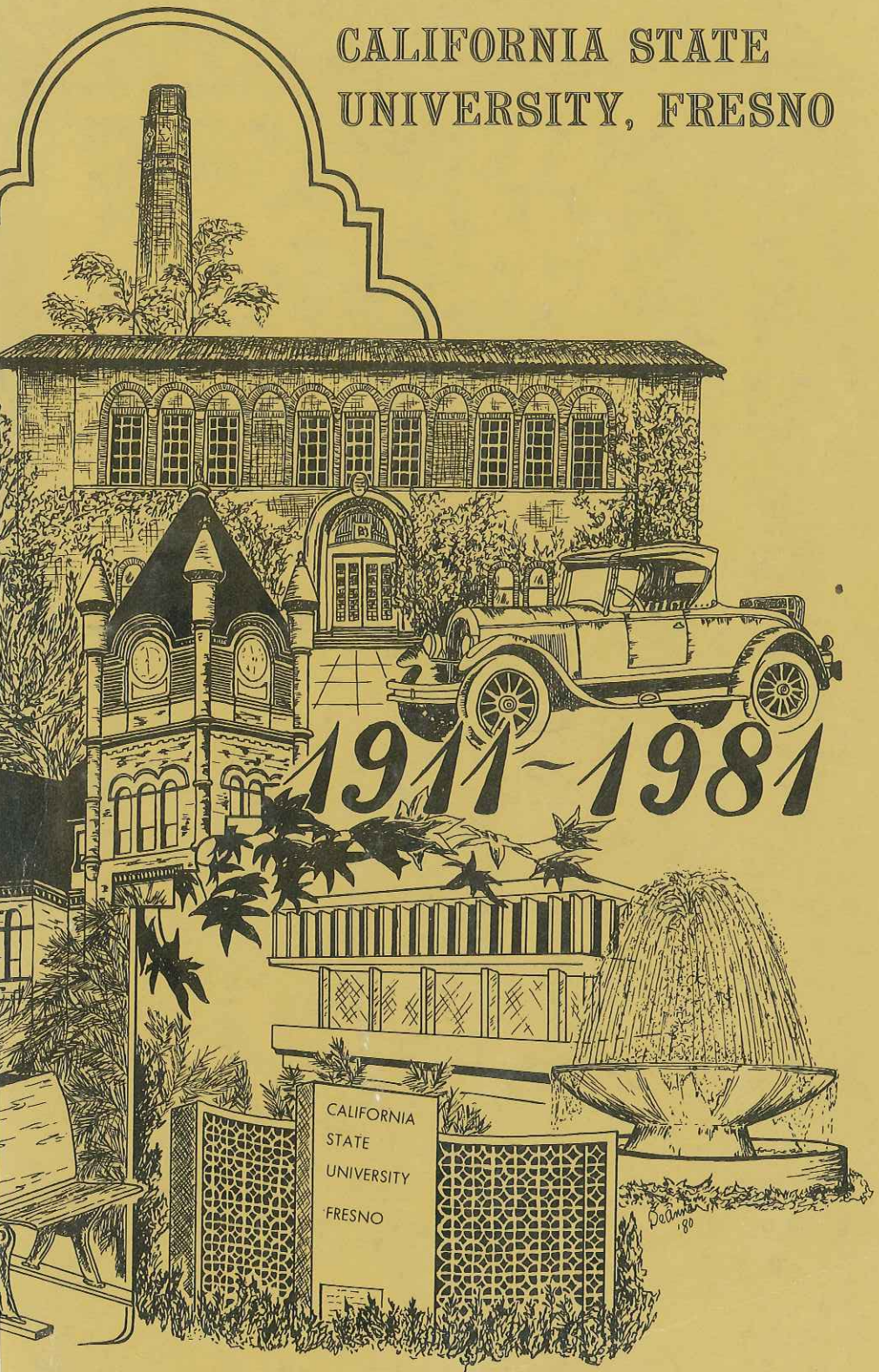
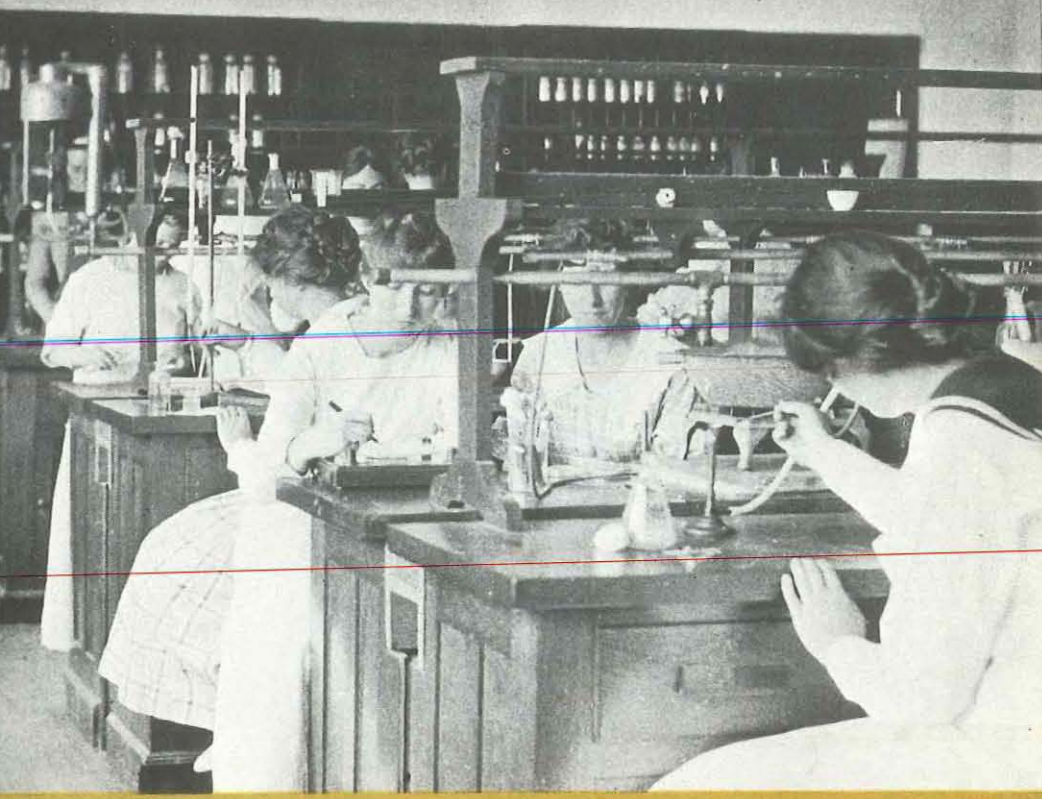
CALIFORNIA STATE UNIVERSITY, FRESNO



UNDERGRADUATE AND GRADUATE BULLETIN 1981-82



CALIFORNIA STATE UNIVERSITY, FRESNO

1981-82 BULLETIN

Undergraduate & Graduate Studies

CALIFORNIA STATE UNIVERSITY, FRESNO
Shaw and Cedar, Fresno, California 93740
(209) 487-9011

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Professionally trained counselors at CSUF offer a broad range of services to new or returning students relating to life goals or career plans, study skills training, or just coping with problems of personal growth. While every effort is made to assist the students in meeting the challenges of campus life, it is the responsibility of individuals to acquaint themselves with announcements, procedures and regulations of the University contained in this *Bulletin* and the *Schedule of Courses*. Neglect on the part of students to do this will not relieve them of whatever consequences may occur.

CHANGES IN RULES AND POLICIES

Although every effort has been made to assure the accuracy of the information in this bulletin, students and others who use this bulletin should note that laws, rules, and policies change from time to time and that these changes may alter the information contained in this publication. Changes may come in the form of statutes enacted by the Legislature, rules and policies adopted by the Board of Trustees of The California State University and Colleges, by the Chancellor or designee of The California State University and Colleges, or by the President or designee of the institution. Further, it is not possible in a publication of this size to include all of the rules, policies and other information which pertain to the student, the institution, and The California State University and Colleges. More current or complete information may be obtained from the appropriate department, school, or administrative office.

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Vol. XLII April 1981 No. 3

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The cover was the work of DeAnne Kardoos, Industrial Arts major. Frank Laury, Art faculty, and Curt Hamill, Art student, designed the division pages.

Historical photographs courtesy of the University Archives, Henry Madden Library. Selected photographs courtesy of the *Daily Collegian* and the Phil Rudy Studio.



California State University, Fresno

70 YEARS OF GROWTH AND HERITAGE

1981 marks two landmark anniversaries in California education. The California State University and Colleges system celebrates its 20th anniversary and California State University, Fresno celebrates its 70th anniversary.

In 1961, with 95,000 students, The California State University and Colleges was the country's largest system of four-year and graduate level higher education institutions. Today, 20 years later, with a tripled student population of 314,000, it still is the largest system.

CSU, Fresno began as a two-year state normal school with 150 students in 1911, largely preparing teachers for their profession. Today, 70 years later, CSU, Fresno has emerged as a major regional state university with 15,000 students. CSU, Fresno is the sixth oldest university in the 19-campus system and the ninth in size. The University has 18 accredited programs out of 171 such programs systemwide, which is the third highest number of accredited programs among the 19 campuses.

In this year of statewide anniversary observance of the CSUC system, and in our own anniversary celebrations, the quality and efficiency of the University's service to California education will be highlighted.



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☐ Classes

☐ Holidays

ACADEMIC CALENDAR CSUF 1981–82
(Calendar dates subject to change)

Pre-Session, 1981 ..... May 26–June 12, inclusive
Regular Session, 1981 ..... June 15–July 24, inclusive
Post-Session, 1981 ..... July 27–August 14, inclusive

APRIL 1981
27 Monday..... Advising and Early Registration for Fall 1981 semester begins.

JUNE 1981
30 Tuesday..... Last day to submit changes and clearances (incomplete grades, approved petitions, departmental approvals, transfer transcripts) required for graduation at the end of the Spring 1981 semester.

JULY 1981
6 Monday..... Last day to submit Fall 1981 Early Registration forms to the Financial Aids Office for fee deferments (vouchers).
21 Tuesday..... Last day to pay fees for Early Registration for Fall 1981 semester.

AUGUST 1981
25 Tuesday..... SEMESTER BEGINS. Academic Assembly, faculty meets.
24–26..... New Student Orientation.
26 Wednesday..... PRIORITY ADD DAY FOR EARLY REGISTRATION.
27 Thursday..... WALK-THROUGH REGISTRATION.
28 Friday..... Regular Add and Drop Period begins.
31 Monday..... INSTRUCTION BEGINS. LATE REGISTRATION BEGINS ($5.00 late fee). Auditors may register. Application period for a degree to be granted in December 1981 (Sept. 1–15).

SEPTEMBER 1981
7 Monday..... Labor Day. No classes. All offices closed.
15 Tuesday..... LATE REGISTRATION ENDS. END OF REGULAR ADD PERIOD. Last day to register for Credit by Examination. End of regular filing period for applications for degrees to be granted in December 1981. Last day for refunds by resident students. Nonresidents see fee schedule.
28 Monday..... LAST DAY TO DROP A CLASS without notation on the permanent record. Last day to obtain approval for credit/no-credit grading. Last day to change from audit registration to credit registration or credit registration to audit registration. Last day to take examination for Credit by Examination.
29–Oct. 9 ..... Early filing period for applications for degrees to be granted in May 1982. Filing period for applications for Spring 1982 student teaching—elementary and secondary.

OCTOBER 1981
13 Tuesday..... Last day for faculty to submit Credit by Examination grade.
23 Friday ..... Last day of late filing period for applications for degrees to be granted December 1981. Late fee required September 16 to October 23.
30 Friday ..... Last day to register for reading and writing examination for admission to student teaching.

NOVEMBER 1981
2 Monday..... Filing deadline for Financial Aids for Spring 1982.
6 Friday ..... Last day to file edited, committee-approved Master's Thesis for December 1981 graduation.
16 Monday..... Advising and Early Registration for Spring 1982 semester begins.
18 Wednesday..... Advising Day for new students, Spring 1982 semester. Classes in session.
20 Friday ..... LAST DAY TO WITHDRAW FROM A COURSE EXCEPT BY COMPLETE WITHDRAWAL FROM THE UNIVERSITY.
25 Wednesday..... Last day to submit Spring 1982 Early Registration forms to the Financial Aids Office for fee deferments (vouchers).
26–27..... Thanksgiving Recess. All offices closed.

DECEMBER 1981
3 Thursday..... Last day to pay fees for Early Registration for Spring 1982 semester.
15 Tuesday..... LAST DAY OF INSTRUCTION. LAST DAY TO WITHDRAW FROM A COMPLETE PROGRAM.
16–22..... SEMESTER EXAMINATIONS.

24 Thursday.....FALL SEMESTER ENDS.
25–Jan. 17.....Winter Recess.
29 Tuesday.....Grades due from faculty.

JANUARY 1982

18–20.....New Student Orientation.
18 Monday.....Semester Begins.
20 Wednesday.....PRIORITY ADD DAY FOR EARLY REGISTRATION.
21 Thursday.....WALK-THROUGH REGISTRATION.
22 Friday.....Regular Add and Drop Period begins.
25 Monday.....INSTRUCTION BEGINS. LATE REGISTRATION BEGINS ($5.00 late fee). Auditors may register. Application period for degrees to be granted in May 1982 (Jan. 25–Feb. 5).
29 Friday.....Last day to submit changes and clearances (incomplete grades, approved petitions, departmental approvals, transfer transcripts) required for graduation at the end of the Fall 1981 semester.

FEBRUARY 1982

5 Friday.....LATE REGISTRATION ENDS. END OF REGULAR ADD PERIOD. Last day to register for Credit by Examination. End of regular filing period for applications for degrees to be granted in May 1982.
8 Monday.....Last day to file for refund by resident students. Nonresidents see fee schedule.
15 Monday.....President's Day. No classes. All offices closed.
22 Monday.....LAST DAY TO DROP A CLASS without notation on the permanent record. Last day to obtain approval for credit/no-credit grading. Last day to change from audit registration to credit registration or credit registration to audit registration. Last day to take examination for Credit by Examination.
22–March 5.....Early filing period for applications for degrees to be granted December 1982. File applications for Fall 1982 student teaching—elementary and secondary.

MARCH 1982

1 Monday.....Filing deadline for Financial Aids for Fall 1982.
8 Monday.....Last day for faculty to submit Credit by Examination grade.
19 Friday.....Last day for late filing period for application for degrees to be granted in May 1982. Late fee required February 8 to March 19.

APRIL 1982

2 Friday.....Last day to file edited, committee-approved Master's Thesis for May 1982 graduation.
3–11.....Spring Recess.
23 Friday.....LAST DAY TO WITHDRAW FROM A COURSE EXCEPT BY COMPLETE WITHDRAWAL FROM THE UNIVERSITY.
26 Monday.....Early Registration for Fall 1982 begins.
29–May 2.....Vintage Days

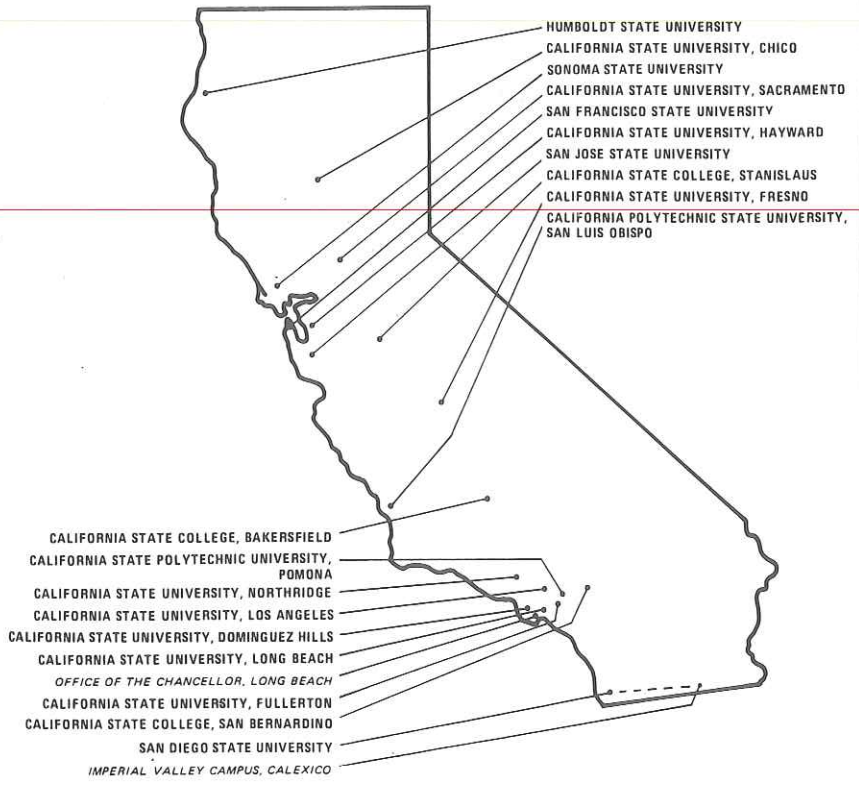
MAY 1982

14 Friday.....LAST DAY OF INSTRUCTION. LAST DAY TO WITHDRAW FROM A COMPLETE PROGRAM.
17–21.....SEMESTER EXAMINATIONS.
22 Saturday.....71st Annual Commencement.
24 Monday.....SPRING SEMESTER ENDS.
26 Wednesday.....Grades due from faculty—3:30 p.m.

JUNE 1982

25 Friday.....Last day to submit changes and clearances (incomplete grades, approved petitions, departmental approvals, transfer transcripts) required for graduation at the end of the Spring 1982 semester.

THE CALIFORNIA STATE UNIVERSITY AND COLLEGES



THE CALIFORNIA STATE UNIVERSITY AND COLLEGES

The individual California State Colleges were brought together as a system by the Donahoe Higher Education Act of 1960. In 1972 the system became The California State University and Colleges. Today, 16 of the 19 campuses have the title "university."

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

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

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

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

The CSUC offers more than 1,400 bachelor's and master's programs in some 200 subject areas. Approximately 350 of these programs are offered so that students can complete all upper division and graduate requirements by part-time late afternoon and evening study. In addition, a variety of teaching and school service credential programs are available. A limited number of doctoral degrees are offered jointly with the University of California and with private institutions in California.

The Consortium of the CSUC draws on the resources of the 19 campuses to offer regional and statewide off-campus degree, certificate, and credential programs to individuals who find it difficult or impossible to attend classes on a campus. In addition to Consortium programs, individual campuses also offer external degree programs.

Enrollments in fall 1980 totaled approximately 300,000 students, who were taught by a faculty of 18,000. Last year the system awarded over 52 percent of the bachelor's degrees and 32 percent of the master's degrees granted in California. Almost 800,000 persons have been graduated from the 19 campuses since 1960.

