ph.D., University of Chicago.

GENERALES, MINOS D. (1949) — Associate Professor of Political Science
Degree in Law and Political Science, University of Athens; additional graduate study at the University of Paris Law School and Institute of International Studies, Paris and Geneva.

GERLACH, LEE F. (1956) — Instructor in English
A.B., M.A., University of Wisconsin; Ph.D., University of Michigan.

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) — Assistant Professor of Economics
B.A., Portland University; M.A., Stanford University; Ph.D., University of Washington.

GJERDE, CLAYTON M. (1948) — Professor of Education
A.B., Augsburg College; M.A., Ph.D., University of Minnesota.

GOVERNALI, PAUL (1956) — Professor of Physical Education
B.A., Columbia College; M.A., Ed.D., Teachers College, Columbia University.

GRAWUNDER, RALPH M. (1955) — Assistant Professor of Physical Education
B.S., The Rice Institute; M.A., Ed.D., Teachers College, Columbia University.

GRAY, ROBERT T. (1956) — Test Officer; Associate Professor of Education
A.B., M.Ed., Ed.D., University of Kansas.

* On leave 1956-57.

GRISIER, DONALD W. (1951)—Associate Professor of Education
B.S., Bowling Green State University; M.A., Ed.D., Teachers College, Columbia University.

GROFF, PATRICK J. (1955)—Assistant Professor of Education
B.S., M.S., University of Oregon; Ed.D., University of California.

GULICK, SIDNEY L., JR. (1945)—Professor of English
B.A., M.A., Oberlin College; Ph.D., Yale University.

HAMMACK, ISABELLA STEWART (1936)—Associate Professor of Education
A.B., M.A., and additional graduate study at the University of California.

HANCHETT, WILLIAM F., JR. (1956)—Assistant Professor of History
A.B., Southern Methodist University; M.A., Ph.D., University of California.

HARRINGTON, AWONA W. (1949)—Librarian II
A.B. and additional graduate study at San Diego State College; M.S. in L.S., University of Southern California.

HARRINGTON, NEIL J. (1948)—Assistant Professor of Chemistry
B.S., Monmouth College; additional graduate study at DePaul University and Northwestern University.

HARRIS, VINCENT C. (1950)—Associate Professor of Mathematics
B.A., M.A., Ph.D., Northwestern University.

HARRISON, ROBERT C. (1953)—Assistant Professor of Psychology
B.S., M.S., Ph.D., University of Washington.

HARTIGAN, SELWYN C. (1946)—Business Manager
A.B., San Diego State College.

HARVEY, A. R. (1949)—Professor of Mathematics
B.S., Bates College; A.M., Ph.D., Harvard University.

HARVEY, DOROTHY R. (Mrs. F. A.) (1924)—Assistant Professor of Botany
A.B., San Diego State College; M.A., University of Southern California. Additional graduate study at University of Southern California and University of Chicago.

HARWOOD, ROBERT DANIEL (1928)—Chairman, Division of Life Sciences; Professor of Zoology
A.B., Pomona College; Ph.D., Cornell University.

HASKELL, HARRIET (1940, except 1943-45)—Associate Professor of English
A.B., 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)—Instructor in Chemistry
B.S., Northwestern University; graduate study at the University of California at Los Angeles.

HILL, WAYNE O. (1955)—Assistant Professor of Education
B.A., M.Ed., Eastern Washington College of Education; Ed.D., Stanford University.

HODGE, GLENN L. (1953)—Associate Professor of Management
B.S., Kansas State Teachers College; M.S., University of Denver; Ph.D., Louisiana State University.

HOLMES, CALVIN V. (1956)—Assistant Professor of Mathematics
B.A., M.A., University of Mississippi; M.S., University of Illinois; Ph.D., University of Kansas.

HOLMES, DARRELL C. (1952)—Associate Professor of Education; Curriculum Evaluator
B.A., M.A., Ph.D., Ohio State University.

HOOVER, GRACE V. (1956)—Librarian II
A.B., University of Nebraska; B.S. in L.S., University of Denver.

HOUSEMAN, RICHARD A. (1948)—Professor of Education
B.S., Central Michigan College of Education; M.A., Ed.D., Teachers College, Columbia University.

HOUSER, LOWELL (1938)—Associate Professor of Art
Diploma, Chicago Art Institute. Additional special study in Mexico, Yucatan, Haiti, and New York City.

HUFFMAN, EDWARD W. (1955)—Assistant Professor of Zoology
B.S., M.S., University of Illinois; Ph.D., Ohio State University.

HUNTER, JAMES J., JR. (1946)—Executive Dean; Professor of Education
A.B., Cornell University; M.S., Ph.D., Syracuse University.

IRGANG, FRANK J. (1956)—Assistant Professor of Industrial Arts
B.S., Central Michigan College; M.A., Ph.D., University of Michigan.