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The Honorable Mike Curb *Lieutenant Governor of California*	State Capitol Sacramento 95814
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The Honorable Wilson C. Riles *State Superintendent of Public Instruction*	721 Capitol Mall Sacramento 95814
Dr. Glenn S. Dumke *Chancellor of The California State University and Colleges*	400 Golden Shore Long Beach 90802

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92231
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Library, Fresno Normal School, circa 1916

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Associate Director, Grants and Contracts Development Office..... Jon Shaver
Research Program Assistant .....Samuel S. Kushner
University Librarian..... Lillie S. Parker
Director of the Reentry Program ..... Merry W. Salehi
Coordinator of Instructional Television ..... Merlyn D. Burriss
Coordinator of the Overseas International Program .....Rita Bawanan

DEAN OF STUDENT AFFAIRS ..... William H. Corcoran
Assistant Dean ..... Thomas P. Boyle
Assistant Dean ..... Manuel Perez
Director of Admissions/Records/Evaluations ..... Kent Davies
Director of Advising Services ..... J. Richard Arndt
Director of Career Planning and Placement ..... Harold D. Jones
Assistant Director ..... William Head
Director of Educational Opportunity Program ..... (Interim) Robert P. Hernandez
Director of Financial Aids ..... Joseph W. Heuston, Jr.
Assistant Director ..... Janet Carter
Director of Progress and Advancement through Special Services ..... Pat Aguirre
Director of Student Activities and College Union ..... Earl Whitfield
Coordinator of Intramurals and Recreation ..... Peter Conrad
Director of Student Health and Counseling Services ..... (Interim) Robert G. Knudsen
Coordinator of International Student Counseling ..... (Interim) Carol Munshower
Chief of Medical Services ..... (Interim) John A. Vandrick
Director of Testing Services ..... Roger L. Bailey
Psychometrist ..... William P. Stock
Director of Upward Bound ..... Tony Garduque
Director of Veterans/Disabled Student Services ..... Ernest Shelton

SCHOOL AND DIVISION DEANS, DEPARTMENT CHAIRMEN AND PROGRAM COORDINATORS

School of Agriculture and Home Economics ..... Charles M. Smallwood
Agricultural Economics and Education ..... Carl L. Pherson
Animal Science ..... Edwin J. Rousek
Enology, Food Science and Nutrition ..... Ratana S. Newsome
Plant Science and Mechanized Agriculture ..... Harry P. Karle
Family Studies and Home Economics ..... (Vacant)
Industrial Arts and Technology ..... Gary E. Grannis

School of Arts and Humanities ..... Joseph Satin
Art ..... Joyce B. Aiken
Communication Arts and Sciences ..... Ronald D. Johnson
English ..... Robert S. Billings
Foreign Languages ..... Jose A. Elgorriaga
Journalism ..... James B. Tucker
Linguistics ..... Raymond S. Weitzman
Music ..... John R. Heard
Philosophy ..... James M. Smith
Women's Studies Program ..... (Coordinator) Gail Wasser

School of Business and Administrative Sciences ..... Gene E. Burton
Accountancy ..... Elwyn L. Christensen
Finance and Industry ..... Paul M. Lange
Information Systems and Decision Sciences ..... Kelly J. Black
Management and Marketing ..... Richard D. Tellier
Aerospace Studies ..... Lt. Col. Robert G. Stuart

School of Education and Human Development ..... Homer M. Johnson
Teacher Education ..... Sanford W. Reitman
Bilingual/Cross-Cultural Specialist Program ..... (Coordinator) Cecilio Orozco
Title VII—Bilingual Project ..... (Director) Theresa Perez
Early Childhood Education Program ..... (Coordinator) Joyce Huggins
Liberal Studies Program ..... (Coordinator) Ivan H. Rowe
Multiple Subjects Program ..... (Coordinator) David Haimbach
Reading Specialist Program ..... (Coordinator) Beatrice Bradley
Single Subjects Program ..... (Coordinator) James P. Echols
Advanced Studies ..... Robert H. Monke
Administrative Services Program ..... (Coordinator) Richard K. Sparks
Graduate Degrees Program ..... (Coordinator) Robert H. Monke
Pupil Personnel Services Program ..... (Coordinator) Ray E. Brewer
Special Education Specialist Program ..... (Coordinator) Peter G. Fast

School of Engineering ..... James D. Matheny
Civil Engineering–Surveying and Photogrammetry Programs ..... (Coordinator) Jankie N. Supersad
Electrical Engineering Program ..... (Coordinator) Joseph C. Plunkett
Industrial Engineering Program ..... (Coordinator) Charles Haynes
Mechanical Engineering Program ..... (Coordinator) Charles Haynes

School of Health and Social Work ..... Richard D. Ford
Athletics ..... F. Russell Sloan
Communicative Disorders ..... Steven D. Wadsworth
Health Science ..... (Acting) Wayne N. Clark
Nursing ..... Patricia D. Kissell
Physical Education—Recreation ..... Pat Thomson
Physical Therapy Program ..... (Coordinator) Darlene L. Stewart
Rehabilitation Counseling Program ..... (Coordinator) Everett Stude
Social Welfare Program ..... (Coordinator) Catherine Woodcock
Social Work Program ..... (Coordinator) John E. Lindberg

School of Natural Sciences ..... Brandt Kehoe
Biology ..... Jerrome Mangan
Chemistry ..... Stanley M. Ziegler
Geology ..... Robert D. Merrill
Mathematics ..... Anthony E. Labarre
Physics ..... Floyd L. Judd
Psychology ..... William C. Coe

School of Social Sciences ..... Peter J. Klassen
Anthropology ..... Roger M. LaJeunesse
Criminology ..... Charles W. Dean
Economics ..... Izumi Taniguchi
Ethnic Studies Program ..... (Coordinator) Robert S. Mikell
Geography ..... Stanley F. Norsworthy
History ..... Hudson Kensel
La Raza Studies Program ..... (Coordinator) Jesus Luna
Political Science ..... David H. Provost
Sociology ..... Joel G. Best
Urban and Regional Planning ..... (Acting) Wayne V. Merchen

Division of Extended Education ..... James A. Fikes

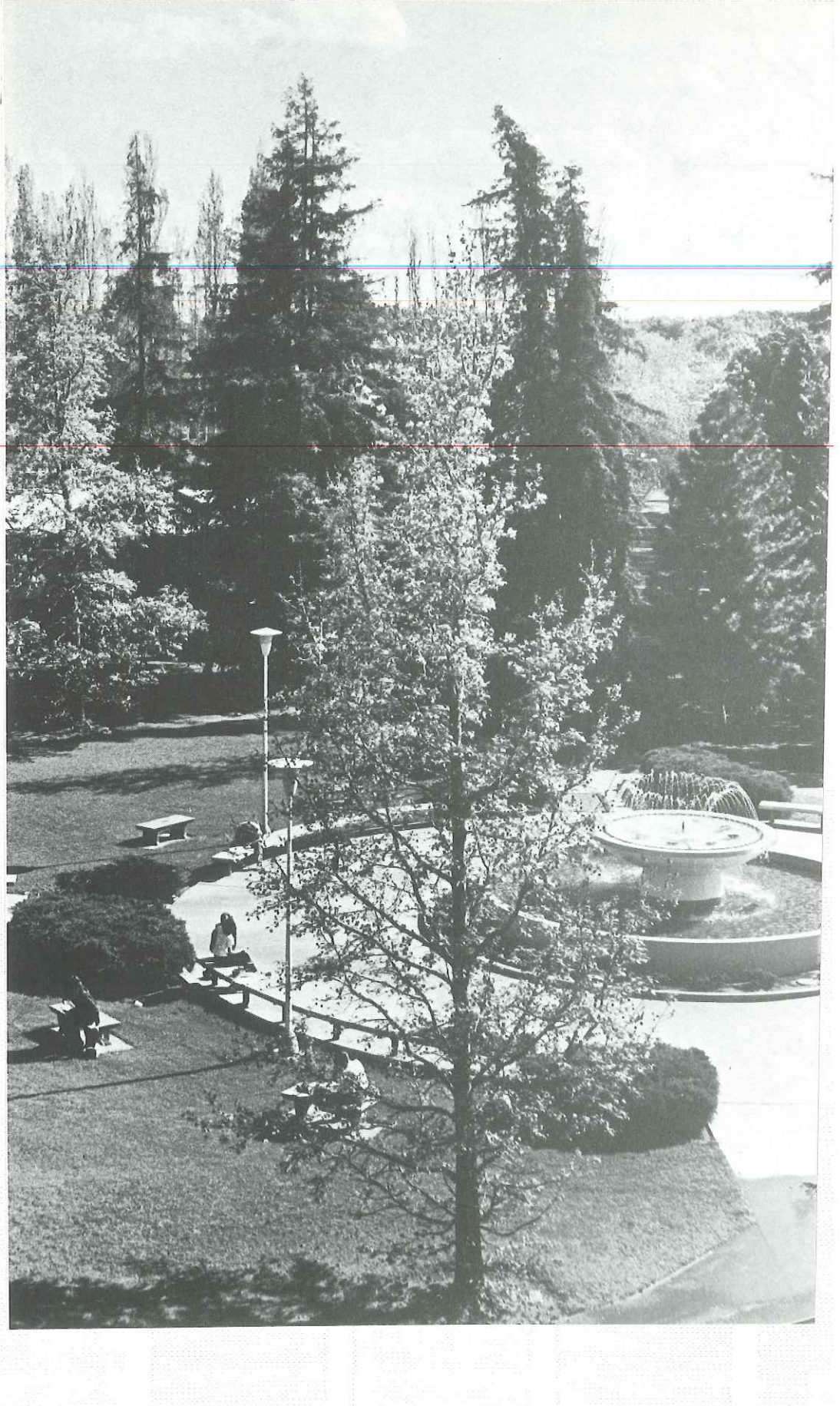
Division of Graduate Studies and Research ..... Vivian A. Vidoli

LIBRARY
University Librarian ..... Lillie S. Parker
Assistant University Librarian ..... Stephanie Hillman
Acquisitions Department ..... Sandra L. Cowling
Catalogue Department ..... Vincent J. Smith, Jr.
Circulation Department ..... A. Zane Clark
Government Publications Department ..... Erland L. Jacobsen
Music Library ..... Ronald J. Harlan
Periodicals Department ..... A. Gerald Gothe
Reference Department ..... William F. Heinlen
Department of Special Collections ..... Ronald J. Mahoney



THE UNIVERSITY

Photo: *Margaret Wear—Supervisor, Training School*
Fresno State Normal School, circa 1917



CALIFORNIA STATE UNIVERSITY, FRESNO

The California State University, Fresno, is dedicated to academic excellence, integrity, and freedom. It is committed to developing competent students, citizens, and leaders and to serving the Fresno and Valley communities. The university offers programs of instruction through the master's degree in the liberal arts and sciences, in the professions, in applied fields, and in special and interdisciplinary areas. Innovative departmental programs provide unusual and interesting opportunities for enrichment of the university experience. Further educational opportunities are also offered to individuals, public agencies, school systems, private business, and agriculture through continuing education, in-service education, and research programs.

HISTORY

CSU, Fresno is the sixth oldest in The California State University and Colleges system. It began with the establishment of the first junior college in California in 1910 and a state normal school in 1911 which, under a single administration, offered two-year programs in general and vocational training and in teacher preparation. Between 1911 and 1921 a campus was built on University Avenue, then the northern border of Fresno. In 1921 the combined schools became Fresno State Teachers College, authorized to offer a four-year program and grant the bachelor of arts degree in teaching. In 1935, by act of the Legislature, the official designation became Fresno State College. A variety of degree programs in addition to those related to the teaching credential were authorized at that time. Following World War II, expansion was accelerated, both academically and physically. The first master's degree was offered in 1949; today it is offered in 37 fields of study.

Between 1953 and 1958 the college was moved from the old campus site, by then surrounded by the City of Fresno, to a 1,410-acre site six miles to the northeast. In 1961, under the newly created California State College system, the administration and control of the state colleges was transferred from the State Board of Education to an independent board, the Trustees of the California State Colleges. By legislative action in 1972 the state college system became the California State University and Colleges. Between 1965 and 1968 an approximation of university oganization was accomplished on the Fresno campus and the transition to official university status in the state system became effective on June 1, 1972. The university now comprises the Schools of Agriculture and Home Economics, Arts and Humanities, Business and Administrative Sciences, Education and Human Development, Engineering, Health and Social Work, Natural Sciences, Social Sciences, the Division of Extended Education, and the Division of Graduate Studies and Research.

Fresno State College in 1911 had an enrollment of 150 students, most of whom were women. By 1940 the enrollment had increased to 2,000 students, by 1964, to 7,500. In the fall of 1980 more than, approximately, 15,500 students registered.

The Presidents, in order of tenure are: Charles L. McLane (1911–1927), Frank W. Thomas (1927–1948), Arnold E. Joyal (1948–1964), Frederic W. Ness (1964–1969), Karl L. Falk (Acting) (1969–1970), Norman A. Baxter (1970–79), Robert O.Bess (Vice President-in-Charge) (1979), and Harold H. Haak, beginning February 1980.

ACCREDITATION

The California State University, Fresno is accredited by
The California State Board of Education,
The Western Association of Schools and Colleges,
The National Council for Accreditation of Teacher Education.
The university is a member of
The Western Association of Graduate Schools,
The Council of Graduate Schools in the United States,
The American Association of Colleges for Teacher Education.

Departmental and area accreditations, certificated memberships, and accrediting organizations include

Business ..... American Assembly of Collegiate Schools of Business
Communicative Disorders:
Education of the Deaf ..... Council on Education of the Deaf
Language, Hearing, and Speech Clinic (Accredited for Professional Services) ..... American Speech and Hearing Association
Chemistry ..... American Chemical Society
Engineering (Civil, Electrical, Mechanical, and Surveying and Photogrammetry) ..... Accreditation Board for Engineering and Technology
Environmental Health Program ..... National Accreditation Council for Environmental Health Curricula
Health Professions Program ..... Member of the American Society of Allied Health Professions
Health Science (Sanitarian) ..... State Department of Public Health
Home Economics ..... American Home Economics Association
Home Economics (Dietetics) ..... Approved for admission to internship program of the American Dietetic Association
Industrial Technology ..... National Association of Industrial Technology
Journalism (News-Editorial) ..... American Council on Education for Journalism
Music ..... National Association of Schools of Music
Nursing ..... National League for Nursing
Physical Therapist Program ..... American Physical Therapy Association
Rehabilitation Counselor Education ..... Council on Rehabilitation Education, Inc.
Social Work (Undergraduate and Graduate Programs) Council on Social Work Education
Urban and Regional Planning, MCRP ..... American Institute of Planners

FACILITIES

The University is located at Cedar and Shaw Avenues in the northeast section of the City of Fresno. Its 1,410 acres provide for the possible expansion of facilities when necessitated by increasing enrollment. When the Shaw Avenue location was first occupied, during the 1953–54 academic year, there were only four completed buildings on what was then an 880-acre site. Ten years later, in 1963–64, major buildings on campus included administration, agricultural classroom, agricultural mechanics, home economics, bookstore, business, cafeteria, education-psychology, engineering, home management cottage, industrial arts, library, gymnasiums for men and women, music science, social science, speech arts, student health service and the first residence halls. Subsequent to 1964, student administration, residence hall

commons, classroom, office buildings, a three-story college union, bookstore, art building of contemporary design, student health center, residence dining facility, engineering building, industrial arts building addition, and science building were constructed. There are now more than 45 buildings in service. A $5,000,000 addition to the library and a 30,000 seat stadium were just completed in 1980.

The buildings are in a setting of colorful trees, shrubbery, flowers, and lawns. A tree-lined amphitheater accommodates commencements, convocations, and other large assemblages and provides an outdoor setting for numerous programs and gatherings during the year. A centrally located memorial court, benches, and fountain are favorite spots for relaxation. The adjacent free speech area and college union are centers of student life and activity.

A farm operated by the School of Agriculture and Home Economics includes more than 34 structures and is considered one of the most modern and best equipped agricultural plants in the west.

CENTER FOR INFORMATION PROCESSING

The Center is organized to serve all information processing and computation needs of the university including instruction, research, and administration. It provides a variety of direct and indirect free services to students. Consultants are available in the Instructional Laboratories to give assistance in the use of facilities and computer programming. The laboratories provide timesharing terminals, keypunches, and sorters. Approximately 50 percent of the students now make substantial use of the facilities. Use of the computers in the instructional program is increasing at a rapid rate. The Center is located in the west wing of the School of Business Building with offices in San Ramon 4. The principal hardware, a dual processor CDC Cyber 170/720, supports most of the major computer languages and, via teleprocessing, has access to other larger computers. A DEC PDP 11/45 Timesharing Computer also provides local support for instructional programs, as does a state-wide interactive time-sharing network supported by a Cyber 174 located in Los Angeles.

A microcomputer laboratory, housing a number of Apple microcomputers, is also available and strengthens the campus emphasis on experimentation in computer assisted instruction.

LIBRARY

The Library is housed in a building completed in 1980. Its resources include 620,000 catalogued volumes, 300,000 government publications, 10,000 pamphlets, 95,000 maps, and over 3,700 periodicals received on subscription. Special collections include the Roy J. Woodward Memorial Library of Californiana and the University Archives. The Music Library has 40,000 phonodiscs and tapes, and the Curriculum Library, over 20,000 items related to teacher education. All students have free access to the resources of the Library. Professional librarians are available to assist students in their use of library materials. The Library is open eighty-three hours a week, during hours posted at the entrance to the building.

STUDENT AFFAIRS

The Student Affairs Division provides an organized program of educationally related services designed to support each student and the instructional program. These services include student activities, counseling, advising, testing, the Educational Opportunity Program, financial aids, foreign student assistance, veterans, handicapped, health, career planning, and placement services. The program also provides students with nonclassroom experiences which are primarily of an educational nature, such as general orientation to the university, cultural enrichment, and tutorial projects. The program and individual services are described in more detail in the following sections of this catalog. Administrative responsibility for these functions rests with the Dean of Student Affairs.

NONDISCRIMINATION ON THE BASIS OF RACE, COLOR, OR NATIONAL ORIGIN

The California State University and Colleges complies with the requirements of *Title VI* of the *Civil Rights Act of 1964* and the regulations adopted thereunder. No person shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program of The California State University and Colleges.

NONDISCRIMINATION ON THE BASIS OF SEX

The California State University and Colleges does not discriminate on the basis of sex in the educational programs or activities it conducts. *Title IX* of the *Education Amendments of 1972,* as amended, and the administrative regulations adopted thereunder prohibit discrimination on the basis of sex in education programs and activities operated by California State University, Fresno. Such programs and activities include admission of students and employment. Inquiries concerning the application of *Title IX* to programs and activities of California State University, Fresno may be referred to the Affirmative Action Coordinator (employment matters) or the Assistant Dean of Student Affairs (student matters), the campus officer(s) assigned the administrative responsibility of reviewing such matters, or to the Regional Director of the Office of Civil Rights, Region 9, 1275 Market Street, 14th Floor, San Francisco, California 94103.

NONDISCRIMINATION ON THE BASIS OF HANDICAP

The California State University and Colleges does not discriminate on the basis of handicap in violation of Section 504 of the *Rehabilitation Act of 1973,* as amended, and the regulations adopted thereunder. More specifically, The California State University and Colleges does not discriminate in admission or access to, or treatment or employment in, its programs and activities. The Director of Institutional Research has been designated to coordinate the efforts of California State University, Fresno, to comply with the Act and its implementing regulations. Inquiries concerning compliance may be addressed to this person at Thomas Administration Building, Room 120, phone 487-1106.

STUDENT LIFE

A committee on student affairs, composed of faculty and students, evaluates the student life program and makes recommendations on policy and procedure. Regulations as to satisfactory scholarship, disqualification for unsatisfactory work and related questions bearing upon academic requirements are administered by appropriate bodies in accordance with university policies. A student court has authority to deal with cases involving interpretation of Associated Students bylaws. University students are expected to assume responsibility for their personal conduct, wide freedom is therefore granted by the university to students as individuals and as organized groups.

STUDENT LEADERSHIP

Membership and active participation in a reasonable number of student organizations are strongly recommended. Groups of this type are an excellent means of obtaining experience in leadership, group action and social competence. Participation in student government is also encouraged, and many opportunities exist for participation in student affairs through election to student body offices, appointment to student government committees, and attendance at meetings of the Student Senate. Students are also offered an opportunity to serve on committees of the Academic Senate and on committees and boards of the California State University, Fresno Association, Inc. These groups play an active part in developing and recommending university policies and in conducting the affairs of the auxiliary organizations.

STUDENT ORGANIZATIONS

Over 100 student organizations representing various fields of social, academic, vocational, and professional interests have been granted recognition. Ten national social fraternities and six national social sororities exist on the campus and most operate group-living units. Religious interests are served by several religious centers adjacent to the campus. The many and varied types of recognized organizations not only offer an opportunity for social life but also make a positive contribution to the development of student leadership. Information regarding recognized organizations or the formation of new ones may be obtained from the Student Activities Office.

Recognition Societies

In addition to high standards of scholarship expected of all students, special recognition is given to superior scholarship. The honor society of Phi Kappa Phi, a national scholarship organization, was established at CSU, Fresno in 1953. Most departments of the university sponsor honor societies, many of them national in scope, in which membership is based upon superior scholarship. The Blue Key National Honor Fraternity offers membership to students who have good scholarship, are prominent in university activities, and who have demonstrated leadership in student affairs.

STUDENT CONDUCT

Students are expected to observe university regulations and are held responsible for their personal behavior on the campus and in university-related activities. Sections 41301–41302 in Article 1, Subchapter 3, Chapter 1, Part V of *Title 5* of the *California Administrative Code* and Section

22505 of the *California Education Code,* which appear later in this section, delineate the types of conduct that are unacceptable. In addition, local rules and policies have been developed to cover certain situations such as the residence halls. The faculty have developed policies with regard to academic sanctions for cases of cheating and plagiarism. University, Trustee, and State regulations governing student conduct are described in the *Handbook for Student Organizations,* and the *Student Rights and Responsibilities Manual.* Copies of these, as well as faculty policy statements relating to cheating and plagiarism, are available in the Student Activities Office or the Office of the Dean of Student Affairs.