ISENSEE, ROBERT W. (1948)—Professor of Chemistry
A.B., Reed College; M.A., Ph.D., Oregon State College.

JACKSON, EVERETT GEE (1930)—Professor of Art
A.B., San Diego State College; M.A., University of Southern California; additional special study in Mexico.

JACOBSEN, HELEN M. (1946)—Librarian III
A.B., San Diego State College; B.S. in L.S., University of California.

JANSSEN, HENRY L. (1953)—Assistant Professor of Political Science
B.A., M.A., University of Oklahoma; Ph.D., University of California.

JAROLIMEK, JOHN (1956)—Assistant Professor of Education
B.S., River Falls State Teachers College; M.A., Ph.D., University of Minnesota.

JOHNSON, DEWAYNE B. (1955)—Assistant Professor of Journalism
A.B., University of California; Ed.D., University of California at Los Angeles.

JOHNSON, EULALIA G. (1956)—Assistant Professor of Nursing
B.S., Mount St. Mary's College.

JOHNSON, FRANK LOUIS (1939)—Professor of English
A.B., M.A., University of Minnesota; Ph.D., University of Wisconsin.

JONES, C. CARROLL (1955)—Physician and Surgeon
M.D., Loyola University.

JONES, KENNETH K., JR. (1948)—Associate Professor of Speech Arts
B.S., Northwestern University; M.A., Stanford University.

JOSEPH, LIONEL (1947)—Professor of Chemistry
B.S., St. Louis University; M.S., Ph.D., Washington University.

JOY, NED V. (1953)—Assistant Professor of Political Science
A.B., Ph.D., University of California.

JULIAN, JAMES L. (1951)—Professor of Journalism
B.S., B.A., University of Houston; M.A., University of Texas; Ph.D., State University of Iowa.

JURRENS, LUELLA C. (1956)—Assistant Professor of Home Economics
B.S., South Dakota State College; M.S. and additional graduate study at Colorado State College.

KAPLAN, OSCAR J. (1946)—Professor of Psychology
B.A., M.A., University of California at Los Angeles; Ph.D., University of California.

KARLSEN, BJORN (1954)—Assistant Professor of Education
B.A., State Teachers College, Oslo, Norway; B.S., M.A., University of Nebraska; Ph.D., University of Minnesota.

KASCH, FREDERICK W. (1948)—Associate Professor of Physical Education
B.S., M.S., University of Illinois; Ed.D., New York University.

KEENEY, JOSEPH SUMNER (1933)—Professor of English
A.B., Yale University; M.A., Ph.D., University of California.

KEMP, BENNY B. (1954)—Assistant Professor of Music
B.M., Eastman School of Music; M.M., University of Indiana.

KENNEDY, CHESTER B. (1937)—Professor of English
A.B., Chico State College; M.A., Ph.D., Stanford University.

KIDWELL, WILLIAM M. (1949)—Placement Officer; Associate Professor of Psychology
B.A., M.S., University of Oregon; Ed.D., Stanford University.

KILLION, JOHN J. (1955)—Physician and Surgeon
B.A., University of Minnesota; M.D., University of Tennessee School of Medicine.

KINDER, JAMES S. (1953)—Coordinator of Audio-Visual Services; Associate Professor of Education
B.S., Southeast Missouri College; M.A., Ph.D., Teachers College, Columbia University.

KINNON, WILLIAM D. (1956)—Assistant Professor of Psychology
B.S., Boston University; M.Ed., Trinity University; M.A., Ph.D., University of Denver.

KIRBY, BERNARD C. (1954)—Assistant Professor of Sociology
A.B., Denison University; M.A., Ph.D., University of Washington.

KITSUSE, JOHN I. (1955)—Instructor in Sociology
B.S., Boston University; M.A., and additional graduate study at University of California at Los Angeles.

KITZINGER, ANGELA M. (1945)—Associate Professor of Health Education
A.B., Barnard College, Columbia; M.A., Teachers College, Columbia University.

* KLAPP, ORRIN E. (1948)—Professor of Sociology
M.A., Ph.D., University of Chicago.

KLEMER, ELIZABETH J. (1953)—Associate Professor of Education
B.E., National College of Education; M.A., George Peabody College; graduate study at Teachers College, Columbia University, and Stanford University.

KOESTER, GEORGE A. (1950)—Associate Professor of Education
B.S., Midland College; M.A., University of Colorado; Ph.D., University of Minnesota.

KURTZ, RICHARD A. (1956)—Instructor in Sociology
B.S., Teachers College of Connecticut; M.A., University of Connecticut; additional graduate study at Michigan State University.

LAMB, ALMA S. (Mrs. G.) (1956)—Librarian I
B.S., University of Alabama.

* On leave Semester II.