STUDENT DISCIPLINE

Inappropriate conduct by students or by applicants for admission is subject to discipline as provided in Sections 41301 through 41304 of Title 5, *California Administrative Code.* These sections are as follows:

Article 1.1, Title 5, *California Administrative Code*

41301. Expulsion, Suspension and Probation of Students. Following procedures consonant with due process established pursuant to Section 41304, any student of a campus may be expelled, suspended, placed on probation or given a lesser sanction for one or more of the following causes which must be campus related:

(a) Cheating or plagiarism in connection with an academic program at a campus.

(b) Forgery alteration or misuse of campus documents, records, or identification of knowingly furnishing false information to a campus.

(c) Misrepresentation of oneself or of an organization to be an agent of a campus.

(d) Obstruction or disruption, on or off campus property, of the campus educational process, administrative process, or other campus function.

(e) Physical abuse on or off campus property of the person or property of any member of the campus community or of members of his or her family or the threat of such physical abuse.

(f) Theft, of, or non-accidental damage to, campus property, or property in the possession of, or owned by, a member of the campus community.

(g) Unauthorized entry into, unauthorized use of, or misuse of campus property.

(h) On campus property, the sale or knowing possession of dangerous drugs, restricted dangerous drugs, or narcotics as those terms are used in California statutes, except when lawfully prescribed pursuant to medical or dental care, or when lawfully permitted for the purpose of research, instruction or analysis.

(i) Knowing possession or use of explosives, dangerous chemicals or deadly weapons on campus property or at a campus function without prior authorization of the campus president.

(j) Engaging in lewd, indecent, or obscene behavior on campus property or at a campus function.

(k) Abusive behavior directed toward, or hazing of, a member of the campus community.

(l) Violation of any order of a campus president, notice of which had been given prior to such violation and during the academic term in which the

violation occurs, either by publication in the campus newspaper, or by posting on an official bulletin board designated for this purpose, and which order is not inconsistent with any of the other provisions of this Section.

(m) Soliciting or assisting another to do any act which would subject a student to expulsion, suspension or probation pursuant to this Section.

(n) For purposes of this Article, the following terms are defined:

(1) The term "member of the campus community" is defined as meaning California State University and Colleges Trustees, academic, non-academic and administrative personnel, students, and other persons while such other persons are on campus property or at a campus function.

(2) The term "campus property" includes:

(A) real or personal property in the possession of, or under the control of, the Board of Trustees of the California State University and Colleges, and

(B) all campus feeding, retail, or residence facilities whether operated by a campus or by a campus auxiliary organization.

(3) The term "deadly weapons" includes any instrument or weapon of the kind commonly known as a blackjack, sling shot, billy, sandclub, sandbag, metal knuckles, any dirk, dagger, switchblade knife, pistol, revolver, or any other firearm, any knife having a blade longer than five inches, any razor with an unguarded blade, and any metal pipe or bar used or intended to be used as a club.

(4) The term "behavior" includes conduct and expression.

(5) The term "hazing" means any method of initiation into a student organization or any pastime or amusement engaged in with regard to such an organization which causes, or is likely to cause, bodily danger, or physical or emotional harm, to any member of the campus community; but the term "hazing" does not include customary athletic events or other similar contests or competitions.

(o) This Section is not adopted pursuant to Education Code Section 89031.

(p) Notwithstanding any amendment or repeal pursuant to the resolution by which any provision of this Article is amended, all acts and omissions occurring prior to that effective date shall be subject to the provisions of this Article as in effect immediately prior to such effective date.

41302. Expulsion, Suspension or Probation of Students; Fees and Notification. The President of the campus may place on probation, suspend, or expel a student for one or more of the causes enumerated in Section 41301. No fees or tuition paid by or for such student for the semester, quarter, or summer session in which he or she is suspended or expelled shall be refunded. If the student is readmitted before the close of the semester, quarter, or summer session in which he or she is suspended, no additional tuition or fees shall be required of the student on account of the suspension. In the event that a student who has not reached his or her eighteenth birthday and who is a dependent of his or her parent(s) as defined in Section 152 of the Internal Revenue Code of 1954 is suspended or expelled, the President shall notify his or her parent or guardian of the action by registered mail to the last known address, return receipt requested.

During periods of campus emergency, as determined by the President of

the individual campus, the President may, after consultation with the Chancellor, place into immediate effect any emergency regulations, procedures, and other measures deemed necessary or appropriate to meet the emergency, safeguard persons and property, and maintain educational activities.

The President may immediately impose an interim suspension in all cases in which there is reasonable cause to believe that such an immediate suspension is required in order to protect lives or property and to insure the maintenance of order. A student so placed on interim suspension shall be given prompt notice of charges and the opportunity for a hearing within 10 days of the imposition of interim suspension. During the period of interim suspension, the student shall not, without prior written permission of the President or designated representative, enter any campus of the California State University and Colleges other than to attend the hearing. Violation of any condition of interim suspension shall be grounds for expulsion.

41303. Conduct by Applicants for Admission. Notwithstanding any provision in this Chapter 1 to the contrary, admission or readmission may be qualified or denied to any person who, while not enrolled as a student, commits acts which, were he enrolled as a student, would be the basis for disciplinary proceedings pursuant to Sections 41301 or 41302. Admission or readmission may be qualified or denied to any person who, while a student, commits acts which are subject to disciplinary action pursuant to Section 41301 or Section 41302. Qualified admission or denial of admission in such cases shall be determined under procedures adopted pursuant to Section 41304.

41304. Student Disciplinary Procedures for the California State University and Colleges. The Chancellor shall prescribe, and may from time to time revise, a code of student disciplinary procedures for the California State University and Colleges. Subject to other applicable law, this code shall provide for determinations of fact and sanctions to be applied for conduct which is a ground of discipline under Sections 41301 or 41302, and for qualified admission or denial of admission under Section 41303; the authority of the campus President in such matters; conduct related determinations on financial aid eligibility and termination; alternative kinds of proceedings, including proceedings conducted by a Hearing Officer; time limitations; notice; conduct of hearings, including provisions governing evidence, a record, and review; and such other related matters as may be appropriate. The Chancellor shall report to the Board his actions taken under this section.

STUDENT ABSENCES

Students are expected to maintain regular attendance at classes. Extended absences (more than one week) due to illness, death in the immediate family, or other extraordinary emergencies, may be reported to the Counseling Service which will notify the faculty concerned. When any absence occurs, however, the student should contact the instructors involved concerning the possibility of making up the work missed.

STUDENT GRIEVANCE PROCEDURES

Grievances arise out of a decision or action reached in the course of official duty by a member of the faculty, staff or administration of California State University, Fresno, which is alleged to be discriminatory, contrary to accepted academic relationships and procedures, or restrictive of the rights of any student of the University to fair treatment. The purpose of the grievance procedures is to provide a means by which the harmful effects on the student may be remedied; the procedures are not intended to initiate disciplinary action against a member of the faculty, staff or administration.

Every student has the right to seek resolution of a grievance. The right includes a full and impartial examination of an alleged grievance, a prompt decision, and appeal for review in accordance with established procedures. The Student Grievance Procedures do not in any way cover grading matters, which remain in the sole and exclusive jurisdiction of the Student Academic Petitions Committee. Confidentiality shall be maintained throughout the entire grievance process.

Any student who believes grounds for a grievance exist shall make an attempt in good faith to resolve the problem through early informal discussion of the matter with the academic or administrative member directly involved. The office of the Dean of Student Affairs may be of assistance in this informal discussion if the student so requests. If the student is not satisfied, an attempt should be made to resolve the grievance through one of the following channels:

1. In the case of academic personnel, the chairperson of the department and the dean of the school.
2. In the case of support staff or administrative personnel, the employee's immediate supervisor and the director of the administrative unit.

If a resolution of the problem is not effected through the informal procedures, the student, upon presentation of a signed petition to the Office of the Dean of Student Affairs, may seek redress through an official examination of the facts by the Student Grievance Board. Students should contact the Office of the Dean of Student Affairs (Joyal 224) for further assistance regarding grievance procedures and for a copy of the Student Grievance Procedures document.

CHEATING AND PLAGIARISM

The University has a written policy statement on cheating and plagiarism which includes specific steps that will be taken in the event that an incident of cheating or plagiarism is suspected. The full text of the document is available in the Dean of Student Affairs Office, Joyal Administration Building, Room 224. Below are the University definitions of cheating and plagiarism:

Cheating: Cheating is the willful and intentional practice of fraudulent and deceptive acts for the purpose of improving a grade or obtaining course credit. Typically, such acts occur in relation to examinations. It is the intent of this definition that the term "cheating" not be limited to examinations situations only, but that it include any and all behavior by a student which is intended to gain an unearned academic advantage by fraudulent and deceptive means.

Plagiarism: Plagiarism is herein identified as a specific form of fraudulent and deceptive act which consists of the willful and intentional misuse of the

published works of another by representing the material so used, as one's own work.

ADVISING SERVICES

The Office of Advising Services provides a variety of services designed to aid the student in his or her academic pursuits—new student orientation, coordination of faculty advising, tutorials, peer advising, academic petitions, general education advising, undeclared major advising, change of major and academic problems of a general nature.

Academic Advising. Each student is required to meet with his or her faculty adviser once each semester before registering for classes. Although a faculty adviser assists the student in planning an academic program and in the achievement of long-range goals, the primary responsibility for meeting all graduation requirements is the student's. An academic adviser will be assigned to each student or selected by the student depending upon the major department's procedure. Undeclared majors are advised by the Office of Advising Services until a definite goal is chosen. In addition, students wishing assistance with general education requirements should consult their faculty adviser or the Office of Advising Services.

Orientation. Professional staff and trained students are jointly involved in orienting new students to the University. Staff are available on a daily basis throughout the year to answer questions about the early registration (Computer Assisted) process and other concerns of new and continuing students. A special summer program is also offered to aid new students and their parents in understanding the workings of the University and how it relates to the community at large.

Tutoring. Tutoring is generally available in all courses. All students currently enrolled at California State University, Fresno, are eligible for tutoring at no cost. (Veterans are entitled to tutorial funds from the Veterans Administration.) Tutors are upper division and graduate students recommended by professors. The Advising Services Office also provides assistance in improving study skills and time management.

Academic Petitions. The Student Academic Petitions Committee is chaired by the Director of Advising Services. Students seeking an alteration in University degree requirements must use the petition process. Petitions and procedural information are available in the Office of Advising Services. A student who believes that he or she has been evaluated (graded) prejudicially or capriciously by a faculty member should consult first with the faculty member concerned and make every effort to resolve the issue. If the issue is not resolved, the student should then consult with the department chairman. If the student still believes that he or she has been graded prejudicially or capriciously after completing this process, he or she may request the Student Academic Petitions Committee to review the issue. To request such a review, the student must submit a written statement setting forth all pertinent details relating to the issue to the Director of Advising Services who serves as chairman of the Student Academic Petitions Committee. A full statement regarding "Protection Against Improper Academic Evaluation" may be obtained from the Office of the Dean of Student Affairs. The Assistant Dean of Student Affairs is available for

clarification of procedures pertaining to a grade protest. Procedures designed for petitioning are consistent with the Student Affirmative Action Policy of the university.

Change of Major. A student changing his or her major must personally initiate the procedure in the Office of Advising Services, except graduate and international students who should go to their respective offices.

Transfer/Drop Out Advising. A student planning on transferring or otherwise departing the university at the semester's end should check with Advising Services to ensure proper handling of academic records and receive other assistance, as appropriate, which may facilitate the process of leaving.

Admissions Advising. The Admissions Office assists students in making application, in understanding admission requirements, and in utilizing the services of the University during the admissions process. Problems concerning evaluation of previous academic records should be directed to the Director of Admissions and Records.

Special Major. A student interested in designing a special major initiates the process by obtaining an application form in the Office of Advising Services and discussing the program with a counselor. (See bulletin section on Special Major for further details.)

CAREER PLANNING AND PLACEMENT SERVICES

The university maintains a centralized service which is closely integrated with the various schools, divisions, and departments of the university. Services include a career development center staffed by a career information specialist and professional assistance to students and graduates seeking part-time, temporary and summer positions, and career positions upon graduation.

Every effort is made to seek efficient utilization of manpower by assisting students and graduates in obtaining positions which will best use their education, training, experience, and abilities. The placement service not only serves the needs of the university and its students but is vitally concerned with and directs its service toward the needs of the community, business, industry, government, the public school system, and the state generally.

The specific functions of the office are: to assist students in their career development, to collect and make available to prospective employers personal data and letters of reference on registrants, to maintain a current record of employment opportunities, to recommend candidates for positions at the request of employers, to arrange interviews between candidates and employers, to provide guidance to candidates seeking positions, and to bring the needs of the employer to those who design and implement educational programs.

Each student and qualified alumnus is encouraged to participate in accordance with established policies. Participation by employers require that they be engaged in a legal operation, have bona fide employment opportunities, adhere to the standards of ethical conduct, and be in compliance with the guidelines for *Titles VII* and *IX* of the *Civil Rights Act,* Federal Handicapped Regulations of the *Rehabilitation Act of 1973,* and the *California Fair Employment Practices Act.*

There is no charge to students or employers for this service. Alumni will

be charged an annual fee for service rendered. Every effort is made to assist those who seek the service; however, placement cannot be guaranteed. The university reserves the right to recommend for placement only those applicants who are adequately qualified for positions they seek.

CAREER PLANNING AND DEVELOPMENT

Career planning and development involves assisting students to learn more about themselves, to explore career opportunities related to their interests, and to develop expertise in implementing career goals. A Career Information Resource Center staffed by a career information specialist is available for use by students. In addition to general and specialized career information, two computer-based systems are available to aid students in making career decisions: EUREKA'S memory banks are filled with information covering 260 occupations (including job descriptions), training programs to prepare for specific occupations, and college and universities offering desired area of study; SIGI, a system of interactive guidance assists students in identifying and prioritizing work values, suggests occupations that meet these values, gives specific information about occupations of interest, judges chances of success in programs offered based on grades of previous students, provides an overview of entry level requirements, and evaluates occupations and explores alternate careers in terms of rewards they offer students based on values previously identified.

EDUCATIONAL PLACEMENT

Graduates are eligible for educational placement if they complete a degree and credential program at California State University, Fresno; if they complete a degree at CSUF and a credential program at another institution of higher learning; or if they complete a degree at another institution and a credential program at CSUF.

BUSINESS, INDUSTRIAL, AND GOVERNMENTAL PLACEMENT

Participation in this program is open to all graduating seniors and alumni who desire full-time positions in agriculture, business, industry, governmental agencies and other related fields, provided a minimum of 24 semester units have been completed at CSU, Fresno. Seniors are urged to complete and file a personal data sheet with the Placement Center early during the year in which they expect to graduate. Close cooperation is maintained with the various schools and departments in the placement of candidates in these fields.

STUDENT PLACEMENT

Participation in this program is open to any enrolled student. Many students earn part of their university expenses. Entering freshmen, however, should be prepared to finance their first semester without working; all students should keep their outside employment to a minimum in order to avoid endangering either health or academic achievement.

Various types of employment are available including a number of hourly jobs in various work areas on campus for candidates with specific abilities. Other positions of a temporary nature are also available. Active immunization against tetanus (available through the Student Health Service) is required for any student employed on the University Farm. Off-campus positions range

from short-term positions to those with scheduled hours for the full year. Students desiring work on or off campus should consult the Student Placement Center. Employed students are expected to reflect credit on the University. (See also *Work-Study Program* and *Graduate Assistantships.*)

CAREER PLACEMENT

The campus may furnish, upon request, information concerning the subsequent employment of students who graduate from programs or courses of study which have the purpose of preparing students for a particular career field. This information includes data concerning average starting salary and the percentage of previously enrolled students who obtained employment. The information provided may include data collected from either graduates of the campus or graduates of all campuses in the California State University and Colleges. Interested prospective students may request copies of the published information from the Office of the Dean of Student Affairs.

THE COLLEGE UNION

The College Union building was designed to serve the entire campus community. This structure was planned by students and is financed by student funds through the California State University, Fresno Association, Inc. The College Union is the campus community center for students, faculty, staff, and guests. It sponsors a wide variety of social, recreational and entertainment activities throughout the year. The building includes conference and meeting rooms, lounge areas, a coffee shop, a barber shop, art display areas, student government and committee offices, auxiliary organization offices, bowling and recreation areas, and numerous service facilities. The offices of the Director of Student Activities and Student Activities Advisers are located in the College Union.

COUNSELING SERVICES

The Student Counseling Service is staffed by full-time professional counselors and psychologists whose services are available, without charge, to all students desiring assistance. Matters discussed by the student and counselor are held in strict confidence.

Educational Counseling. The Counseling Service assists students who are having academic difficulties, those who are uncertain regarding their educational goals, and those who need information about educational requirements and programs.

Career Counseling. The Counseling Center assists students in self-appraisal, in identifying career options, and exploring the feasibility of various career goals. Tests useful in self-appraisal including interest, aptitude and personality measures are available as aids in the goal selection process. The SIGI computer assisted career decision-making program is also available to students. Print-out outputs from the computer program are provided free-of-charge. Referral is made as needed to the many sources of career information on campus and the community.

Personal Counseling. Counselors and psychologists help students who are concerned about personal matters. The emphasis is upon the student's personal growth and development.

Group Counseling. The Student Counseling Service provides opportunities to enter groups of from 8 to 12 students sharing the desire to grow and develop in self-awareness and sensitivity to other people's needs and feelings, and to find meaning and relevance for themselves in their relationship to others.

Study Abroad Counseling. International Student Counseling Office—In addition to coordinating counseling services for foreign students, this office assists American students seeking to study and travel overseas. A library of information is available and applicants for California State University and Colleges International Programs and for Fulbright Grants apply through the International Student Counseling Office.

EDUCATIONAL OPPORTUNITY PROGRAM

The Educational Opportunity Program is designed to recruit, admit, and retain students from minority and low income backgrounds who have the potential to perform satisfactorily at the university level, but who have not been able to realize that potential because of economic, cultural, educational, or environmental backgrounds; or who meet regular admission requirements but in the opinion of appropriate campus authority require the full assistance of the program in order to succeed. Criteria for evaluating applicants include motivation, school and community involvement and past academic achievement. Supportive services include a readiness program for first semester students, tutorial services, academic and personal guidance, assistance in obtaining housing, job placement, graduate studies and career guidance. In addition to other financial aid assistance, EOP students are eligible for a state EOP grant based on need established by the Financial Aids Office. (See *Financial Aids.*)

FINANCIAL AIDS

INSTITUTIONAL AND FINANCIAL ASSISTANCE

The following information concerning student financial assistance may be obtained from the Director of Financial Aids, Joyal 296, phone 487-2182:

1. Student financial assistance programs available to students who enroll at CSUF;
2. The method by which such assistance is distributed among student recipients who enroll at CSUF;
3. The means, including forms, by which application for student financial assistance is made and requirements for accurately preparing such application;
4. The rights and responsibilities of students receiving financial assistance; and
5. The standards which the student must maintain in order to be considered to be making satisfactory progress for the purpose of establishing and maintaining eligibility for financial assistance.

The following information concerning the cost of attending CSUF is available from the Director of Financial Aids, Joyal 296, phone 487-2182. This information includes:

1. Fees and tuition (where applicable);
2. Estimated costs of books and supplies;
3. Estimates of typical student room and board costs or typical community costs; and
4. Any additional costs of the program in which the student is enrolled or expresses a specific interest.

Information concerning the refund policy of CSUF for the return of unearned tuition and fees or other refundable portions of costs is available from the Accounting Office, Joyal 181, phone 487-2876.

Information concerning the academic programs of CSUF may be obtained from the Office of the Associate Vice President for Academic Affairs, Thomas 110, phone 487-2724. This information may include:

1. The current degree programs and other educational and training programs;
2. The instructional, laboratory, and other physical plant facilities which relate to the academic program;
3. The faculty and other instructional personnel; and
4. Data regarding student retention at CSUF and, if available, the number and percentage of students completing the program in which the student is enrolled or expresses interest.
5. The names of associations, agencies, or governmental bodies which accredit, approve, or license the institution and its programs, and the procedures under which any current or prospective student may obtain or review upon request a copy of the documents describing the institution's accreditation, approval, or licensing.

Information regarding special facilities and services available to disabled students may be obtained from Disabled Students Services, San Ramon 3, Room 134, phone 487-2562.

SCHOLARSHIPS AND GRANTS

About 450 scholarships and grants totaling approximately $140,000 will be available for this academic year. About half of these scholarships, ranging from $50 to $1,000, are open to new students. The average scholarship is for $250 for the year and covers the cost of material and service fees, student body fees, and a partial cost of books. Generally, upper division and specialized scholarships are in larger amounts. The scholarship program is designed to provide deserving students with educational opportunities not otherwise possible. Scholarships are awarded on a competitive basis, consideration being given to scholastic attainment, academic potential, financial need, and character; some are available on the basis of outstanding accomplishment in specialized fields. Scholarship applications must be submitted by March 1.

Scholarship awards are announced in May or June of each year. Students, both entering and enrolled, must file applications with the Director of Financial Aids prior to March 1st. One application is sufficient for all available scholarships.

WAIVERS OF NONRESIDENT FEES

Upon written waiver by the Dean of Student Affairs or the Director of Admissions and Records, children or spouses of California State University and Colleges full-time employees, who are not yet legal residents of

California, may be exempted from the nonresident fee.

With verification by the Dean of the School of Education, *certificated California school district employees* who are not yet legal residents of California, may be exempted from the nonresident fee if they are provisionally credentialed and working toward regular credentials, completing postponed requirements, or completing the fifth year required under the *Teacher Preparation and Licensing Law of 1970 (Ryan Act).*

UNIVERSITY ASSOCIATION AND FOUNDATION LOAN FUNDS

The University operates an Emergency Loan Fund to assist students who need up to $200 for emergency expenses that are educationally related. These loans have to be repaid within 90 days or at the end of the semester, whichever comes first. Loans are granted on the basis of the students' need, educational program, and ability to repay. There are also available limited funds for loans up to $500 repayable after graduation. These funds, however, are restricted to "worthy upper division and graduate students majoring in education and working for a teacher's credential at CSUF". The funds for these programs have been provided by gifts to the University.

Applications for loans are processed through the Coordinator of Student Loans, Joyal Administration Building, Room 276, California State University, Fresno, Fresno, California 93740.

NATIONAL DIRECT STUDENT LOAN PROGRAM

CSU, Fresno participates in the federal loan program which is provided for in Title IV, Part E, of the Higher Education Act of 1965. Under this program needy undergraduate students in any field of study may borrow up to a maximum of $6,000, and needy graduate students may borrow up to a combined maximum of $12,000. Students carrying at least a one-half academic workload are eligible to receive loans. Students entering the university for the first time as well as continuing students are eligible to apply for this type of loan.

No interest is charged until six months after the borrower ceases to be at least a one-half time student. Interest at the rate of 4% of the remaining balance begins at the end of the six-month grace period and the first payment is due one month later. Payments may extend for a period of not more than ten years, but will be at a rate of not less than $30 per month.

A borrower who becomes a teacher in a public or other nonprofit elementary or secondary school in which there is a high concentration of low income families as designated by the Commissioner or who becomes a teacher in special education (hard of hearing, mentally retarded, cerebral palsy, etc., classes) may have 15 percent of the loan cancelled for the first and second year of such service, 20 percent for the third and fourth year, and 30 percent for the fifth year. A borrower shall receive cancellation for service after June 30, 1972, as a member of the United States Armed Forces, at the rate of 12½ percent per year for each complete year of service in an area of hostilities for a total of 4 years.

Inquiries should be directed to the Financial Aids Office, California State University, Fresno, Fresno, California 93740.

LAW ENFORCEMENT ASSISTANCE GRANTS

Grants in the amount of the cost of registration may be made to assist full-time or part-time students in a graduate or undergraduate program who are full-time employees of any publicly funded law enforcement or corrections agency and who are in college for professional improvement. The recipient of a grant is obligated to remain in the employment of the agency which has certified his full-time employment for a period of two years after completion of the course or courses. Applications should be made to the Veterans Affairs Office.

NURSING STUDENT LOANS AND SCHOLARSHIPS

Under this program, a student who can show that a loan is needed to enter or continue in the nursing program may borrow up to $2,500 an academic year or its equivalent, with an aggregate maximum of $10,000. Preference will be given to licensed practical nurses in selecting loan recipients. No interest is charged while the borrower pursues at least a half-time course of study in a collegiate school of nursing leading to an associate degree in nursing, a baccalaureate degree in nursing or an equivalent degree, or a graduate degree in nursing, or for a period of 9 months after leaving school. Interest then starts at 3% simple interest and the loan is repaid at not less than $15 per month. Interest and payments are deferred for a period of time while the borrower is a member of the uniformed service or is a volunteer under the Peace Corps Act.

Scholarships ranging from $200 to $2,000 per academic year are available to those students in the Nursing Program who can show exceptional financial need.

Applications for these programs should be made by March 1 for the following year.

FEDERALLY INSURED STUDENT LOAN/CALIFORNIA GUARANTEED STUDENT LOAN PROGRAMS

The Federally Insured Student Loan/California Guaranteed Student Loan Programs enable students to borrow to help pay the educational costs. Under this program, the state and federal governments insure loans from participating lending institutions (banks, credit unions, savings and loans association, etc.). Depending on the lender, dependent undergraduates may borrow up to $2,500; independent undergraduates may borrow up to $3,000; graduates may borrow up to $5,000 per year. The total outstanding principal balance for undergraduates may not exceed $12,500 at any time and $25,000 for graduates. Simple interest at the rate of 8%–9% per annum is charged on the outstanding balance. The federal government will pay this interest until the student borrower enters the loan repayment period.

Applications may be obtained from the Financial Aids Office.

WORK-STUDY PROGRAM

CSU, Fresno participates in the federal Work-Study Program under the Higher Education Amendments of 1980. Students who qualify may be offered employment on or off campus. The student would normally work between ten to twenty hours per week. A standard financial aids application is required prior to March 1 of each year.

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANTS

CSU, Fresno participates in the Supplemental Educational Opportunity Grant Program as provided by the Higher Education Amendment of 1980. Undergraduate students who qualify will receive grants ranging from $200 to $2,000. Applications for grants may be obtained from the Financial Aids Office, California State University, Fresno. The application deadline is March 1.

AIR FORCE RESERVE OFFICER TRAINING CORPS (AFROTC) FINANCIAL AID AND SCHOLARSHIPS

Scholarships are available which provide full tuition, allowances for books, laboratory fees, and incidental fees.

The AFROTC program at CSUF offers both a four-year and a two-year AFROTC program. High school seniors should apply for a four-year scholarship during the fall of the senior year. Any students enrolled in the four-year program may also apply for 3½, 3, 2½, and 2-year awards. Applicants to the two-year program may apply for scholarships to a maximum of four semesters.

Students enrolled in the two-year AFROTC program receive $100 per month non-taxable financial assistance up to a maximum of $2,000.

Two-year applicants attend a six-week field training prior to enrolling in AFROTC and are paid approximately $483 plus travel pay to and from the field training location, and are provided meals and housing while in attendance.

Applicants with prior military service and four-year program students who have successfully completed the first two years of the program, and are accepted into the Professional Officer Course, attend a four-week field training for which they receive approximately $322 plus travel, meals, and housing.

Applications should be submitted to the Professor of Aerospace Studies during the fall semester one year prior to anticipated enrollment in AFROTC. Detailed information concerning AFROTC can be obtained by calling the Department of Aerospace Studies (487-2593) or by visiting the Air Science Wing of the Men's Gym, Room 158.

GRADUATE ASSISTANTSHIPS

A number of graduate assistantships and teaching assistantships are available to students who are enrolled in the master's degree program and whose previous records show outstanding achievement in academic work, outstanding subject matter competence in the major field, and the special qualities necessary to the duties assigned. A beginning graduate assistant may receive a stipend of up to $4,710 for twenty hours per week of work during the academic year. Some assistantships may be for reduced time and carry prorated stipends. For information write to the Dean, Division of Graduate Studies and Research or your department chairman, specifying field of graduate study and any special abilities that might justify assignment as a graduate assistant.

RESIDENT ADVISERS

The university employs a number of students as advisers in its residence hall program. These positions are available to students whose interest and background indicate competence in this type of work. The stipends vary, depending upon the work assignment. Generally they cover the cost of residence hall room and board. Applications and further information are available at the beginning of the spring semester from the Director of Housing.

BASIC EDUCATION OPPORTUNITY GRANT

The Basic Education Opportunity Grant Program, more commonly known as Basic Grants, is a new program of student financial aid which was authorized by Title IV, Part A, of the Education Amendments of 1972. This program provides for grants of $1,800 less the expected family contribution for all eligible students to assist them in meeting educational costs. To be eligible for the Basic Education Opportunity Grant, the following criteria must be met: (1) an undergraduate student for the period for which application is made; (2) attendance on at least a half-time basis (6 or more credit hours per term); (3) United States citizenship or residence in the United States, for other than a temporary basis, and intention to become a resident. Program regulations change from year to year. Check with the Financial Aids Office for the regulations now in effect. Students may apply by filling out the Student Aid Application for California. Forms are available at high schools, community colleges and CSUF Financial Aids Office.

BUREAU OF INDIAN AFFAIRS (BIA) GRANTS

If you are at least one-fourth American Indian, Eskimo, or Aleut, as recognized by a tribal group served by the Bureau of Indian Affairs, you may apply for a BIA grant. The amount is based on financial need and availability of funds from your area agency. You must first submit an application for financial aid and supportive documents by the deadlines, then make an appointment with a Financial Aids counselor to complete the BIA application.

CALIFORNIA STATE EDUCATIONAL OPPORTUNITY GRANT PROGRAM (State EOP)

Educational Opportunity Program Grants are provided by the State of California for students admitted to one of the California State Universities and Colleges under the Educational Opportunity Program. Eligibility for this grant is determined by the same criteria as federal financial aid programs. Admission to the University through the EOP does not automatically mean that the student will be awarded a State EOP Grant.

Grants provide aid to undergraduate students who, for lack of such assistance, would be unable to enter or remain in an institution of higher education. Funds are limited and are awarded to EOP students who come from low income families and demonstrate financial aid eligibility. EOP grants range from $200 to $1,000 for the academic year.

ALAN PATTEE SCHOLARSHIPS

Children of deceased public law enforcement or fire suppression employees, who were California residents and who were killed in the course of law enforcement or fire suppression duties, are not charged fees or tuition of any kind at any California State University or College, according to the Alan Pattee Scholarship Act, Education Code Section 68121. Students qualifying for

these benefits are known as Alan Pattee scholars. For further information contact the Admissions/Registrar's Office, which determines eligibility.

VETERANS/DISABLED STUDENT SERVICES

This office provides services to all veterans and disabled students at California State University, Fresno. Liaison is maintained with the Veterans Administration and the State Department of Veterans Affairs for veterans, and with the local and State Office of Vocational Rehabilitation and other related agencies for the disabled student population of the campus.

Veterans transferring to California State University, Fresno from other institutions are strongly urged to contact the office and file a request for a Change of Place of Training (VA 22-1995) at least two months prior to the start of the semester. New applicants (never used G.I. Bill) should also apply through the office at least eight weeks in advance. Such lead time is necessary as we must certify all enrollments to the Veterans Administration before any benefit checks will be issued.

Veterans are not the only people eligible for G.I. benefits. Certain dependents of deceased veterans, disabled veterans, and certain dependents of California veterans may qualify for benefits. All such students should contact the office well in advance of the start of their planned study at California State University, Fresno.

Disabled students planning to attend California State University, Fresno should contact the office at their earliest opportunity. Services include orientation for new disabled students to the campus; recruiting and orienting personal attendants for students in need; locating readers, note takers, and transcribers for blind students; identifying interpreters for the deaf; priority registration for all disabled students; special handicapped parking permits; specially equipped disabled students study room in the library; and mobility assistance as needed in regard to physical barriers.

The office serves as an information center for all veterans and disabled students. Counselors are available to assist students with answers to their questions or referral to the office or agency that can best serve the student's needs.

INTERNATIONAL (FOREIGN) STUDENTS

California State University, Fresno, regularly enrolls a significant number of students from abroad. The International Student Counseling Office staff, under the direction of the Counseling Center assists foreign students with academic and personal problems, and housing (see *Student Housing*), as well as governmental and legal aspects of their stay. Foreign students wishing to change their major should personally initiate the change with their International Student Counselor. A special orientation program is planned and required of all new foreign students prior to registration their first semester. Students should notify the International Student Counseling Office of their arrival plans and contact the office immediately upon arrival on campus for verification of enrollment, orientation, and assistance (See *General Information—Admission to the University*).

International students must have sufficient understanding and proficiency

in use of the English language to be successful in their course work at the university (see *Entrance Examinations*). A special program of English language and American studies, International Studies Courses (ISC), is available to assist students whose previous instruction has been in a language other than English. (See *International Studies—Campus Program*). Except for the few who are employed as graduate assistants, students must have sufficient funds so that they will not need employment. They should plan to register for the minimum legal number of courses each semester, which for undergraduate students on "F" or "J" type visas is 12 units and for graduate students is 8 units. These are the minimum-unit loads foreign students must carry in order to keep their student visas valid. **They are also required to purchase health insurance coverage equal in coverage to the policy available to all students through the Associated Students Office.**

The International Student Counseling Office also coordinates campus and community activities for foreign students. These activities are designed to enhance their educational experiences in the United States. Students should consult the International Student Counseling Office for information pertaining to these activities. Foreign graduate students should refer to the *Division of Graduate Studies and Research* section of the bulletin.

DEAN OF STUDENT AFFAIRS OFFICE

In addition to providing guidance to the various units within Student Affairs, the Office of the Dean of Student Affairs is responsible for administering the Student Grievance Procedure, student discipline, and for maintaining liaison with other administrative and academic areas of the university. A legal advisement program is also administered through the office.

STUDENT HOUSING

RESIDENCE HALLS

The university can accommodate 1,268 students in the residence halls on campus. Two types of rooms are available: single and double. Rooms are attractively furnished and provide pleasant study and living facilities. The halls also have special lounge areas, recreation rooms, study rooms, and laundry facilities. Food service is provided by the residence hall dining facility. A choice of board plans is available, allowing the resident to choose the one which meets his or her needs and budget. The hall governments sponsor an extremely active and varied program of activities. In addition to the conveniences of location and services offered by the residence halls, the group living situation affords a unique opportunity for students to make new friends and to become involved in university and hall activities.

Residents must agree to live in the halls for the entire academic year. For information on residence hall costs, see *Fees and Expenses.* Further information and applications for reservations may be obtained by writing to the Housing Office. Application forms are available after April 1. Students are encouraged to apply for on-campus accommodations BEFORE they receive notice of admission to the university.

OFF-CAMPUS HOUSING

The Housing Office publishes an apartment brochure which lists most of the apartment complexes near the university. (The apartment brochure can be mailed upon request.) The Housing Office does not inspect, supervise, recommend, or approve any of the listings contained in this brochure, nor are rental rates controlled by the Housing Office or the university. We suggest that you inspect the premises before signing an agreement. In addition, a current listing of all other off-campus housing such as roommates wanted, houses, and rooms in private homes are available at the Housing Office.

We further suggest that you make arrangements for housing as early as possible.

HOUSING FOR MARRIED STUDENTS

The university does not maintain housing facilities for married students and their families. The Housing Office does maintain a file of privately owned rentals, some of which are near the campus. These private rentals range from $85 to $300 per month depending on size, furnishings, and location.

STUDENT HEALTH SERVICE

The objective of the Student Health Service is to keep the student in a state of optimum health, both physically and mentally, so that the student may realize to the fullest the opportunities afforded by the university. The health services are supported by a portion of the Student Services Fee paid by each student. These funds finance the provision of basic health care to students wishing to avail themselves of these services. In addition, each student may *voluntarily* pay an additional health fee which supports certain services and treatments not funded through the Student Services Fee. The Student Health Service publishes a brochure which describes in further detail the basic health care and those additional services available through payment of the voluntary health fee or on a fee-for-service basis. The brochure is available at the Student Health Service.

The Student Health Service is housed in its own building, with well-equipped doctors' offices and examination rooms, laboratory and X-ray facilities, pharmacy, physical therapy, nurses' treatment rooms, business office, and waiting rooms. It is open each school day during hours posted at the entrance to the building. At these times registered nurses are on duty and physicians are available for consultation. Various medical specialties are represented among the part-time and full-time physicians, affording a high standard of medical care.

In addition to the Student Health Services, students may purchase an insurance protection plan for emergency illness and accidental injury during hours that the Center is closed. This insurance program provides substantial coverage for hospital benefits, medical, surgical and related services for any one illness or accident. The program covers the student both on and off campus on a twenty-four-hour-a-day basis and includes periods of interim vacation and absences.

LANGUAGE, HEARING, AND SPEECH CLINIC

The Language, Hearing, and Speech Clinic is part of the program of communicative disorders within the Communicative Disorders Department. Any regular student needing diagnostic or therapeutic assistance with language, hearing, or speech problems may arrange to secure the service of the clinic without charge.

TESTING SERVICES

The Office of Testing Services is staffed by a Director and a Psychometrist, both having special educational backgrounds emphasizing tests and measurement, research, and computer applications. They work closely with other offices, Counseling Center staff, and faculty. Services include the following:

Psychological Testing. A variety of psychological tests designed to measure educational abilities, personality, and vocational/career interests are available. Usually such tests are administered at the request of a counselor or a member of the Office of Advising Services staff. In most cases, a student must see a counselor prior to the administration of psychological tests.

Research Services. Within the limits of staff time, the office assists students, faculty, or departments in designing and implementing research problems. The Office of Testing Services is often a link between the researcher and the campus Computer Center.

Entrance Examinations. Several times during the academic year special institutional administrations of the Scholastic Aptitude Test (SAT) are scheduled for students applying for admission to CSUF who, for whatever reason, were unable to take the test at one of the regularly scheduled national administrations. Specific information is available in the Office of Testing Services.

CSUC English Placement Test (EPT). Information and applications for this required examination may be obtained in the Test Office. Students having special needs, such as visual or hearing limitations, should contact the Test Office or the Office of Veterans and Handicapped Student Services for assistance.

Upper Division Writing Examination (UDWE). Students electing to demonstrate proficiency in writing skills by passing an examination should check with the Test Office for information and an application. See *Degrees and Credentials—Upper Division Writing Skills Requirements* for information on other options for meeting this graduation requirement.

Ryan Act Competency Examinations (Reading and Writing). Information regarding current test dates and registration forms are available for students planning to complete requirements for teaching credentials.

National Testing Programs. The Office of Testing Services coordinates administration of several nationally administered testing programs, including the Admissions Testing Program (SAT), the Graduate Record Examination (GRE), the Graduate Management Admissions Test (GMAT), the National Teacher Examination (NTE), the Medical College Admission Test (MCAT), the Law School Admissions Test (LSAT), and the Test of English as a Foreign Language (TOEFL). A variety of certification examinations are also administered by this office. Applications and particulars are available upon

request.

College Level Examination Program (CLEP). The Office of Testing Services is an "open" test center for this nation-wide program. Tests may be administered on Tuesdays and Thursdays of the third week of each month. Registration materials are available in the office.

Classroom Examination Scoring. The Office of Testing Services has the capability to machine score objective classroom examinations. Questionnaires, surveys, and student evaluations of faculty instruction may also be processed. Interested faculty members are encouraged to check with the coordinator in advance regarding type and availability of answer sheets.

CALIFORNIA STATE UNIVERSITY, FRESNO ASSOCIATION, INC.

The California State University, Fresno Association, Inc. is a non-profit corporation chartered by the State of California to operate the campus bookstore, the campus food services, the college union, and to otherwise promote and assist the educational services of the university.The Board of Directors, composed of faculty, administrators, laymen and students, exerts budgetary control and determines management policies.

ASSOCIATED STUDENTS OF CALIFORNIA STATE UNIVERSITY, FRESNO

All students enrolled at California State University, Fresno are members of the Associated Students of California State University, Fresno. The A. S. is a non-profit association chartered by the Trustees of The California State University and Colleges to operate a student government and its sponsored activities. The membership fee, which is mandatory and paid at the time of registration, is $10 per semester. The fee supports athletic activities, publications, music, drama and other cultural programs, a child care center, forensics and a variety of other student services. A non-transferable membership card permits participation in activities, elections and admission to all A. S. programs without charge or at a reduced fee. The A. S. executive branch and the Student Senate exert budgetary control and determine management policy for all operations, services and activities sponsored by the Associated Students.





STUDENT PUBLICATIONS

Membership in the Associated Students entitles the holder to copies of publications financed by the Associated Students fee. *The Daily Collegian* is the Associated Students news publication. The student literary magazine, *Backwash*, is available to students at a nominal charge.