LAMDEN, CHARLES W. (1946)—Chairman, Division of Business Administration; Professor of Accounting and Management
A.B., M.A., University of California at Los Angeles; Ph.D., University of California. Certified Public Accountant.

LANDIS, VINCENT J. (1954)—Instructor in Chemistry
B.S., Washington State College; Ph.D., University of Minnesota.

LAURITSEN, WILLIAM H. (1947)—Professor of Health Education
A.B., M.A., University of Nebraska; Ph.D., Ohio State University.

LAWSON, DONALD F. (1956)—Assistant Professor of Marketing
B.A., Occidental College; M.S., University of Colorado; additional graduate study at Ohio State University.

LeBARRON, EVANGELINE O. (Mrs. H. E.) (1946, except 1948-49)—Associate Professor of Business Education
B.A., B.S., University of Iowa; B.A., Sioux Falls College; additional graduate study at Claremont Colleges, Universities of Southern California, Minnesota and Hawaii.

LEE, ROBERT E. (1956)—Assistant Professor of Speech Arts
B.A., M.A., University of Nebraska.

LEIFFER, DONALD B. (1948)—Professor of Political Science
A.B., University of California at Los Angeles; M.A., Ph.D., Harvard University.

LEMME, MAURICE M. (1948)—Dean of the Graduate Division; Professor of Mathematics
A.B., Oakland College; M.A., Indiana University; Ph.D., Purdue University.

LEONARD, CHARLES B. (1921)—Professor of History
A.B., M.A., Ph.D., University of California.

LEUKEL, FRANCIS P. (1956)—Assistant Professor of Psychology
B.S., University of Florida; M.S., Northwestern University; Ph.D., University of Washington.

LIENERT, CHARLES (1954)—Assistant Professor of Education
B.E., Southern Illinois University; M.S., University of Illinois; Ed.D., Colorado State College of Education.

LINLEY, JAMES M. (1945)—Professor of Education
Ph.B., University of Chicago; M.S., Ph.D., University of Southern California.

LINN, ROBERT A. (1955)—Activities Adviser
B.S., M.A., Ball State Teachers College; additional graduate study at University of California at Los Angeles.

LOCKMAN, EVELYN (1948)—Associate Professor of Physical Education
B.A., Vanderbilt University; M.A., George Peabody College; graduate study at New York University, and University of Wisconsin; additional special study in dance.

LODGE, CHESTER R. (1954)—Assistant Professor of Engineering
B.S., M.S., Ph.D., State University of Iowa.

LONGENECKER, MARTHA W. (Mrs. J. I.) (1955)—Instructor in Art
B.A., University of California at Los Angeles; M.F.A., Claremont Graduate School.

LUCE, LAWRENCE W. (1949)—Assistant Professor of Industrial Arts
B.S., Illinois Wesleyan University; M.S. Iowa State College; Ed.D., University of California at Los Angeles.

MADDEN, RICHARD (1939)—Professor of Education
A.B., Nebraska (Peru) State Teachers College; M.A., Ph.D., Columbia University.

MALCOLM, DAVID D. (1953)—Assistant Professor of Education
A.B., Harvard College; Ed.M., Boston University; Ph.D., Northwestern University.

MANN, RICHARD L. (1956)—Assistant Professor of Engineering
B.S., Ohio University; graduate study at University of New Mexico.

MARCHAND, ERNEST L. (1946)—Professor of English
A.B., M.A., University of Washington; Ph.D., University of Wisconsin.

MARKEY, Beatrice G. (Mrs. J.) (1956)—Assistant Professor of Political Science
Ph.B., University of Chicago; M.S., D.P.A., University of Southern California.

McBLAIR, WILLIAM (1948)—Assistant Professor of Zoology
A.B., San Diego State College; Ph.D., University of California.

McCLINTIC, JOSEPH O. (1946)—Professor of Economics
A.B., Central College; A.M., University of Missouri; Ph.D., University of Wisconsin.

McCOLLOM, IVAN N. (1946)—Professor of Psychology
A.B., Central Washington College of Education; B.S., M.S., University of Oregon; Ed.D., Colorado State College of Education.

McLONEY, WIRT L. (1949)—Assistant Professor of Industrial Arts
A.B., Western State College; M.A., Colorado State College of Education; additional graduate study at University of Southern California.

MENDENHALL, MARY (1939)—Professor of Philosophy
B.A., University of Colorado; M.A., University of Southern California; Ph.D., Yale University.

MERRILL, JOHN E. (1946)—Associate Professor of History
A.B., Stanford University; A.M., Harvard University; Ph.D., Stanford University.

MERZBACHER, CLAUDE FELL (1947)—Assistant Professor of Physical Science
B.S., University of Pennsylvania; M.A., Claremont Graduate School. Certificat d'Etudes Francaises. Licensed Professional Chemical Engineer.