ALUMNI ASSOCIATION

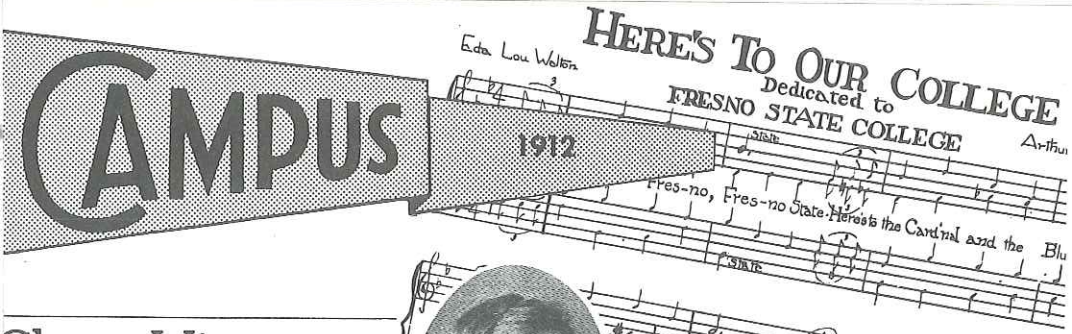
The Alumni Association seeks to advance the welfare of the university and the welfare of its graduates, former students, and friends. The self-directed group serves as a liaison with the university, alumni, and the community. The Board of Directors, through the Alumni Office and its Director, sponsors numerous activities during the year: provides scholarship assistance to students; presents awards to outstanding students and alumni at graduation ceremonies; provides a Senior Yearbook program; is active in Vintage Days and Homecoming; puts on the Annual Barbeque; and supports the development of the university. Membership is open to graduates, any student who has attended one or more semesters at CSUF, and friends of the university. Annual dues are $10; Life Memberships are $150.

The CSUF Trust Council is a charitable organization which receives contributions from alumni and friends of the university. The Trust Council oversees the investment of all contributions and funds which are then used to support scholarships, programs of the Association, and to promote the welfare of the university.



FIRST GRADUATING CLASS
June 7, 1912

CAMPUS 1912



Class History

Isa Elder and Jessie Green

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a farewell in the form of a tamale supper
and wished her the best of success as she
departed to take up the studies of a full-
fledged school-marm.







APHINE ISABEL ELDER, pictured above, was a member of the first graduating
ss of CSUF, which was known as Fresno Normal School until 1921. Miss Elder
eived her teaching credential for grades one through nine and began her teaching
eer at De Wolf Elementary School. She then went on to teach social science at
ngfellow, Edison and Roosevelt, where she remained until her retirement in 1951.
served as President of the Alumni Association in 1918 and has remained an
ive member. Miss Elder, shown with the 1912 graduating class at left, is seated on
first row (far right).

FEES AND EXPENSES

Note: Fees are subject to change without advance notice by the Trustees of The California State University and Colleges. Tuition is not charged to legal residents of California. No fees of any kind shall be required of or collected from those individuals who qualify for such exemption under the provisions of the Alan Pattee Scholarship Act. Auditors pay the same fees as students registered for credit. See Financial Aids—Waiver of Fees for exceptions *to the fees listed below.*

Application fee (nonrefundable. Payable by check or money order at time of applying)	$25.00
Student services fee,* per semester:	
0 to 6.0 units	79.50
6.1 and more units	94.50
Facilities fee, all students, per semester	3.00
Nonresident ** tuition fee (foreign and domestic), per semester *in addition to other fees:*	
Each nonresident student enrolled for 15 units or more	1,080.00
(Per academic year)	2,160.00
Each nonresident student enrolled for fewer than 15 units, per unit or fraction	72.00
Foreign visa student tuition fee—same as nonresident.	
Extension, per unit:	
Lecture or discussion course	39.00
Summer session courses, per unit	43.00
Other fees:	
Identification card fee	1.00
Graduation fee	10.00
Diploma replacement, duplicate/reissue	6.50
Transcript of record	2.00
Thesis binding fee (not a state fee), per copy (includes 35¢ sales tax)	6.50
Credential fee *(collected for State Department of Education, each credential)*	30.00
Health Service fee (not a state fee), optional, per semester	8.00
Student Body Association fee, all students *** (not a state fee), per semester	10.00

* The Student Services Fee was established by the Board of Trustees of The California State University and Colleges in January 1975. Previously, this fee was known as the Materials and Service Fee. The student services fee provides financing for the following student services programs not covered by state funding:

1) Social and Cultural Development Activities: provides for the coordination of various student activities, student organizations, student government and cultural programs.
2) Counseling: includes the cost of counselor's salaries and clerical support plus operating expenses and equipment.
3) Testing: covers the cost of test officers, psychometrists, clerical support, operating expenses and equipment.
4) Placement: provides career information to students and faculty for academic program planning and employment information to graduates and students.
5) Financial Aids Administration: includes the cost of the counseling and business services provided in connection with the financial aid programs.
6) Health Services: provides health services to students and covers the cost of salaries of medical officers and nurses plus related clerical and technical personnel as well as operating expenses and equipment.
7) Housing: includes the cost of personnel providing student housing information and monitoring housing services.
8) Student Services Administration: covers 50% of the cost of the Dean of Students Office which has responsibility for the overall administration of student services.

** A nonresident student is any person who has not been a bona fide resident of the State of California for more than one year immediately preceding enrollment. The exact determination date may be ascertained by contacting the Admissions/Records Office.

*** The law governing The California State University and Colleges provides that a student body fee may be established by student referendum with the approval of ⅔ of those students voting. The Student Body Fee was established at CSUF by student referendum on May 12, 1959. The same fee can be abolished by a similar ⅔ approval of students voting on a referendum called for by a petition signed by 10% of the regularly enrolled students. (*Education Code*, Section 89300) The level of the fee is set by the Chancellor upon recommendation by the campus. Student body fees support a variety of cultural and recreational programs, child care centers, and special student support programs. In certain instances students may work on campus to earn back the amount of this fee. Application for the work must be made to the Financial Aids Office at least two weeks prior to scheduled registration dates.

Student Body Center fee, all students (not a state fee), per semester, 7 or more units	14.00
6 or less units	10.00
Instructionally Related Activities Fee, per semester	5.00
Penalties:	
Check returned for any cause	10.00
Late registration (in addition to student services fee)	5.00
Failure to meet administratively required appointment or time limit	2.00
Late filing of student programs	2.00
Late filing of application for degree or credential	2.00
Lost or broken items	cost or $1.00 if cost is less than $1.00
Lost library items	replacement cost plus $5.85 service charge
Damaged library items	50¢ up to replacement cost, plus $5.85 service charge
Residence Hall rates:	
Room and board, per semester each student	1,091–1,275
Parking fees: decal (subject to change):	
Fall and spring, per semester	22.50
Summer Session—three week term	6.00
Summer Session—six week term	9.00

REFUND OF FEES

Fees may be refunded only as authorized by Sections 41802, 41803, and 41913 of *Title 5, California Administrative Code.* Whether a fee may be refunded and the circumstances under which a fee or any part of a fee may be refunded, vary depending on the particular fee involved. Requirements governing refund may include such matters as the reason for seeking a refund (for example, death, disability, compulsory military service), the number of days of instruction which have elapsed before application for refund is made, and the degree to which the campus has provided the services for which the fee has been charged.

The student must file a written application for refund of fees stating the reason for the refund request with the university accounting office. The application should be filed at the earliest possible date since the refund will be denied if submitted beyond certain time limits. For example, requests for refund of student services fees, student body organization fees, and student body center fees must be made no later than 14 days following the commencement of instruction and requests for refund of extension course tuition fees must be made prior to the fourth meeting of the class.

Details concerning the fees which may be refunded, the circumstances under which fees may be refunded, and the appropriate procedure to be followed in seeking a refund may be obtained from the university accounting office, Joyal 181, phone 487-2876.

REGISTRATION FEES

After a student makes a formal withdrawal from the university through the Student Records Office, a refund of a portion of the *student services fee* may be made if a written application for refund is filed not later than fourteen calendar days after the first day of instruction. A student shall make the application personally; if in the opinion of the administration, he or she is unable to do so, the parents or guardian of the student who is a minor, or the legal representative of the student may make the application. (See *California Administrative Code, Title 5, Section 41802*)

The amount of the refund will be determined by the Business Office by

deducting $5 for registration costs. A full refund may be made to a student who is unable to continue a course, because of a university regulation, compulsory military service, death or disability, at any time prior to the date the student receives any academic credit for any course or courses for which he or she is registered. The *late registration fee* is not refundable. *There is a refund for a reduction in the student's unit load, if unit load is reduced to a lower fee category not later than 14 days following the day of the term when instruction begins.*

The same withdrawal and application for refund procedure applies for the *nonresident tuition fee* except that the time limit is different. There may be a refund for reduction in unit load. Within the first week of the session, a full refund may be made for units dropped. For each additional week, the refund diminishes as follows: 90 percent of the fee, the second week; 70 percent the third week; 50 percent, the fourth week; 30 percent, the fifth week; 20 percent, the sixth week; no refund, after the sixth week.

PARKING FEES

A student is entitled to a refund of parking fees in the amount shown in the following schedule if on any one calendar day within the applicable period the student files with the Business Office a written application for refund and returns all documents issued to him or her by the university which evidence their right to use the parking facility including any parking permit, stickers, and decal so issued. If the decal is attached to a vehicle and the vehicle is presented to the university for removal of the attached item by or under the direction of the State, such presentation and removal shall constitute return of the attached item.

Beginning with the first day of instruction, 75 percent of the parking space fee is refunded if application is made as indicated above within 1–30 calendar days; 50 percent, within 31–60 calendar days; 25 percent, within 61–90 calendar days; no refund, 91 days to end of semester.

(For refund of fees during summer sessions consult the Business Office.)

HOUSING FACILITY FEES

The licensee of a residence hall facility in instances of cancellation, revocation, or vacating shall owe fees as provided in Section 42019 of *Title 5* of the *California Administrative Code* regardless of whether the licensee ever assumed actual occupancy and regardless of whether a licensee who has assumed actual occupancy moves out prior to the designated period of obligation. The university shall refund all money collected in excess of such obligation as soon as reasonably possible. A copy of *Title 5,* Section 42019 is available in the University Library, Student Affairs Office, and Housing Office.

OTHER FEES

The schedule of refunds for *the health service fee, the Associated Student Body fee, the Student Body Center fee, and the facilities fee* is set annually. Refunds are dependent upon the length of time between the opening of the semester and application for refund. Application must be made and the student body and student identification cards must be turned in to the Student Records Office.

CREDIT CARDS

Visa and Master Charge bank credit cards may be used for payment of student fees.

ESTIMATE OF EXPENSES

The basic expenses for attendance at CSUF for a year (two semesters) for full-time students who live away from home will range from approximately $3,000 to $4,000. These figures are exclusive of nonresident tuition fee, but include an estimate of such personal items as clothes, laundry, and incidental expenditures. Students who live at home or share apartments with other students and commute to the campus are able to reduce their expenses considerably below the estimated figure. The cost of board and room may also be reduced by cooperative living arrangements or part-time work in exchange for room and board.

Room and board	from $2,200–$2,600
Student services fee	189
Associated Student Body and health service fee	36
Facilities fee	6
Student Body Center fee	28
Books and supplies	170 to 225

AVERAGE ANNUAL COSTS AND SOURCES OF FUNDS PER FULL-TIME EQUIVALENT STUDENT

The 19 campuses and the Chancellor's Office of The California State University and Colleges are financed primarily through funding provided by the taxpayers of California. Including capital outlay, the CSUC 1980/81 budget totals approximately $1.1 billion. Approximately $1.074 billion of the $1.1 billion total has been budgeted to provide support for a projected 230,750 full-time equivalent (FTE *) students. Thus, excluding costs which relate to capital outlay and the Energy and Resources Fund (e.g., building amortization), the average cost per FTE student is $4,652 per year. Of this amount, the average student pays $387. Included in this average student payment calculation is the amount paid by non-resident students. The remaining $4,265 in costs is funded by state and federal taxes.

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

TOTAL 1980/81 CSUC BUDGET
(PROJECTED ENROLLMENT: 230,750 FTE)

Funding Source	*Amount*	*Average Cost Per Student (FTE) **	*Percentage*
State Approp. (Support)	$989,307,926	$4,288**	86.9%
Student Charges			
Federal (Financial Aids)	55,094,386	239	5.1%
State Funding (Capital Outlay and Energy and Resources Fund)	25,553,233	***	***
Total	$1,099,088,620	$4,652	100.0%

DEBTS OWED TO THE INSTITUTION

Should a student or former student fail to pay a debt owed to the institution, the institution may "withhold permission to register, to use facilities for which a fee is authorized to be charged, to receive services, materials, food or merchandise or any combination of the above from any person owing a debt" until the debt is paid (see Title 5, *California Administrative Code,* Sections 42380 and 42381). For example, the institution may withhold permission to receive official transcripts of grades from any person owing a debt. If a student believes that he or she does not owe all or part of an unpaid obligation, the student should contact the campus business office. The business office, or another office on campus to which the student may be referred by the business office, will review the pertinent information, including information the student may wish to present, and will advise the student of its conclusions with respect to the debt.

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

** The average costs paid by a student include the student services fee, health facilities fee, college union fee, student body fee, and the non-resident tuition. This amount is derived by taking the total of all student fees and dividing by the total full-time equivalent student enrollment. Individual students may pay more or less than $387 depending on whether they are part-time, full-time, resident or non-resident students.

*** Not included in the Average Cost Per Student (FTE), and Percentage columns. The estimated replacement cost of all the system's permanent facilities and equipment on the 19 campuses is currently valued at $3.12 billion, excluding the cost of land.

ADMISSION PROCEDURES AND POLICIES

Requirements for admission to California State University, Fresno, are in accordance with *Title 5,* Chapter 1, Subchapter 3 of the *California Administrative Code.* Prospective applicants who are not sure of these requirements are encouraged to consult a high school or community college counselor or the Admissions Office. Applications may be obtained from the Admissions Office at any of the campuses of The California State University and Colleges or at any California high school or community college.

Applicants are required to include their Social Security account number in designated places on applications for admission pursuant to the authority contained in Title 5, *California Adminstrative Code,* Section 41201. The Social Security account number is used as a means of identifying records pertaining to the student as well as identifying the student for purposes of financial aid eligibility and disbursement and the repayment of financial aid and other debts payable to the institution.

UNDERGRADUATE APPLICATION PROCEDURES

Prospective students applying for part-time or full-time programs of study, in day or evening classes, must file a complete application as described in the application booklet. The $25 nonrefundable application fee should be in the form of a check or money order payable to The California State University and Colleges and may not be transferred or used to apply to another term. Undergraduate applicants need file only at their first choice campus. An alternative choice campus and major may be indicated on the application, but *applicants should list as alternative campus only that campus of The California State University and Colleges that they can attend.* Generally, an alternative degree major will be considered at the first choice campus before an application is redirected to an alternative choice campus. Applicants will be considered automatically at the alternative choice campus if the first choice campus cannot accommodate them.

For undergraduate admission to CSUF a student must:

1. Submit a current application with the nonrefundable $25.00 application fee to the Admissions Office.
2. Upon receipt of a space reservation, request institutions formerly attended to forward directly to the Admissions Office transcripts of credits from high school and colleges. College transcripts are required in duplicate. Failure to include all colleges attended may result in cancellation of the student's registration. All transcripts submitted by matriculated students are retained by CSUF.
3. Take the SAT or ACT and request official scores be sent to CSUF, if a lower division applicant. TOEFL required of all foreign applicants and applicants whose native language is not English.
4. Take any additional proficiency or placement tests required.

In addition to the other documents required a veteran should file a photostatic copy of his or her *Notice of Separation* (DD 214) from the armed services with the Application for Admission. Academic credit will be awarded for service time and service schools completed as recommended by *A Guide to the Evaluation of Educational Experiences in the Armed Services.*

Veterans who are California residents may be exempt from the above admission requirements. Special admission may be granted if applicant is judged likely to succeed academically. Standard admission procedures should be followed.

Applications will not be accepted after admissions categories have closed. Eligibility for admission cannot be determined until *all* required documents have been received. Due to staff limitations, an evaluation of transfer credit will generally not be available until at least a month after admission.

Degree credit may be granted for work completed satisfactorily in another accredited institution of collegiate grade subject to the restrictions imposed on work taken at this institution. Questions concerning acceptability of a course from another institution should be addressed to the Evaluations Office.

A maximum of 70 semester units of credit is allowed toward the bachelor's degree for work completed in a community college. No upper division credit is given; however, community college credit in excess of 70 units may be used to satisfy subject requirements.

A maximum of twelve (12) semester units will be allowed for Agricultural Projects, Work Experience, and/or Internship courses. No more than six (6) semester units taken prior to Junior standing will be accepted toward the degree.

Remedial English courses in excess of 4 units are not accepted for degree credit.

For limitations on extension and correspondence credit, see *Extension Classes.*

Students desiring university housing or financial aid should file special applications with the appropriate offices concerned as soon as possible.

LOCALLY AND SYSTEMWIDE IMPACTED PROGRAMS

Impacted programs are undergraduate programs in which the number of applications received in the first month of the filing period exceeds the total spaces available, either locally (at individual campuses) or systemwide. You must make application for an impacted program during the first month of the filing period and may file more than one application and fee. Nonresidents, foreign or domestic, usually are not considered for admission to impacted programs. High school and community college counselors are advised before the opening of the fall filing period which programs will be impacted.

Supplementary Admission Criteria

Each campus with impacted programs uses supplementary admission criteria in screening applicants. Effective with the fall 1980 filing period campuses are authorized to use a freshman applicant's ranking on the eligibility index, the transfer applicant's overall GPA, or a combination of campus-developed supplementary criteria in selecting those to be admitted. If you are a freshman applicant and plan to apply to an impacted program, you should take the ACT or SAT test at the earliest date. Your test scores and your grades earned in the final three years of high school may be used in determining admission to the program. The supplementary admission criteria used by the individual campuses to screen applicants appear periodically in the *Counselors Digest* and are sent by the campuses to all applicants seeking admission to an impacted program.

Unlike unaccommodated applicants to locally impacted programs, who may be redirected to another campus in the same major, unaccommodated applicants to systemwide impacted programs may not be redirected in the same major but may choose an alternative major either at the first choice campus or another campus.

POST-BACCALAUREATE APPLICATION PROCEDURES

All applicants for any type of post-baccalaureate status (e.g., master's degree applicants, those seeking credentials, and those interested in taking courses for personal or professional growth) must file a complete application within the appropriate filing period. A complete application for post-baccalaureate status includes all of the materials required for undergraduate applicants plus the supplementary graduate admissions application. (Part B). Second baccalaureate degree candidates must complete Parts A and B. Post-baccalaureate applicants who completed undergraduate degree requirements and graduated the preceding term are also required to complete and submit an application and the $25.00 nonrefundable application fee. Since applicants for post-baccalaureate programs may be limited to the choice of a single campus on each application, redirection to alternative campuses or later changes of campus choice will be minimal. In the event that a post-baccalaureate applicant wishes to be assured of initial consideration by more than one campus, it will be necessary to submit a separate application (including fee) to each. Applications may be obtained from the Graduate Studies Office of any California State University or College campus in addition to the sources noted for undergraduate applicants. For additional information, see the *Division of Graduate Studies and Research.*

APPLICATION FILING PERIODS

Terms in 1981–82	Applications First Accepted	Filing Period Duration	Student Notification Begins
Summer Qtr. 1981	Feb. 1, 1981	Each campus accepts applications until capacities are reached. Most campuses accept applications up to a month prior to the opening day of the term. Some campuses will close individual programs as they reach capacity.	March 1981
Fall Sem. or Qtr. 1981	Nov. 1, 1980		Dec. 1980
Winter Qtr. 1982	June 1, 1981		July 1981
Spring Sem. or Qtr. 1982	Aug. 1, 1981		Sept. 1981

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

SPACE RESERVATION NOTICES

Most applicants will receive some form of space reservation notice from their first choice campus within two months of filing the application. A notice that space has been reserved is also a request for records necessary to make the final admission decision. It is an assurance of admission *only* if evaluation of the applicant's previous academic record indicates that admission

requirements have been met. Such a notice is not transferable to another term or to another campus.

HARDSHIP PETITIONS

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

UNDERGRADUATE ADMISSION REQUIREMENTS

First-time freshman eligibility is governed by an eligibility index. The index is computed using the high school grade-point average on all course work completed in the last three years of high school, not counting physical education and military science; and the ACT composite, or the SAT total score. The table of grade-point averages, with corresponding test scores, is reproduced below.

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

ACT Address

American College Testing Program, Inc.
Registration Unit, P.O. Box 414
Iowa City, Iowa 52240

SAT Address

College Entrance Examination Board
P.O. Box 592
Princeton, New Jersey 08541

First-Time Freshmen Applicants (California high school graduates and residents)

Applicants who are graduates of a California high school or legal residents for tuition purposes need a minimum eligibility index of 741 (ACT) or 3072 (SAT). The following table illustrates grade point averages and test scores needed to qualify for admission.

EXCERPTS FROM ADMISSIONS ELIGIBILITY TABLE FOR CALIFORNIA HIGH SCHOOL GRADUATES

G.P.A.	2.00 *	2.20	2.40	2.60	2.80	3.00	3.20 **
A.C.T. Score	35	31	27	23	19	15	11
S.A.T. Score	1472	1312	1152	992	832	672	512

* Below 2.00 not eligible.
** Above 3.20 exempt from test requirement.

First-Time Freshmen Applicants (Non-resident)

Applicants who are neither residents for tuition purposes nor graduates of a California high school need a minimum eligibility index of 826 (ACT) or 3402 (SAT).

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

First-Time Freshmen (high school non-graduates)

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

Undergraduate Transfers (resident and non-resident)

Transfer admission eligibility is based on TRANSFERABLE college units attempted, rather than on all college units attempted. California Community College transfers should consult their counselors for information on transferability of courses. Applicants in good standing at the last institution attended may be admitted as undergraduate transfers if they meet either of the following requirements:

1. Eligible for admission in freshman standing (see freshman requirements) with a grade point average of "C" (2.0 on a scale where A = 4.0) or better in all transferable college units attempted.
2. Completed at least 56 transferable semester units or 84 transferable quarter units with a grade point average of "C" (2.0 on a scale where A = 4.0) or better if a California resident; non-residents must have a grade point average of 2.4 or better.

High School Students

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

International (foreign) Students

At CSUF admissions decisions are made on the basis of complete academic records from all secondary and college level schools, demonstrated English proficiency based on the results of the Test of English as a Foreign Language (TOEFL) and a certification of financial support.

Information on TOEFL testing dates and centers may be obtained by writing, TOEFL, Educational Testing Service, Princeton, New Jersey 08540 or from the CSU, Fresno, Testing Center.

Applicants should take TOEFL at least six months before the beginning of the semester to which they are seeking admission to allow time for evaluation and receipt of test scores.

To qualify for admission an international student must present a score of 500 or better on the TOEFL. A student who scores between 450 and 500 on the TOEFL may be granted "Special Admission", but will be required to enroll in International Studies Courses (ISC) as a condition of his admission. (See *Special and Interdisciplinary Programs.)* As a result of post-admission testing, a student who presents a score above 500 may be required to enroll in certain ISC courses also. A student with a score below 450 will not be admitted to the University. The TOEFL score requirement for graduate admission to specific programs may be higher than the 500 required of undergraduate students. Graduate students should check these TOEFL requirements in the departmental listings.

A student whose academic qualifications are acceptable, but who has not

achieved an acceptable TOEFL score may be granted a conditional admission. Such a student must obtain an 1-20 Form (Certificate of Eligibility) from an English language school and attend an English as a Second Language (ESL) Program. In order to transfer from a language school to CSU, Fresno a conditionally admitted student must present an acceptable score on the TOEFL.

Returning Students

Applicants who seek readmission after an absence of one semester or more must file an application for admission. Applicants absent one semester only are exempt from the $25.00 application fee *providing* no academic work was taken in the interim at any other institution. Students absent on an approved planned educational leave are not required to file an application for admission and are exempt from the $25.00 application fee. See Planned Educational Leave.

GRADUATE ADMISSION REQUIREMENTS

See *Division of Graduate Studies and Research.*

DETERMINATION OF RESIDENCE FOR NONRESIDENT TUITION PURPOSES

The campus Admissions Office determines the residence status of all new and returning students for nonresident tuition purposes. Responses to items 30–45 on the Application for Admission and, if necessary, other evidence furnished by the student is used in making these determinations. A student may not register and enroll in classes until complete responses to those items are on file in the Admissions Office.

The following statement of the rules regarding residency determination for nonresident tuition purposes is not a complete discussion of the law, but a summary of the principal rules and their exceptions. The law governing residence determination for tuition purposes by The California State University and Colleges is found in *Education Code* Sections 68000–68090, 90403, 89705–89707.5, 68124 and 68121 and in Title 5 of the *California Administrative Code,* Article 4 (commencing with Section 41900) of Subchapter 5 of Chapter 1, Part V. A copy of the statutes and regulations is available for inspection at the campus Admissions Office.

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

The student who is within the state for educational purposes only does not gain the status of resident regardless of the length of his stay in California.

In general, the unmarried minor (a person under 18 years of age) derives legal residence from his parents, or, in the case of permanent separation of the parents, from the parent with whom the minor maintains his place of abode. The residence of a minor cannot be changed by the minor or the minor's guardian, so long as the minor's parents are living.

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

The general rule is that a student must have been a California resident for at least one year immediately preceding the residence determination date in order to qualify as a "resident student" for tuition purposes. A residence determination date is set for each academic term and is the date from which residence is determined for that term. The residence determination dates for the 1981–1982 academic year are:

Quarter Term Campuses		Semester Term Campuses	
Fall	September 20	Fall	September 20
Winter	January 5	Winter (Stanislaus only)	January 5
Spring	April 1	Spring	January 25
Summer	July 1		

Questions regarding residence determination dates should be directed to the campus Admissions Office. They can give you the residence determination date for the term for which you are registering.

There are several exceptions from nonresident tuition, including:

1. Persons below the age of 19 whose parents were residents of California but who left the state while the student who remained was still a minor. When the minor reaches age 18, the exception continues for one year to enable the student to qualify as a resident student.
2. Persons below the age of 19 who have been present in California for more than a year before the residence determination date, and entirely self-supporting for that period of time.
3. Persons below the age of 19 who have lived with and been under the continuous direct care and control of an adult, not a parent, for the two years immediately preceding the residence determination date. Such adult must have been a California resident for the most recent year.
4. Dependent children and spouses of persons in active military service stationed in California on the residence determination date. This exception applies only for the minimum time required for the student to obtain California residence and maintain that residence for a year. The exception, once attained, is not affected by transfer of the military person directly to a post outside the State.
5. Military personnel in active service stationed in California on the residence determination date for purposes other than education at state-supported institutions of higher education. This exception applies only for the minimum time required for the student to obtain California residence and maintain that residence for a year.
6. A student who is an adult alien is entitled to residence classification if the student has been lawfully admitted to the United States for permanent

residence in accordance with all applicable provisions of the laws of the United States; provided, however, that the student has had residence in California for more than one year after such admission prior to the residence determination date. A student who is a minor alien shall be entitled to residence classification if both the student and the parent from whom residence is derived have been lawfully admitted to the United States for permanent residence in accordance with all applicable laws of the United States, provided that the parent has had residence in California for more than one year after acquiring such permanent residence prior to the residence determination date of the term for which the student proposes to attend the University.

7. Certain credentialed, full-time employees of school districts.
8. Full-time State University and Colleges employees and their children and spouses. This exception applies only for the minimum time required for the student to obtain California residence and maintain that residence for a year.
9. Certain exchange students.
10. Children of deceased public law enforcement or fire suppression employees, who were California residents, and who were killed in the course of law enforcement or fire suppression duties.
11. A person in continuous full-time attendance at an institution who had resident classification on May 1, 1973, shall not lose such classification as a result of adoption of the uniform student residency law on which this statement is based, until the attainment of the degree for which currently enrolled.

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

The California State University and Colleges
Office of General Counsel
400 Golden Shore Drive
Long Beach, California 90802

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

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



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PROGRAM PLANNING AND REGISTRATION

Freshmen students should plan their programs early; beginning, when practical, with the selection of a major. Degree requirements in each major are listed under the appropriate department. If a student is undecided about a major, indicate "Undeclared" on the appropriate forms until a definite decision is reached. For general information, see *Degrees and Credentials.*

An academic adviser is assigned to each student or selected by the student depending on the major department's procedure. Undeclared majors are advised by the Office of Advising Services.

It is recommended that all students meet with a faculty adviser once each semester before registering for classes. A faculty adviser assists the student in planning an academic program, but the primary responsibility for meeting all graduation requirements is the student's.

RECOMMENDED PREPARATION

Freshmen Students

Overall excellence of performance in high school subjects and evidence of academic potential provide the basis for admission at CSUF. While no high school course pattern is required, the applicant is strongly encouraged to include the following subjects as minimal.

College preparatory English	3–4 years
Foreign language	2 years
College preparatory mathematics	2 years
College preparatory laboratory science	1 year
College preparatory history and/or social science	2 years

Study in speech, music, art, and other subjects contributing to general academic background.

Since certain academic majors require high school preparation in definite subjects, the student should consult the requirements indicated in the field of his choice.

In university majors such as engineering, natural science, mathematics, social science, and humanities a maximum number of high school credits should be obtained in appropriate subjects in English, mathematics, science, and foreign languages.

Transfer Students

Students intending to transfer to CSUF should plan their programs while attending other colleges to meet CSUF general education and major degree requirements. Students transfering from a California community college should complete the general education requirements of that college and request a general education certification be sent to CSUF along with their transcripts. Earning an A.A. or A.S. degree does not necessarily mean one has completely fulfilled CSUC-system general education requirements.

After admission to CSUF, transfer students with twenty or more units will receive a copy of their advanced standing evaluation indicating how previous college units have been applied toward requirements at CSUF. Questions about one's evaluation should be directed to the Evaluations Office. It is recommended that transfer students bring with them an unofficial copy of all previous college work when attending new student orientation and advising day to ensure accurate advising.

REGISTRATION

Registration is open to new and returning students who have been formally admitted and to continuing students in good standing. Former CSUF students returning after an absence of one semester or more must apply for readmission, subject to university enrollment limitations and filing deadlines. Students who are returning after an absence of two semesters or more, and those who have been absent one semester and who have attended another institution since last registered at CSUF will be required to pay the $25 application fee when applying. The *Academic Calendar* lists dates of registration. Students who register during the Late Registration period (first 10 days of instruction) are assessed a $5 late fee. No registrations will be allowed after the end of late registration. *Registration is complete only when all required forms are completed and filed and all fees are paid.* See the *Academic Calendar* for all deadline dates.

Registration priority for all students, new and returning, is determined by the number of academic units completed with limited exceptions. After a priority group, determined by the faculty-student Registration Committee, graduating seniors register, then first-time freshmen, followed by students with the highest number of completed units.

SCHEDULE OF COURSES

An official *Schedule of Courses* is published each semester listing registration procedures, courses offered, class hours and locations and other important deadlines. The schedule is available prior to registration and may be purchased at the Bookstore for a nominal cost.

CONCURRENT REGISTRATION AT ANOTHER COLLEGE OR UNIVERSITY

Approval of the Registrar must be obtained in advance of registration before transfer credit may be earned at another college concurrently with registration at CSUF. Normally permission for concurrent registration will not be granted for a class which is offered at CSUF. Concurrent registration at another CSUC campus may be accomplished by completing forms available in the Office of the Registrar.

FULL-TIME/PART-TIME STUDENTS

Students taking at least 75% of the normal academic load are considered full-time students. Since the normal academic load is 15 semester hours, students carrying 12 or more semester hours are full-time students. Graduate level courses are weighted for graduate students. Each graduate unit attempted by a graduate student is considered as 1.5 units.

Full-time	12 or more units
Three-quarter time	9 to 11½
Half-time	6 to 8½

PROGRAM RESTRICTIONS

Students are cautioned against registering for more than 18 units without consulting an adviser, since more than 18 units is generally considered to be an academic overload. See the *Schedule of Courses* for details.

To register for 19 units, a student must have an overall grade-point average of 2.50; for 20 to 22 units, a student must have an overall grade-point average of 3.00. Exceptions to these limits must be approved by the chairman of the

student's major department. An absolute limit of 22 units (excluding credit by examination units) is enforced which may be waived only with the approval of the Dean of the School of the student's major.

Enrollment in upper division courses is restricted to students with junior, senior or graduate standing, or who have the necessary prerequisites. Exceptions are subject to the approval of the instructor and department chairman. Upper division credit may not be granted until students have completed a minimum of 45 semester units. Only students who have been fully approved for admission to credential programs may enroll in certain education courses and qualify for a school service credential on the basis of the university's recommendation.

Credit in any course is also subject to all restrictions which may appear in the *CSUF Bulletin.* For restrictions on graduate study, see *Division of Graduate Studies and Research—Master's Degrees.*

CHANGE OF MAJOR

Each undergraduate student who wishes to change his or her major must report to the Office of Advising Services to initiate the procedure; graduate students should report to the Graduate Office. The Office of Advising Services will instruct the students on how to notify their old and new major departments. Advising Services will see to it that the new major change is recorded on the data base.

WITHDRAWAL FROM COURSES

A student is held responsible for the program of courses in which he or she is officially registered. After registration no changes will be made or recorded until appropriate add or drop forms have been completed and filed at the Admissions-Records Office by the student. A student is urged to consult an adviser before making a program change. If the class is dropped before the end of the fourth week of classes, the course will not be recorded on the permanent record. The end of the fourth week is defined as the end of the twentieth instructional day of the semester.

After the fourth week, a student may drop a course only for serious and compelling reasons which must be stated in writing with the drop form. A serious and compelling reason is defined as a physical or emotional condition which makes it impossible for a student to complete course requirements. Such circumstances should be verified by a physician or an appropriate professional consultant. Personal dislike or dissatisfaction with the subject matter, class or instructor, failure to perform satisfactorily and the threat of a poor evaluation are not serious and compelling reasons within the university policy. If the drop is approved, a W grade will be assigned (see current *Schedule of Courses*).

Withdrawals are not permitted during the final three weeks of instruction except in cases such as accident or serious illness where the cause of withdrawal is due to circumstances beyond the student's control. If the student has completed a significant portion of the required course work, "Incomplete" grades are often assigned in such cases. Normally, withdrawal from courses during the final three weeks of instruction involves a total withdrawal from the university. Withdrawal from the university is not permitted during the final examination period.

PREPROFESSIONAL PREPARATION

Preprofessional programs are available for students who plan to transfer to other institutions for the completion of professional curricula in such fields as chiropractic, osteopathic and podiatric medicine, dentistry, forestry, law, librarianship, medicine, optometry, pharmacy, theology, and veterinary medicine. Certain of these programs are described below. Students planning to complete a preprofessional program and degree at CSUF must complete a major offered at this university. They should include their preprofessional area plus their university major on all registration forms; for example, premedical-chemistry, premedical-biology, prelaw-history, prelaw-political science. There are no preprofessional majors *per se.* Instead, preprofessional students work toward various university degrees and while doing so, knit into their college programs courses required for entry into professional school. Careful program planning is important in order to select proper classes and complete requirements in a timely way. Regular advising is essential since professional schools change their requirements occasionally. Preprofessional students should contact their respective major and preprofessional advisers before enrolling in classes each semester to stay abreast of current developments.

A current list of CSUF preprofessional advisers is available in the Office of Advising Services.

PREDENTAL

The minimum training for dentistry is a six-year course—the first two years (predental training) in a liberal arts college and the remaining four years (dental training) at a school of dentistry.

The minimum predental program required by accredited dental schools is one year each of English, inorganic chemistry, physics, and zoology; one semester of organic chemistry; and additional courses (usually elective in general education, but specified by some dental schools) for a total of 60 units. Each science course must include laboratory. The present trend among dental schools is to require more than two years of predental training including a broad liberal arts background. Since 197i, three years have been required by the University of California, San Francisco, and some other dental schools. Additional organic chemistry, quantitative chemical analysis, elementary physical chemistry, other zoology courses, and in some cases a foreign language are recommended or required. Several schools require a bachelor's degree for entrance. The American Dental Association aptitude test and evidence of physical fitness and good moral character are usually required. Many dental schools also require a personal interview and some administer additional tests. For other information, see the predental adviser and dental school catalogs.

PRELEGAL

Most fully accredited law schools require a bachelor's degree for admission. Since a prelegal program providing a broad cultural background is recommended by the law schools, any baccalaureate major, depending on the student's interest, may be chosen from the university offerings (See *Degree Majors and Minors*). Law schools suggest courses, but not necessarily a major, in the following: written and oral English, American and English

constitutional history, world history, accounting, business administration, elementary logic, mathematics, economics, political science, philosophy, science, and foreign language. For further information consult an adviser and law school catalogs.

PRELIBRARIANSHIP

Accredited graduate schools of librarianship require a bachelor's degree for admission. A major in any subject is acceptable. A reading knowledge of at least one modern foreign language is a requirement for admission to most graduate schools of librarianship; this requirement is normally satisfied by the successful completion of two college years of the language. Also, many schools now require a course in mathematics or statistics. Students considering librarianship as a career should consult the prelibrary program adviser in the Library.

PREMEDICAL

A student interested in preparing for medical school should declare his or her intent at the time he or she applies for admission to CSUF. To do this, it is necessary that the student use a term such as premedical-sociology, premedical-zoology, premedical-chemistry or premedical-general on all application, admittance and registration papers. In case premedical-general is chosen, a specific subject major should be selected as soon as possible and not later than the sophomore year from the list of approved CSUF majors in the catalog. This part of the premedical program also constitutes the major that is required for a bachelor's degree. (See *Degree Programs, Majors, and Minors.*)

Requirements for admission to medical school vary considerably from one medical school to another and change from time to time, but a well-balanced liberal education is usually specified. Some aptitude and university training in science and English are essential in medicine. The minimum requirements in these subjects specified by most medical schools can be satisfied by the following: biology, 13 units; chemistry, 19 units; physics, 8 units; and English, 6 units. Calculus is now required by some medical schools and a reading knowledge of a modern foreign language is required by a few. Because of competition for admission to medical schools, a grade average of above 3.5 grade points is highly desirable. The Medical College Aptitude Test (MCAT) is required before a student can be accepted into medical school. It is recommended that the MCAT be taken and application for medical school be made at the end of the Junior year.

Freshman, transfer, and all other students who are entering the program are advised to attend the premedical student orientation meeting scheduled prior to registration. (See the new-student orientation calendars.) Each student will be assigned to a member of the premedical advisory committee who will assist him or her in planning a program of courses and will advise him or her concerning preparatory procedures for application to medical school.

PREOPTOMETRY

California State University, Fresno provides courses for the completion of the first two years of a six-year optometry program. Most professional schools require that these two years include one year of biology, chemistry, mathematics, physics, English, and psychology or one semester of statistics

with above average scholarship. Calculus and microbiology are also required by many professional schools. Consult optometry school catalogs and the preoptometry adviser, Department of Physics, for further information.

The Optometry College Admission Test is required before application can be made to optometry school. Application should be made one year in advance of enrollment.



PREPHARMACY

The first two years (prepharmacy) of a six-year pharmacy program may be completed at CSUF. All new and transfer students should indicate on application, admittance and registration papers an interest in prepharmacy-biology. Most professional schools require a C average or better for a minimum of 60 semester units, including one year each of inorganic chemistry, physics, calculus, zoology, English composition, and literature; one semester of organic chemistry or quantitative analysis; and additional elective courses which are specified in certain areas by some schools. Students may elect to complete more than 60 semester units before applying to pharmacy school. A personal interview may be required of applicants by some schools. For other information see pharmacy school catalogs and consult the prepharmacy adviser in the Department of Biology.

PREVETERINARY

Students preparing for the veterinary profession can satisfy their preveterinary curriculum requirements at CSUF. Preveterinary students should plan to complete a BS Degree prior to application to a school of veterinary medicine. Recommended preveterinary courses are Animal Science 10, 120, and 125; Botany 10; Chemistry 1A, 1B, 8, 109 and 150; Physiology 140; Physics 1A and 1B; Microbiology 20; Zoology 1 and 160. The School of Agriculture and Home Economics is equipped to provide valuable experience with large animals through the student project program. Students desiring further information regarding the preveterinary curriculum should consult the Chairman of the Animal Science Department.

ACADEMIC PLACEMENT

CLASSIFICATION OF STUDENTS

Student class levels are determined as follows:

Freshmen—Students who have earned a total of fewer than 30 semester units.

Sophomores—Students who have earned a total of 30 to 59 semester units inclusive.