MESSIER, LEONARD N. (1946)—Professor of French
A.B., San Diego State College; M.A., Ph.D., University of California.

MILLER, JAMES O. (1956)—Instructor in Education
A.B. and graduate study at San Diego State College.

MILLER, MARTHA H. (Mrs. A. R.) (1952)—Assistant Professor of Education
A.B., M.A., San Diego State College.

MILNE, DAVID S. (1946)—Chairman, Division of Social Sciences; Professor of Sociology
A.B., University of California at Los Angeles; M.A., University of Southern California; Ph.D., University of Chicago.

MISHNE, ALAN S. (1956)—Activities Adviser
A.B., San Diego State College.

MITTON, DARYL G. (1956)—Associate Professor of Management
B.S., M.B.A., Ph.D., University of Minnesota.

MOE, CHESNEY R. (1931)—Professor of Physics
A.B., M.A., Stanford University; Ph.D., University of Southern California. Registered Electrical Engineer.

MONTEVERDE, JOHN P. (1954)—Assistant Professor of English
B.A., M.A., Ph.D., University of California at Los Angeles.

MORGAN, CHARLES (1949)—Associate Professor of Engineering
M.E., Stevens Institute of Technology; M.S., University of California. Registered Professional Mechanical Engineer.

MURPHY, MARGARET L. (1955)—Assistant Professor of Physical Education
B.A., University of California; M.S., Ed.D., University of Oregon.

MYERS, MABEL A. (1946)—Professor of Bacteriology
A.B., M.A., Pomona College; Ph.D., Cornell University.

NARDELLI, ROBERT R. (1953)—Assistant Professor of Education
B.A., M.A., Arizona State College; Ph.D., University of California.

NASATIR, ABRAHAM PHINEAS (1928)—Professor of History
A.B., M.A., Ph.D., University of California.

NELSON, SHERWOOD M. (1956)—Assistant Professor of Philosophy
A.B., Phillips University; M.A., Ph.D., University of California.

NICHOLS, AMBROSE R., JR. (1939)—Professor of Chemistry
B.S., University of California; Ph.D., University of Wisconsin.

NOFFTZ, VERA A. (1956)—Assistant Professor of Education
B.S., University of Illinois; M.A., Teachers College, Columbia University; additional graduate study at San Jose State College and Stanford University.

NORLAND, CALVERT E. (1947)—Assistant Professor of Zoology
A.B., Pomona College; M.S., University of California. Graduate study at Claremont Colleges.

NUTTALL, EDMUND C. (1953)—Coordinator of Evening Program; Assistant Professor of Speech Arts
A.B., San Diego State College; M.A., University of Southern California.

NYE, NEVA E. (1953)—Associate Professor of Nursing
B.A., University of Michigan; M.Litt., University of Pittsburgh

O'BYRNE, ERNEST B. (1954)—Dean of Educational Services and Summer Session
A.B., A.M., Colorado State College of Education; Ph.D., Stanford University.

ODMARK, VERNIE E. (1952)—Associate Professor of Accounting
B.S., St. Cloud State Teachers College; M.A., University of Minnesota; Ph.D., University of Missouri; Public Accountant.

OLSON, ANDREW C., JR. (1946)—Associate Professor of Zoology
A.B., San Diego State College; M.S., University of Idaho; Ph.D., Oregon State College.

OSBORN, CLARENCE G. (1928-29 and 1937)—Professor of History and Political Science
A.B., A.M., Ph.D., Stanford University.

PADGETT, L. VINCENT (1956)—Assistant Professor of Political Science
B.S., Ph.D., Northwestern University.

PARKER, MARION L. (Mrs. D. G.) (1951)—Registrar
A.B., San Diego State College; M.A., University of Southern California.

PEIFFER, HERBERT C., JR. (1937)—Dean of Students; Professor of Psychology and Guidance
A.B., University of California at Los Angeles; M.A., Ph.D., Stanford University.

PEMBERTON, LeROY A. (1955)—Instructor in Business Education
A.B., A.M., Colorado State College.

PENERY, JOHN E., JR. (1955)—Assistant Professor of Education
A.B., M.A., Whittier College; additional graduate study at University of California at Los Angeles.

PEREZ, ROSE MARIE (1948)—Librarian II
A.B., San Diego State College; B.S. in L.S., University of Southern California; M.A., University of Chicago; graduate study at University of Madrid.

PERKINS, WILLIAM A. (1955)—Assistant Professor of English
A.B., Ph.D., Stanford University.

PETERSON, STANLEY G. (1956)—Publications and Public Relations Officer; Assistant Professor of Journalism
B.A., M.A., University of Iowa.

PFAFF, PAUL LEWIS (1931)—Professor of Speech Arts
A.B., Stanford University; M.A., Ph.D., University of Southern California.