Juniors—Students who have earned a total of 60 to 89 semester units inclusive.

Seniors—Students who have earned 90 semester units or more.

Graduates—Students who have at least a bachelor's degree from an accredited institution.

ADVANCED PLACEMENT

The Advanced Placement Program of the College Entrance Examination Board permits able high school students to take college-equivalent courses while in high school and, based upon comprehensive qualifying examinations, receive advanced placement and credit at participating universities and colleges. CSUF grants credit toward its undergraduate degrees for successful completion of examinations of the Advanced Placement Program of the College Entrance Examination Board. Students who present scores of three or better will be granted six semester units of college credit for each examination.

ENGLISH PLACEMENT TEST AND GRADUATION REQUIREMENTS

All students subject to degree requirements of 1977–78 and subsequent Bulletins must demonstrate competence in writing skills as a requirement for graduation. In addition, all lower division students (those who enter with fewer than 56 transferable semester units) are required to take the CSUC English Placement Test (EPT) so that information can be available to help in the selection of appropriate course work in writing skills and to prepare for meeting the graduation requirement. Failure to take the English Placement Test at the earliest opportunity may lead to administrative probation which, according to Section 41300.1 of Title 5, *California Administrative Code* and CSUC Executive Order 186, may lead to disqualification from further attendance.

Information bulletins and registration materials for the EPT will be mailed to all students subject to these requirements. Alternatively, the materials and information on currently available ways to meet EPT or the graduation requirement may be obtained from the Office of Admissions and Records.

CREDIT BY EXAMINATION

CSU, Fresno grants credit to those students who pass examinations that have been approved for credit systemwide. These include the CSUC English Equivalency Examination and some CLEP examinations.

Students may challenge courses by taking examinations developed at the campus. Credit shall be awarded to those who pass them successfully. Credit by examination is designed to encourage a regularly enrolled student to seek

college credit in courses in which the student has competence but for which credit has not been earned by the usual academic processes, thereby permitting the student to accelerate his or her progress and provide an opportunity for wider selection of course work. The following procedures should be followed:

1. A student may apply for credit by examination in any course in the current CSUF catalog for which he or she appears to be reasonably qualified by training or experience and for which college credit has not been previously allowed. Credit by examination will not be awarded if credit has been granted for previous course work more advanced than the level represented by the examination in question. Credit by examination will not be allowed in a course in which the student has been permitted to register as an auditor during the same semester, in which the student has received a failing grade, or in which he or she has unsuccessfully sought credit by examination.
2. The student will enroll for credit by examination at any time during the first two weeks of classes. The student must be regularly enrolled in other courses before he or she will be granted permission to earn credit by examination. Units of credit by examination are counted as part of the total units registered for a given semester or term. Applications for credit by examination should be completed by the student and approved by the department.
3. The examination must be administered by the end of the fourth week of instruction and the instructor must report the grade prior to the close of the sixth week.
4. The course in which the student requests credit by examination will be so designated on his or her record. If passed, the student will receive a credit (CR) grade. If he is unsuccessful, no grade will be reported. Units earned will count toward all appropriate requirements but will not be used in computing his grade-point average.
5. The number of units earned by credit by examination in any semester or term may not exceed the number of units completed in regular enrollment. A maximum of 30 units earned by examination may be counted toward a bachelor's degree.

For further information consult the department concerned. See also *Advanced Placement.*

INDEPENDENT STUDY

Independent study is offered to give the student experience in planning and outlining a course of study on the student's own initiative under departmental supervision. Independent study should deal with a special interest not covered in a regular course or with the exploration in greater depth of a subject presented in a regular course. Each department has an independent study upper division course (190), and some departments have a graduate level course (290). In some departments a 190 or 290 course may be desirable preparation for the thesis or other advanced study.

To be eligible for independent study, a student should have an overall grade-point average of 3.0 or higher; this requirement may be waived in exceptional cases, when approved by the chairman of the department.

Maximum credit of six units is allowed toward the bachelor's degree in 190 courses, and maximum credit of six units is allowed in 190 and 290 courses toward the master's degree. Credit is limited to a maximum of three units per semester. Under extraordinary circumstances more than three units per semester may be allowed on petition to the department chairman.

An eligible student desiring to register for a 190 or a 290 course must first obtain the consent of an instructor who will guide the project and the chairman of the department in which the course is given. The student must register for 190 and 290 courses during the regular registration period in the same manner as he registers for any other course at the time of registration.

An independent study course normally includes an oral examimation by a committee set up by the supervising instructor, a formal report which is filed in the department office, and an abstract of the study which is filed with the department chairman. Approval forms and copies of the current regulations may be obtained at department or school offices. The entry on the permanent record will show the discipline and course number only; the title will not appear.

Certain special regulations concerning enrollment in 190 and 290 courses during a summer session will be found in the *Summer Session Bulletin.*

CREDIT FOR MILITARY SERVICE COURSE WORK

Six semester units of lower division elective credit is given if the student was on active military duty for at least one year. An applicant for credit must submit a copy of *Notice of Separation* (DD214).

College courses given by the United States Armed Forces Institute (USAFI) that are comparable with CSUF courses will be given degree credit, provided they are satisfactorily completed with an end-of-course examination.

USAFI correspondence credit is combined with other extension or correspondence course work to a maximum of 24 semester units.

Additional credit is granted for military courses and experiences as recommended in *A Guide to the Evaluation of Educational Experiences in the Armed Services,* Miller & Sullivan, 1978. The applicant for such credit must submit official documents giving all details such as location, length.

COLLEGE LEVEL EXAMINATION PROGRAM

The College Level Examination Program (CLEP) is designed to be a means through which recognition, academic credit, and placement may be given for less conventional forms of educational experience. Those who may have reached a college level of education through home or correspondence study, on-the-job training, television courses or by other means may take the CLEP examinations which are offered by the College Entrance Examination Board.

Within the restrictions of systemwide policy, CSUF will award credit for successfully completed CLEP examinations. Such credit will be applied to the total units required for the baccalaureate degree, but it will not be applied to the General Education requirement.

Not all CLEP examinations are acceptable under system policy. Subject examinations may require the recommendation of the appropriate department before credit is awarded. Course equivalency is also determined by the department concerned.

For additional information, contact the Office of Testing Services.

ENGLISH EQUIVALENCY EXAMINATION

The English Equivalency Examination is an examination offered by the CSUC system. It is administered each spring on the various campuses to prospective freshmen. Students passing both the objective and essay portions of the examination will be granted six units of freshman English credit. For information contact the Coordinator of Relations with Schools, California State University, Fresno.



GRADES, SCHOLARSHIP, RECORDS

UNITS

A credit or semester unit represents one hour of class work per week for one semester. It is assumed that two hours of preparation are required for each hour in class. Three hours of laboratory per week are the equivalent of one unit. In a limited number of courses two hours of laboratory per week are the equivalent of one unit.

GRADES

A—Exceptionally good.
B—Above average.
C—Average.
D—Below average.
F—Failure.
U—Failure—Unauthorized Incomplete.
CR—Credit for units completed, work of **A**, **B**, or **C** quality in undergraduate courses and **A** or **B** quality in 200-level courses. Not included in grade-point average.

NC—No credit for units attempted, work of **D** or **F** quality in undergraduate courses and **C**, **D**, or **F** quality in 200-level courses. Replaces **I** grade in courses where CR-NC grading is used if required work is not completed within required time. Not included in grade-point average.
W—Withdrawal after the fourth week of instruction.
AU—Audit.

I—Semester requirements less than one-third incomplete, work of passing grade.
RD—Report delayed.
SP—Continuing work in progress, satisfactory progress.

UNAUTHORIZED INCOMPLETE (U)

The Symbol **"U"** indicates that an enrolled student did not withdraw from the course but failed to complete course requirements. It is used when, in the opinion of the instructor, completed assignments or course activities or both were insufficient to make normal evaluation of academic performance possible. For purposes of grade-point average and progress point computation this symbol is equivalent to an "F".

CREDIT (CR)

The **CR** grade may be assigned in connection with any credit-no credit enrollment (See regulations and procedures for *Credit-No-Credit Grading*).

WITHDRAWAL (W)

The **W** grade indicates that the student was permitted to drop the course after the fourth week of instruction for serious and compelling reasons with the approval of the instructor and appropriate campus officials. It carries no connotation of quality of student performance and is not used in calculating grade-point average or progress points.

AUDIT STATUS (AU)

Persons wishing to attend classes without matriculating or receiving college credit may register as auditors. Auditors must register during the late registration period. Students enrolled in audit status only may not transfer to credit status without completing admission procedures. This must be done within the first two weeks of instruction.

Matriculated students may audit courses in addition to those in which they are registered for credit.

Enrollment as an auditor is subject to permission of the instructor; provided that enrollment in a course as an auditor shall be permitted only after students otherwise eligible to enroll on a credit basis have had an opportunity to do so. Auditors are subject to the same fee structure as credit students and regular class attendance is expected. Once enrolled as an auditor, a student may not change to credit status unless such a change is requested prior to the last day to add classes. A student who is enrolled for credit may not change to audit after the fourth week of instruction.

Credit for courses audited will not subsequently be granted on the basis of the audit. (See current *Schedule of Courses.*)

INCOMPLETE (I)

The symbol **"I"** (Incomplete Authorized) indicates that a portion of required course work has not been completed and evaluated in the prescribed time period due to unforeseen, but fully justified, reasons and that there is still a possibility of earning credit. It is the responsibility of the student to bring pertinent information to the attention of the instructor and to determine from the instructor the remaining course requirements which must be satisfied to remove the Incomplete. A final grade is assigned when the work agreed upon has been completed and evaluated. Reregistration in the course is *not* used to remove an "I" grade.

Normally it is expected that the student will make up an "I" grade during the next semester; however, it must be made up within one calendar year immediately following the end of the term during which it was assigned. This limitation prevails whether or not the student maintains continuous enrollment. An extension of time may be granted with justification by contacting the Registrar prior to the end of the second semester.

Failure to complete the assigned work will result in the "I" being counted as a failing grade for grade point average and progress point computation. An "I" grade not made up within one calendar year after the grade has been recorded will be changed on the transcript to an "F" (or an NC if CR-NC grading was approved).

Incomplete grades must be cleared before a degree is awarded. In the absence of the instructor who has assigned the Incomplete, a student seeking to make up this grade should consult the department chairman. A student may not be required to repeat a course in which an "I" grade was received unless he or she wishes to receive credit and the time for making up the grade has passed.

SATISFACTORY PROGRESS (SP)

The **SP** symbol is used in connection with courses that extend beyond one academic term. It indicates that work is in progress and has been evaluated and found to be satisfactory to date, but that assignment of a final grade must await completion of additional work. It may be used only in courses designated on the approved **SP** grade course list published by the Office of the Vice President for Academic Affairs. Cumulative enrollment in units attempted may not exceed the total number applicable to the student's educational objective. Work is to be completed within a stipulated time period, which may not exceed one year except for graduate degree theses for which the time may be up to two years, but may not exceed the overall time limit for completion of all Master's degree requirements. Any extension of time limit must receive prior authorization by the Office of the Registrar.

CREDIT-NO CREDIT GRADING (CR-NC)

The credit no-credit (CR-NC) grading policy at CSUF is designed to encourage academic exploration outside the major field of study. The policy also recognizes that in certain types of courses, student performance is best evaluated in terms of (CR-NC) grading rather than through the traditional letter grades.

Neither the CR nor NC grade is included in the calculation of the grade point average. The grade of CR will be assigned if the student's work is judged to be equivalent to an A, B, or C grade as applicable to regular enrollment in an undergraduate course or equivalent to an A or B grade in a 200-level course. The NC grade will be assigned if the student's work is not equivalent to these standards.

Other conditions and limitations pertaining to CR-NC grading are as follows:

1. Some courses will not be available for CR-NC * grading and others will be designated as available for CR-NC grading only. Subject to the limitations below, a student may elect to enroll for CR-NC grading in any other course.
2. Aside from credit earned in CR-NC only courses, no CR-NC graded credit will be applicable to the major requirements nor to courses which are applied to the formal graduate program or to courses which are prerequisites to the master's program (or classified standing).**
3. A student may not elect more than six units of CR-NC graded coursework per semester.
4. A maximum of 24 units of CR-NC evaluated credit, including all coursework taken CR-NC only, may be applied to the baccalaureate degree. A maximum of 6 units of CR-NC evaluated credit may be applied to a 30-unit master's degree program and a maximum of 12 units of CR-NC credit may be applied to a 60-unit program.

The decision to enroll for CR-NC grading must be made prior to the end of the fourth week of instruction and the decision must be recorded by the student at the Student Records Office.

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* See individual course description.

** Up to 12 units of lower division coursework elected by the student may be applied to the Liberal Studies major.

See the current *Schedule of Courses* for further information.

GRADE POINTS

For each unit of credit the student receives grade points as follows:

A—Four grade points per unit of credit.
B—Three grade points per unit of credit.
C—Two grade points per unit of credit.
D—One grade point and per unit of credit.
F—No grade points; units counted.
U—No grade points; units counted.
CR—No grade points; units counted.
NC—No grade points; no units counted.
W—No units allowed.
AU—No grade points or units allowed.

I—Not included in computations until grade is assigned.
RD—Not included in computation until grade assigned.
SP—No units allowed and not included in grade point computation until grade is assigned.

REPEATING COURSES

An undergraduate student may repeat a course in which a grade of "D", "F", "U" or "I" was received. (Graduate/post-baccalaureate students are not eligible for this policy even though the class is an undergraduate course.) All units attempted will be used to determine the student's grade point average and graduation eligibility unless the student repeats the course and requests the new grade be substituted for the original grade. A forgiveness substitution may be made only once for each course. To substitute a grade by repetition the student must file a petition with the Registrar before the end of the Late Registration Period of the semester during which the course is being repeated.

If the student receives the same grade or a higher grade than was received for a previous attempt, the units attempted, units completed (if any) and grade points for the previous attempt will not be used to compute grade point averages or graduation requirements. If the student receives a lower grade no deletions will be made. In all cases, all work will remain legible on the record ensuring a true and complete history. A "U" grade may not be substituted for itself or for any other grade.

A course completed at another institution may be repeated by enrolling in a regular CSUF course determined by the Evaluations Office to be essentially equivalent. In the case of a course repeated at another college the policy of the college where the course was repeated shall be followed. If it is not possible to determine that policy, the CSUF policy will be followed.

Although not recommended, a student may repeat a course in which he earns a "C" or higher grade. Such repetition is recorded on the transcript but is not used to compute unit or grade-point totals.

ACADEMIC RENEWAL

Under certain circumstances, the university may disregard up to two semesters (three quarters) of previous undergraduate course work taken at CSU, Fresno or at any other college from all considerations associated with requirements for the baccalaureate degree. When such action is approved the student's permanent academic record will be marked to indicate that *no* work taken during the disregarded term(s), even if satisfactory, may apply toward baccalaureate requirements. However, all work must remain legible on the record ensuring a true and complete academic history.

In order to qualify for renewal the following conditions must be met:

1. Five years must have elapsed since the most recent work to be disregarded was completed.
2. It must be evident that it would be necessary for the student to complete one or more additional terms in order to qualify for the baccalaureate degree if the request were not approved.
3. It must be evident that the poor level of work represented by the term(s) under consideration is not representative (see #4) of the student's usual academic performance and was due to extenuating circumstances.
4. Since the most recent work to be disregarded, the student must have completed in residence at CSU, Fresno 15 semester units with at least a 3.0 GPA, or 30 semester units with at least a 2.5 GPA, or 45 semester units with at least a 2.0 GPA. Work completed at another institution cannot be used to satisfy this requirement.

PLANNED EDUCATIONAL LEAVE OF ABSENCE

A planned educational leave of absence is defined as a planned interruption or pause in a student's regular education during which the student temporarily ceases his or her formal studies at California State University, Fresno, while pursuing other activities that may assist in clarifying the student's educational goals. The intent of the policy is to make it possible for a student to suspend his or her academic work, leave the campus without jeopardizing his or her rights and privileges and later resume his or her studies with a minimum of procedural difficulty. A student who is approved for a planned leave will be considered as maintaining his or her status as a continuing CSUF student. A student may, therefore, enroll for classes at the end of an approved leave without reapplying for admission and may continue at CSUF without change in graduation requirements.

Planned eduational leaves may be granted for a variety of reasons or projects, but certain characteristics must be contained in any request for a leave:

1. The student must have a definite objective, which in the judgment of the Admissions Committee, will contribute to his educational goals and objectives.
2. The request must be for a specific period of time which shall not exceed one academic year.
3. The student must plan to return to CSUF at the conclusion of his or her leave.

The following regulations will apply to the planned educational leave:

1. A currently enrolled student, enrolled in a fully matriculated session may

be considered for a planned educational leave.
2. A student may be granted only one leave as an undergraduate and one leave as a graduate student. Planned educational leaves will be granted for up to one academic year.
3. Leaves must be recommended by a faculty member or by a member of the counseling staff. Graduate students must be recommended by the Dean of Graduate Studies; international students by the Coordinator of International Student Counseling, and Educational Opportunity Program students by an EOP counselor.
4. Petitions for planned educational leaves must be filed (with the appropriate recommendation) at the Admissions Office before the first day of classes for the semester during which the leave is to begin.
5. A student who has registered through the Early Registration Program, and has subsequently been granted a planned leave must file a petition for Complete Withdrawal and a request for refund of registration fees before the deadlines listed in the Schedule of Courses.
6. Leaves will not be approved for students in disqualified status or on contract to remove academic deficiencies.
7. It is expected that a student will devote his or her leave primarily to nonclassroom activities. A leave will not be approved if the student plans to attend another institution unless the course work the student seeks is not available at CSUF. Any academic credit earned while on a planned educational leave will be accredited by CSUF only if permission is granted for that credit in advance by the Admissions Officer.
8. Students who do not return to the university at the conclusion of their planned educational leave and those who enroll elsewhere without permission of the Admissions Officer will be considered to have withdrawn from the university at the end of their last semester of regular enrollment at CSUF.

Students wishing to apply for a planned educational leave should obtain a petition for a planned educational leave from the Admissions Office.

SCHOLARSHIP STATUS

SATISFACTORY SCHOLARSHIP

Satisfactory scholarship means at least a **C** average (2.0 grade-point average or twice as many grade points as units attempted) and satisfactory progress toward a degree.

PROBATION

A student will be placed on probation if either his or her grade-point average based on total units attempted at all colleges is below a 2.0 (**C** average) or his or her grade-point average based on all units attempted at CSUF is below a **2.0** average. A student will be continued on probation until both his or her overall and CSUF grade-point averages are 2.0 or better, or until the student is disqualified under one of the provisions of the disqualification regulations.

A student may be placed on Administrative-Academic probation for withdrawal from a substantial portion of a program in two successive terms or in any three terms; for repeated failure to progress toward a degree; or for

failure to comply with an academic requirement or regulation which is routine for all students or for a defined group of students.

DISQUALIFICATION

A student will be disqualified under the following provisions: if he or she is admitted on probation and fails to meet the conditions established at the time of his admission or if he has a cumulative deficiency on either his overall or CSUF record equal to or greater than that indicated below.

Freshmen, Sophomores (0-59 units completed):	15 grade-point deficiency
Juniors (60-89 units completed):	9 grade-point deficiency
Seniors (90 or more units completed):	6 grade-point deficiency
Graduates (all students):	6 grade-point deficiency on post-baccalaureate units

A student who has been placed on Administrative-Academic probation may be disqualified if he or she fails to meet the conditions for removal of the probation; becomes subject to academic probation while on Administrative-Academic probation; or again becomes subject to Administrative-Academic probation for the same or similar reasons.

See also *Division of Graduate Studies and Research.*

READMISSION OF DISQUALIFIED STUDENTS

A student placed in disqualified status at the end of a Fall Semester may be permitted to re-enroll on probation for the following Spring Semester. A student disqualified from CSUF at the end of a Spring Semester or Summer Session may be readmitted for a regular semester only by special action and if the facts in the case seem in the opinion of the appropriate university authorities to warrant such action. A disqualified student may enroll for summer session or extension classes without readmission.

Disqualified students wishing readmission must submit a Readmission Petition. Upper division students must also schedule an interview with their departmental adviser and request that an "Upper Division Student Readmission Recommendation" form be forwarded to the Admissions Office.

Former CSUF students returning to the campus must submit an application for readmission in addition to the appropriate petitions and recommendations.

A disqualified student should schedule his or her readmission interview with the Admissions Officer or his academic department no later than two weeks before registration for the semester the student wishes to return to CSUF.