PHILLIPS, GEORGE L. (1947)—Associate Professor of English
A.B., Dartmouth College; M.A., Harvard University; Ph.D., Boston University.

PHILLIPS, KENNETH (1950)—Professor of Industrial Arts
B.S., State College for Teachers (Buffalo); M.A., Ph.D., Ohio State University.

PHILLIPS, RICHARD P. (1956)—Instructor in Geology and Physical Science
B.S., M.S., M.S. in Geophysics, Stanford University.

* PHILLIPS, WALTER THOMAS (1927)—Professor of Spanish
A.B., University of Washington; M.A., Stanford University; Ph.D., University of Southern California.

PIERSON, ALBERT C. (1954)—Assistant Professor of Management and Marketing
B.LAS., University of Illinois; M.B.A., Harvard University; additional graduate study at Columbia University.

PIFFARD, GUERARD (1956)—Assistant Professor of French
B.A., M.A., Colorado College; additional graduate study at Stanford University.

PINCETL, STANLEY J., JR. (1955)—Assistant Professor of History
B.A., M.A., Ph.D., University of California; Doctor of University, University of Paris (Sorbonne), France.

PLATZ, MARVIN H. (1955)—Assistant Professor of Education
B.S., Northeast Missouri State Teachers College; M.Ed., Ed.D., University of Missouri.

POST, LAUREN CHESTER (1937)—Professor of Geography
A.B., M.A., Ph.D., University of California.

POVENMIRE, E. KINGSLEY (1946)—Associate Professor of Speech Arts
B.S., Ohio State University; M.F.A., Yale University.

POWELL, DON W. (1953)—Associate Professor of Speech Arts
B.S., Kirksville State Teachers College; M.F.A., State University of Iowa.

PRESTON, DUDLEY A. (1948)—Associate Professor of Botany
B.S., Washington State College; M.S., Ph.D., University of Minnesota.

PROUTY, HELEN L. (1950)—Associate Professor of Education
B.S., University of Nebraska; M.A., Ph.D., University of California.

RADER, Daniel L. (1954)—Assistant Professor of History
A.B., M.A., Ph.D., University of California.

RAGEN, KATHERINE M. (1947)—Professor of History
A.B., Penn College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.

RATTY, FRANK J. (1954)—Assistant Professor of Zoology
B.A., San Diego State College; M.S., Ph.D., University of Utah.

REZNIKOFF, SIMON (1956)—Assistant Professor of Management
B.A., University of Missouri; LL.B., Columbia University.

RICHARDSON, ROBERT W. (1939, except 1946-48)—Professor of Geography
A.B., Ph.D., University of California.

RIDGE, MARTIN (1955)—Assistant Professor of History
B.E., Chicago Teachers College; M.A., Ph.D., Northwestern University.

RIDOUT, LIONEL U. (1946, except 1949-50)—Associate Professor of History
A.B., San Diego State College; M.A., University of California; Ph.D., University of Southern California.

RIGGS, LESTER G. (1950, except 1951-52)—Associate Professor of Mathematics
B.S., University of Illinois; M.S., Syracuse University; Ph.D., Northwestern University.

ROBERTS, ELLIS E. (1949)—Associate Professor of Geology
B.S., Michigan College of Mining and Technology; M.S., California Institute of Technology; Ph.D., Stanford University.

ROBERTSON, FRANK O. (1953)—Director of Health Services
B.S., M.S., B.S., (Medicine), University of North Dakota; M.D., University of Oregon Medical School.

ROBINSON, DUDLEY HUGH (1928)—Chairman, Division of Physical Sciences; Professor of Chemistry
B.S., Louisiana State University; M.S., State University of Iowa; Ph.D., University of Southern California. Registered Chemical Engineer.

* On leave Semester II.

ROGERS, SPENCER LEE (1930)—Professor of Anthropology
A.B., San Diego State College; M.A., Claremont Colleges; Ph.D., University of Southern California.

ROHFLEISCH, KRAMER J. (1947)—Professor of History
A.B., M.A., Ph.D., University of California.

ROST, NORMAN (1951)—Assistant Professor of Music
B.M., M.M., University of Michigan.

ROWE, ROBERT D. (1946)—Professor of Chemistry
A.B., Ph.D., Stanford University, Engineer in Engineering Chemistry.

RUJA, HARRY (1947)—Associate Professor of Philosophy and Psychology
A.B., University of California at Los Angeles; M.A., University of Chicago; M.A., San Diego State College; Ph.D., Princeton University.

RUMBAUGH, DUANE M. (1954)—Assistant Professor of Psychology
A.B., University of Dubuque; M.A., Kent State University; Ph.D., University of Colorado.

RUOCCO, ILSE H. (Mrs. L.) (1934)—Associate Professor of Art
B.E., University of California at Los Angeles; M.A., Columbia University.

RYAN, FREDERICK L. (1946)—Professor of Economics
B.S., Tufts College; Ph.D., University of California.

SAMPLES, HOWELL GORDON, JR. (1950)—Librarian II
A.B., University of Georgia; B.S. in L.S., George Peabody College for Teachers.

SANDERLIN, GEORGE W. (1955)—Assistant Professor of English
B.A., American University; Ph.D., Johns Hopkins University.

SANDSTROM, GLENN A. (1956)—Assistant Professor of English
B.A., M.A., Washington State College; Ph.D., University of Illinois.

SCHALLES, FRANCES IRENE (1950)—Librarian III
A.B., San Diego State College. Additional graduate study.

SCHRUPP, MANFRED H. (1948)—Chairman, Division of Education; Professor of Education
B.S., M.Ed., Ph.D., University of Minnesota.

SCHUNERT, JIM R. (1948)—Professor of Education
B.S., M.A., Ph.D., University of Minnesota.

SCHUTTE, WILLIAM H. (1947)—Associate Professor of Physical Education
B.S., University of Idaho; M.S., University of Southern California.

SCHWOB, MARION L. (Mrs. W. E.) (1934)—Associate Professor of Physical Education
B.A., State University of Iowa; M.S., University of Southern California.

SCOTT, FRANK L. (1947)—Associate Professor of Recreation
A.B.,Grinnell College; M.A., Ph.D., University of Michigan.

SELLMAN, HUNTON D. (1946)—Professor of Speech Arts
B.S., Purdue University; M.S., University of Arizona. Additional graduate study at University of California, University of North Carolina and Yale University.

SHANNON, FLORENCE S. (Mrs. E. L.) (1933)—Associate Professor of Physical Education
A.B., University of California; M.S., University of Southern California.

SHARKEY, GERALD K. (1956)—Assistant Professor of Management and Marketing
A.B., St. John's University; M.S., Georgetown University; Ph.D., University of Southern California.

SHAW, PETER W. (1955)—Instructor in Mathematics
B.A., M.A., University of Toronto; additional graduate study at Stanford University.

SHAW, ROGER L. (1956)—Instructor in Mathematics
B.A., M.A., University of Denver; additional graduate study at the Universities of Colorado and California.

SHEPARD, DAVID C. (1956)—Instructor in Zoology
A.B., Ph.D., Stanford University.

SHIELDS, ALLAN E. (1949)—Associate Professor of Philosophy
A.B., University of California; M.A., Ph.D., University of Southern California.

SHOUSE, CLAUDE F. (1946)—Associate Professor of English
A.B., Georgetown College; M.A., University of Kentucky; Ph.D., University of Southern California.

SIDOWSKI, JOSEPH B. (1956)—Instructor in Psychology
B.A., Pomono College; M.S., Ph.D., University of Wisconsin.

SILVERNAIL, CHESTER J. (1949)—Assistant Professor of Astronomy
A.B., San Diego State College; M.A., Claremont Graduate School; additional graduate study at University of California at Los Angeles.

SKOLIL, LESTER L. (1951)—Associate Professor of Physics
A.B., Doane College; M.A., University of Nebraska; Ph.D., University of California.

SMITH, CHARLES ROBERTS (1933)—Assistant Professor of Physical Education
A.B., San Diego State College; M.S., University of Southern California.

* SMITH, CLIFFORD EDWARD (1937)—Professor of Astronomy
A.B., Carleton College; M.A., Swarthmore College; Ph.D., University of California.

SMITH, DEANE FRANKLIN (1939)—Associate Professor of Music
B.M., M.M., Northwestern University.

SMITH, J. DAYTON (1955)—Professor of Music
A.B., B.M., St. Olaf College; M.M., University of Nebraska; additional graduate study at Florida State University.

SMITH, LOUIS E., JR. (1946)—Professor of Physics
A.B., San Diego State College; Ph.D., University of Washington.

SMITH, NEWTON B. (1954)—Assistant Professor of Mathematics
B.A., Reed College; M.A., Oregon State College; Ph.D., Iowa State College.

SNIDER, MERVIN S. (1953)—Assistant Professor of Music
B.A., Pomona College; M.A., Eastman School of Music; additional graduate study at Northwestern University and Claremont Graduate School.

SNODGRASS, HERSCHEL R. (1954)—Assistant Professor of Physics
B.A., M.S., University of New Mexico; Ph.D., University of California.

SORENSON, GEORGE N. (1946)—Chairman, Division of Fine Arts; Associate Professor of Art
A.B., San Diego State College; M.A., University of Southern California; graduate study at University of California and University of Minnesota.

SPANGLER, JOHN A. (1946)—Professor of Chemistry
A.B., Ph.D., West Virginia University.

SPORTSMAN, CHARLES C. (1947)—Associate Professor of Physical Education
B.S., North Texas State College; M.S., and additional graduate study at the University of Southern California.

SPRINGSTON, CHRISTINE (1930)—Associate Professor of Music
B.A., B.M., University of Redlands; M.A., University of Washington, Diplomée d'execution, Conservatoire Americain, Fontainebleau, France.

STEVENS, WALTER R. (1956)—Assistant Professor of Psychology
A.B., Park College; M.A. and additional graduate study at Michigan State University.

STEWART, CHARLES J. (1955)—Assistant Professor of Chemistry
B.A., San Diego State College; M.S., Ph.D., Oregon State College.

STEWART, PAUL E. (1953)—Associate Professor of Physical Science
A.B., College of Wooster; Ph.D., Stanford University.

STONE, HAMILTON L. (1947)—Associate Professor of Engineering
B.S., U. S. Naval Academy. Graduate study at U. S. Naval Postgraduate School. Registered Mechanical Engineer.

STONE, JOHN PAUL (1930)—College Librarian; Professor of Library Science
B.S., Northwest Missouri State Teachers College; B.S., M.S., University of Illinois; Ph.D., University of Chicago.

STONE, SANFORD H. (1956)—Associate Professor of Engineering
B.S.E., M.S.E., University of Michigan; additional graduate study at Michigan State University and University of Illinois.

STONER, WILLIAM J. (1954)—Instructor in Mathematics
A.B., University of Kansas; M.S., Iowa State College.

STORM, ALVENA (Mrs. Eugene) (1926)—Associate Professor of Geography
A.B., M.A., University of California.

STOUGH, MORROW F. (1950)—Professor of Education
A.B., Wittenberg College; M.A., University of Pennsylvania; Ph.D., University of California.

STRAND, MARGUERITE R. (1955)—Assistant Professor of Education
A.B., M.A., Florida State College for Women; Ph.D., University of Washington.

STRAUB, LURA LYNN (1948)—Assistant Professor of Business Education
A.B., Jamestown College; M.C.S., Indiana University; additional graduate study at University of Wyoming and University of Denver.

SWIGGETT, JEAN D. (1946)—Professor of Art
A.B., San Diego State College; M.F.A., University of Southern California; additional graduate study at Claremont Colleges.

SZABO, ANDREW (1955)—Librarian II
M.S. in L.S., Drexel Institute of Technology; Ph.D., University of Pecs, Hungary.

TALBOY, RUTH A. (1947)—Associate Professor of Home Economics
B.S., Iowa State College; M.A., Stanford University; additional graduate study at Universities of Minnesota, Iowa, and California.

TANZER, JOANN L. (Mrs. J. L.) (1956)—Instructor in Art
B.A., M.A., Michigan State University.

TAYLOR, JAMES W. (1950)—Associate Professor of Geography
A.B., Northwestern State College; M.A., Ph.D., Louisiana State University.

TAYLOR, KENNETH M. (1949)—Professor of Zoology
A.B., M.A., Ph.D., University of California at Los Angeles.

* On leave Semester I.

TAYLOR, MERREL A. (1946)—Assistant Professor of Zoology
A.B., Indiana University; B.S., M.S., University of Michigan.

TEASDALE, JOHN G. (1956)—Assistant Professor of Physics
A.B., Ph.D., University of California at Los Angeles.

TERHUNE, JOHN A. (1947)—Assistant Professor of Physics
B.S., U. S. Naval Academy; M.S., Harvard University.

TERRY, WILLIAM L. (1946)—Chairman, Division of Physical Education, Health Education and Recreation; Professor of Physical Education
A.B., Western Kentucky Teachers College; M.S., Indiana University; Ed.D., Columbia University.

THEOBALD, JOHN R. (1946)—Professor of English
B.A., St. Catherine's College, Oxford University; M.A., Mansfield College, Oxford University; Ph.D., University of Iowa.

THOMAS, ALICE E. (Mrs. H.) (1955)—Assistant Professor of Home Economics
B.S., Bethany College, Kansas; M.A., Columbia University; additional graduate study at Universities of California and Washington.

THOMAS, BLAKEMORE E. (1956)—Assistant Professor of Geology
A.B., University of California; M.S., Ph.D., California Institute of Technology.

* TIDWELL, JAMES N. (1947)—Professor of English
A.B., Simmons University; M.A., University of Oklahoma; Ph.D., Ohio State University.

TOLLEFSEN, DOROTHY J. (1946)—Associate Professor of Physical Education
A.B., M.A., University of California.

TORBERT, FRANCES B. (Mrs. H.) (1937)—Associate Professor of Management
A.B., Stanford University; M.A., University of Southern California; additional graduate study at Stanford University.

TOZER, LOWELL (1954)—Assistant Professor of English
A.B., University of Chicago; M.A., De Paul University; Ph.D., University of Minnesota.

TRAIL, MABEL COY (1935)—Professor of English
A.B., Parsons College; M.A., State University of Iowa; Ph.D., University of Southern California.

TREAT, WOLCOTT C. (1950)—Professor of Psychology
A.B., Harvard College; A.M., Harvard University; Ph.D., Stanford University.

TRIMMER, RUSSELL L. (1955)—Assistant Professor of Education
A.B., Stanford University; M.A., Ph.D., Claremont Graduate School.

TUCKER, GORDON H. (1945)—Professor of Zoology
B.S., M.S., University of South Carolina; Ph.D., University of North Carolina.

TURNER, MERLE B. (1950)—Associate Professor of Psychology
A.B., Willamette University; M.A., Stanford University; Ph.D., University of Colorado.

VANCE, ROBERT W. (1954)—Physician and Surgeon
B.S., University of South Dakota; M.D., Northwestern University.

VITALE, FRANK N. (1956)—Assistant Professor of Physical Education
B.A., Cornell University; M.A., Teachers College, Columbia University.

VOEKS, VIRGINIA W. (1949)—Associate Professor of Psychology
B.S., M.S., University of Washington; Ph.D., Yale University.

VOLSE, LOUIS A. (1956)—Assistant Professor of Engineering
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WALSH, MARY A. (Mrs. W. E.) (1955)—Assistant Professor of Education
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WANLASS, DOROTHY C. (1955)—Instructor in English
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LECTURERS

AIKEN, KELMAN R. (1955)—Lecturer in Management
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BALTIMORE, EDWIN R. (1956) — Assistant in Business Education
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MARTEENY, CHARLES D. (1956) — Assistant in Accounting
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MONELL, GARY E. (1956) — Assistant in Physical Education
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PHELPS, FRANCES (1956) — Assistant in Business Education
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POOLE, EMERSON D. (1956) — Assistant in Physics
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SIMMONS, ROBERT E. (1955) — Assistant in Physics
B.A., San Diego State College.

STUBBS, JOHN F. (1955) — Assistant in Accounting
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WHITE, FRANK N. (1956) — Assistant in Speech Arts
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DIVISION OF AIR SCIENCE

WALKER, LLOYD A., JR., COLONEL (1956) — Chairman, Division of Air Science; Commander and Professor of Air Science

DAVIDSON, HAMER R., MAJOR (1956) — Assistant Professor of Air Science

JONES, WALTER L., MAJOR (1956) — Assistant Professor of Air Science

WILSON, IRVIN B., CAPTAIN (1955) — Assistant Professor of Air Science

WARREN, WILLISTON L., CAPTAIN (1955) — Assistant Professor of Air Science

LANGLAND, KENNETH E., 1ST LIEUTENANT (1955) — Assistant Professor of Air Science

CAVIN, HERBERT W., M/SGT. (1955) — NCOIC, Supply

DE CECCA, WILLIAM A., M/SGT. (1956) — Sgt. Major, First Sergeant

FREDERICK, HERBERT L., T/SGT. (1954) — Cadet Records

EGSTAD, JUDSON L., S/SGT. (1956) — Cadet Records

SMITH, DONALD C., S/SGT. (1955) — Training Aids

RETIRED FACULTY

(Date following name indicates date of retirement)

HARDY, EDWARD L. (1935) — President Emeritus

HEPNER, WALTER R. (1952) — President Emeritus

BAIRD, OSCAR (1951) — Professor of Physics

BLAKE, DEAN (1952) — Lecturer in Meteorology

CORBETT, KATHERINE E. (1956) — Associate Professor of Education

DICKHAUT, FLORENCE SMITH (1952) — Professor of English

GERMANN, LULA (1956) — Supervising Librarian, Public Services

HAMMACK, EDITH CHASTAIN (1950) — Associate Professor of Education

JOHNSON, MYRTLE (1946) — Professor of Biology

LEIB, JULIUS (1954) — Associate Professor of Music

MOLITOR, VINNIE CLARK (1938) — Associate Professor of Geography

PERRY, FAY V. (1953) — Professor of Sociology

PETERSON, CHARLES E. (1953) — Dean of Men; Professor of Physical Education

SKILLING, W. T. (1936) — Professor of Astronomy

SMITH, LEILA DEBORAH (1948) — Professor of Music

STOVALL, HARRIET B. (1954) — Senior Librarian

TANNER, JESSIE R. (1936) — Associate Professor of Physical Education

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MEDICAL STAFF

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C. CARROLL JONES, M.D. — Physician

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* HAROLD G. CARTER, M.D. — Physician

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* CHARLES E. PRUETT, M.D. — Physician

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LILLIAN OLSON, P.H.N. — Nurse

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STEPHEN W. REED	Supervising Groundsman
MARVIN T. BRADEEN	Electrician
WILLIAM F. LUPKE	Plumber
KENNETH C. TAYLOR	Stationary Engineer

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