TRANSCRIPTS AND REPORTS

Transcript of Record. Students may request transcripts of their academic records at CSUF with the payment in advance of a $2.00 fee. CSUF Extension transcripts must be requested separately. Because of the large number of transcripts requested at the end of each semester and summer session, three weeks should be allowed for requests to be filled during those periods. After the Admissions/Records Office has been notified of overdue student accounts, transcripts will not be provided without clearance from the Business Office. Transcripts of record from other institutions submitted to this

institution will not be returned to the student.

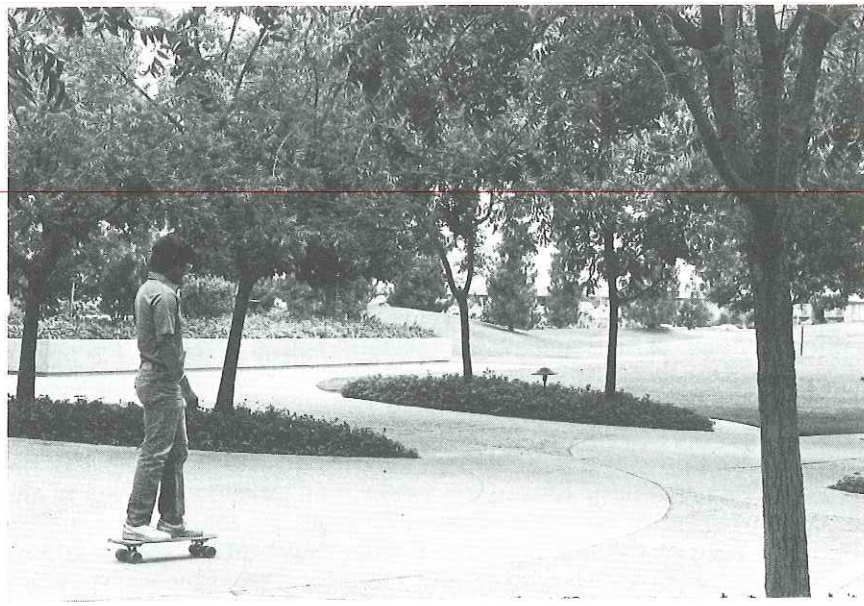
Reports to Students. An enrollment report is made available to the students by the Admissions/Records Office and at the end of the semester final grade reports are mailed to the students at the address submitted to the Admissions/Records Office.

PRIVACY RIGHTS OF STUDENTS IN EDUCATION RECORDS

The Federal Family Educational Rights and Privacy Act of 1974 (20 U.S.C. 1232g) and regulations adopted thereunder (45 C.F.R. 99) and California Education Code Section 67100 et seq., set out requirements designed to protect the privacy of students concerning their education records maintained by the campus. Specifically, the statute and regulations govern (1) access to student records maintained by the campus, and (2) the release of such records. In brief, the law provides that the campus must provide students access to official records directly related to the student and an opportunity for a hearing to challenge such records on the grounds that they are inaccurate, misleading or otherwise inappropriate; the right to a hearing under the law does not include any right to challenge the appropriateness of a grade as determined by the instructor. The law generally requires that written consent of the student be received before releasing personally identifiable data about the student from records to other than a specified list of exceptions. The institution has adopted a set of policies and procedures concerning implementation of the statutes and the regulations on the campus. Copies of these policies and procedures may be obtained at the Office of the Dean of Student Affairs. Among the types of information included in the campus statement of policies and procedures are: 1) the types of student records and the information contained therein; 2) the official responsible for the maintenance of each type of record; 3) the location of access lists which indicate persons requesting or receiving information from the record; 4) policies for reviewing and expunging records; 5) the access rights of students; 6) the procedures for challenging the content of student records; 7) the cost which will be charged for reproducing copies of records; and 8) the right of the student to file a complaint with the Department of Education. An office and review board have been established by the Department to investigate and adjudicate violations and complaints. The office designated for this purpose is: The Family Educational Rights and Privacy Act Office (FERPA), Department of Education, 330 "C" Street, Room 4511, Washington, D. C. 20202.

The campus is authorized under the Act to release public directory information concerning students. Directory information includes the student's name, address, telephone listing, date and place of birth, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, the most recent previous educational agency or institution attended by the student and any other information authorized in writing by the student. The above designated information is subject to release by the campus at any time unless the campus has received a prior written objection from the student specifying information which the student requests not be released. Written objections should be sent to the Office of the Dean of Student Affairs.

The campus is authorized to provide access to student records to campus officials and employees who have legitimate educational interests in such access. These persons are those who have responsibilities in connection with the campus academic, administrative or service functions and who have reason for using student records connected with their campus or other related academic responsibilities.



STUDENT ACADEMIC PETITIONS

The Student Academic Petition Committee has the authority to recommend the waiver or modification of certain university policies and regulations when such policies and regulations create a significant handicap or hardship for a student.

The Committee will take action only upon the submission by the student of a formal petition which sets forth the facts and circumstances that may warrant special consideration. For further information contact the Office of Advising Services.

Protests alleging prejudicial or capricious grading also are lodged with the Committee by following established University procedure, a copy of which may be obtained from the Office of the Dean of Student Affairs. (See *Advising Services—Academic Petitions)*

RESEARCH ON HUMAN SUBJECTS

California State University, Fresno, has adopted provisions for the conduct of research which employs or influences humans. All research at the university must comply with these provisions. Students must familiarize themselves with the provisions by inquiring in the departmental offices or the office of the dean of their school.

DEGREES AND CREDENTIALS

California State University, Fresno is authorized to grant the bachelor of arts, bachelor of science, bachelor of vocational education, master of arts, master of science, master of business administration, master of city and regional planning, and master of social work degrees. See *School of Education and Human Development* for public school credentials for which the university is authorized to recommend candidates.

THE BACCALAUREATE DEGREE

The bachelor of arts degree requires 124 semester units of which at least 40 must be upper division. Upper division courses taken before the student has earned 45 units may not be applied on this 40-unit requirement.

The bachelor of science degree requires from 124 to 132 semester units depending upon the major field.

Special course requirements, general education requirements and one major must be satisfactorily completed to qualify for the baccalaureate degree. Electives may be used to fulfill the requirements for a credential or for one or more minors or they may be free electives selected with the help of an adviser.

A minor is not required for graduation, but one or more minors may be used to complement a program of study. Units used to satisfy the degree major requirements may not be applied to a minor. A graduating senior may request that a completed minor be recorded on his or her transcript.

An undergraduate student may desire to complete the requirements for a second major at the time he completes his baccalaureate degree. Upon request, and upon completion of at least 24 units (12 of which must be upper division) exclusive of units necessary to meet requirements of the first major and of general education, one additional major may be recorded on the transcript. When the student applies for graduation he must designate which major is to be the degree major for purposes of graduation.

The bachelor of vocational education degree is a special degree limited to vocational teachers who qualify for a Swan Bill evaluation through the State Board of Vocational Examiners. The qualifications required for such an evaluation are outlined in the *State Education Code*. Among these qualifications is the stipulation that the candidate shall have had a minimum of 1,620 hours of teaching experience in an approved vocational class or 1,000 hours teaching experience in an approved trade extension class. Additional information regarding this degree program may be obtained from the Chairman of the Department of Industrial Arts and Technology.

SECOND DEGREE OR MAJOR

A post-baccalaureate student may pursue a program leading to an additional baccalaureate degree or to a second undergraduate major. Each student is urged to consult with a departmental adviser and with the Division of Graduate Studies and Research to determine which post-baccalaureate program best meets his or her needs.

A post-baccalaureate student seeking an additional undergraduate degree must complete:

1. A minimum of 30 units in residence at CSUF since completion of the

most recent degree.

2. All state and university requirements for that degree, including English 1, General Education, United States Constitution and American History, and the Upper Division Writing Skills Requirement.
3. All units required in the major. No credit may be applied from courses taken for an earlier degree. If required major courses were previously taken, the student must substitute, with the approval of the department, additional major courses. A student must also complete all additional courses required for the major unless granted a waiver by the department. Graduate level courses may not be applied against the requirements for a second major or baccalaureate degree.
4. At least 12 units in the major in residence at CSUF since the last degree. (Note: Departments may set higher requirements.)

A student seeking a second major must complete numbers 3 and 4 above. The transcript will indicate that all coursework for the second major has been completed.

Requirements for the second degree or major will be those in effect at the time the student enters the curriculum. If the student does not remain in continuous attendance, the requirements will be those in effect at the time of completion of the program. A post-baccalaureate student seeking a second degree or major must apply in the same manner as first degree applicants.

TRANSCRIPT EVALUATION

Transfer students are provided with an advanced standing evaluation as part of the admissions process. Upon completion of approximately 90 semester units, each student should request a 90 unit degree evaluation from the Evaluations Office which will show all requirements completed and any remaining degree requirements. Only one degree evaluation can be made for each student. Each student should keep his or her personal copy current.

After evaluation, all transcripts become the property of the Records Office and are not returnable, even on loan. It is suggested that the students obtain duplicate copies of their records from former schools for their personal file.

ELECTION OF REGULATIONS

A student by remaining in continuous attendance in regular sessions and continuing in the same curriculum in any state university or college campus, in any of the California community colleges or in any combination of California community and state university or college campus, may, for purposes of meeting graduation requirements, elect to meet the graduation requirements of such campus from which the student will graduate in effect either at the time of his or her entering a curriculum or at the time of graduation therefrom except that substitutions for discontinued courses may be authorized or required by the proper campus authorities. Any break in attendance (failure to register for a regular semester) will break a student's status as a continuing student. The *CSUF Bulletin* lists the official graduation requirements for each year.

Active military duty will maintain a student's continuous attendance status providing he enters the military from CSUF and returns at the first registration for a regular session following his release. The dates of military service must account for all of the time not in attendance at CSUF.

An approved planned educational leave will maintain a student's continuous attendance status.

RESIDENCE REQUIREMENTS

For the bachelor of arts, bachelor of science, and bachelor of vocational education degrees a minimum of 30 semester units must be earned in residence at CSUF; at least 24 of these units must be earned in upper division courses and 12 of the units must be in the major. Extension credit or credit by evaluation may not be used to fulfill this requirement. Summer session credit and credit earned in the California State University and Colleges International Programs may be applied toward meeting this requirement on a unit for unit basis.

For special residence requirements see *Public School Credentials* and *Division of Graduate Studies and Research.* For interpretation and definitions see *Admissions—Determination of Residence.*

SCHOLARSHIP REQUIREMENTS

To qualify for any bachelor's degree a student must have at least a C average (2.0 on a four grade-point system) on his or her total college record, must have maintained at least a C average at CSUF, and must have at least a C average in his or her approved major.

See also *School of Education and Human Development—Application for Admission to Credential Programs, Division of Graduate Studies and Research,* and *Scholarship Status* in the preceding section of this catalog.

SPECIAL COURSE REQUIREMENTS

Entering undergraduate students should note the following specific requirements:

United States Constitution and American History. In accordance with *Title 5* of the *Administrative Code,* Section 40404, a student, in order to graduate, must demonstrate his or her competence with respect to the Constitution of the United States, American History, and in the principles of state and local government of California. This may be done by passing examinations or by completing appropriate courses. (See *History Department—American History Requirement* and *Political Science Department—United States Constitution Requirement.*)

ENGLISH REQUIREMENT

English 1, Composition, or its equivalent is an all-university graduation requirement. This requirement must be completed before the end of the fourth semester of university attendance. Students who are exceptionally well-prepared in composition may elect to satisfy the requirements by the successful challenge of English 1 through Credit by Examination or by successful performance in either the *English Equivalence Examination* or the *Advanced Placement Test.* The English Placement Test does not substitute for the English 1 requirement. See *"English Placement Test and Graduation Requirement"* for test scores prerequisite to enrollment in English 1.

UPPER DIVISION WRITING SKILLS REQUIREMENTS

All students enrolled in the CSUC system must demonstrate their competence in writing skills. For undergraduates at CSUF this requirement can be met *only* after completion of the equivalent of 56 semester units. It

may be met in one of three ways.

1. Passing a university examination composed of both an essay component and an objective component. This examination will be given several times each year, including once during the first two weeks of each semester. For specific dates consult the Office of Testing Services. The successful completion of the examination may earn one unit of credit.
2. Obtaining a C or better in an *approved* section of an upper division English course.
3. Obtaining a C or better in a section of an upper division course offered in a department other than English, but *approved* to meet the writing requirement.

"Approved" in 2 and 3 above means the sections have been selected to meet the requirement because they contain an adequate writing component. These courses can always be identified each semester in the *Schedule of Courses* by the letter "W", which will come immediately after the number designation of the course (for example, English 155W, Information Systems 105W). Successful completion of the English Composition graduation requirement is a prerequisite to any such course.

For university writing skills requirement as applied to graduate students see *Division of Graduate Studies and Research.*

REMEDIAL COURSES

It is a state requirement, with which The California State University and Colleges System must comply, that each student admitted to an institution within the System is expected to possess basic competence in the English language and mathematical computation to a degree reasonably expected of entering college students. Students admitted who cannot demonstrate such basic competence are required to remedy this deficiency. Any coursework completed primarily for this purpose shall not be applicable to the baccalaureate degree.

FOREIGN LANGUAGE REQUIREMENT

Foreign language is not a general college requirement for admission to or graduation from CSUF. However, some schools and departments require the study of a foreign language as part of the preparation for specified undergraduate and graduate programs. In general, upper division and graduate courses in these fields require the use of foreign language. See school and department statements of majors for details and suggestions for appropriate languages.

Students following majors which require the study of a foreign language ordinarily meet the requirement in one of the following ways:

1. Students who have no foreign language credit from high school complete two years of satisfactory collegiate study in one foreign language.
2. Students who have high school credit or other experience in a foreign language and who wish to continue in the same language should see an adviser in the Foreign Language Department. Normally students beginning a new language will enroll in the 1A course. College credit may be earned in the class in which the student is placed. (See *Credit Allowance in Foreign Language.*)

3. Students who do not have the prescribed high school or college credit may elect to meet the foreign language requirement by passing a competence examination. Usually only lower division courses in foreign language may be passed by examination. Credit by examination will be granted in foreign language only prior to the completion of the first upper division course in the same foreign language and may be obtained only in languages taught at the university. See the chairman of the Foreign Language Department.
4. Students seeking a second bachelor's degree major or a master's degree will be held for any foreign language requirement in the field.
5. Unless the major specifies the language to be used, a foreign student may offer English to meet the requirement, provided his or her native language is not English and provided the student has come to this country primarily to pursue academic work and expects to return to his or her home after completing a course of study.

GENERAL EDUCATION

Through its general education program, CSUF attempts to ensure to each student an opportunity to enlarge awareness of areas which the student may be unable to explore in depth but which are likely to enhance his or her appreciation of life experiences and his or her contributions to society. The program is being developed to meet the requirements of the *California Administrative Code, Title 5.*

Transfer Students

Title 5 provides that general education-breadth requirements completed at an accredited California public community/junior college and/or California State University and Colleges campus by a student who transfers to CSUF shall be accepted to the extent stated in the certification by that college/university. Each transfer student will be required to complete additional units at CSUF to meet the general education requirement. Transfer students who change their majors after being admitted to the university are advised that general education courses in addition to those certified as being complete may be required for graduation due to the fact that major requirements and general education requirements are exclusive of each other.

Selection of Courses

The student is expected to exercise responsibility in the selection of general education courses which will complement his or her major, be compatible with his or her educational objectives, and provide an introduction to other areas and disciplines. These courses should be completed before the student becomes deeply involved in a major program. The student is urged to consult his or her adviser in constructing a program of study.

General education requirements are *in addition* to specified unit requirements of the major. *No units used to satisfy requirements of the degree major may also be used to satisfy any part of the general education-breadth requirement.* However, appropriate general education courses may be used toward completion of a minor or toward any "additional requirements" for the degree major.

GENERAL EDUCATION PROGRAM

The General Education Requirements are being revised in accordance with new guidelines established by the *California Administrative Code, Title 5.* The new requirements will apply to first-time freshmen and transfer students who enter California State University, Fresno for the Fall 1981 Semester, and who have not been in continuous attendance at another CSUC campus or a California Community College campus.

The new General Education Requirements will be available through the Office of Advising Services (SR3 #128) and departmental advisers.

POST-BACCALAUREATE CREDIT

Upper division units earned at CSUF in the semester or summer session in which the bachelor's degree is granted, provided they are not needed for such a degree and provided the student is in good academic standing at the beginning of the final semester and remains continuously in good academic standing, will be listed on the student's record as *post-baccalaureate credit.* Only credit for courses in which grades **A**, **B**, **C**, or **CR** are earned may be counted. No course may have its credit divided between the baccalaureate and post-baccalaureate programs. Use of such credit for graduate degrees at CSUF requires special approval (consult Office of the *Division of Graduate Studies and Research*). Use of such credit for other purposes is to be determined by the appropriate authority.

GRADUATION AND COMMENCEMENT

Commencement is held annually at the end of the spring semester. Students who have completed degree requirements in the summer or in the fall semester immediately preceding commencement are eligible to participate with those who complete their work in the spring semester. Students looking forward to meeting degree requirements should complete the following steps:

1. Obtain and file a completed application for a degree (with the $10.00 graduation fee) in the Evaluations Office when 90 semester units have been completed. See *Academic Calendar* for filing dates and deadlines ($2.00 fine for late filing). See also *Election of Regulations*. Failure to apply before the final deadline will delay the granting of the degree.
2. Request the Records Office to transfer any work completed or to be completed in Extension to the permanent record.

The Evaluations Office, considering his prior and current work, will check the student's application for a bachelor's degree against requirements and will report to the student regarding his or her eligibility for the degree. In the case of graduate degrees, this clearance is given by the Graduate Office.

A degree cannot be awarded to a student with an I grade remaining on his or her record. A student receiving an I grade during the final year which has not been completed (or changed to an F grade) within two calendar weeks of the end of the student's final semester or summer session will not be considered for graduation that semester and must reapply for the degree.

In order to be eligible for graduation and participate in Commencement exercises, the student must (1) submit an application for the degree and pay the graduation fee, (2) have been approved for graduation by the faculty, (3) have met all financial obligations to the university, and (4) have completed with appropriate scholastic standing all courses required for the degree. Graduates will receive their official diplomas by mail.

It is the responsibility of the student to be sure that all requirements have been met and that documentation has been filed with the Evaluations Office by the appropriate deadlines.

No additions, deletions or changes to a student's record are permitted after the degree has been recorded.

HONORS AT GRADUATION

Honors at the time of graduation from CSUF will be awarded to students with an overall grade point average of 3.50 on all work attempted. The student must also have completed at least 45 units at CSUF with the following GPA on all CSUF work:

Summa Cum Laude (highest honors)	3.90 to 4.00
Magna Cum Laude (high honors)	3.70 to 3.89
Cum Laude (honors)	3.50 to 3.69

Since the requirement for honors could change, students are requested to check the current Bulletin for the criteria in effect at the time of graduation.



DEGREES AND CREDENTIALS

DEGREE PROGRAMS, MAJORS AND MINORS

The California State University, Fresno, offers majors for the baccalaureate degrees, minors, and master's degree programs as indicated below. Options are indented under the programs. Requirements for approved undergraduate majors and minors are listed in the appropriate school and department sections of the catalog. For master's degree program requirements, see *Division of Graduate Studies and Research.*

	Baccalaureate Degrees				*Master's Degrees*		
	BA	*BS*	*Other*	*Minor*	*MA*	*MS*	*Other*
Aerospace Studies	—	—	—	x	—	—	—
Agricultural Business	—	x	—	—	—	—	—
Agricultural Education	—	x	—	—	—	—	—
Agricultural Science	—	x	—	x	—	—	—
Options I, II Dietetics & Food Administration							
Agriculture	—	—	—	—	—	x	—
(MS) Agricultural Chemistry							
Anthropology	x	—	—	x	—	—	—
Armenian	—	—	—	x	—	—	—
Art	x	—	—	—	x	—	—
Asian Studies	—	—	—	x	—	—	—
Asian-American Studies	—	—	—	x	—	—	—
Biology	x	—	—	x	x	—	—
Biological Science, Botany, Environmental Biology, Functional Biology, Microbiology, Zoology							
Black Studies	—	—	—	x	—	—	—
Business	—	—	—	x	—	x	—
Business Administration	—	x	—	—	—	—	MBA
(BS) Accountancy, Agribusiness, Business Economics, Computer Applications & Systems, Decision Sciences, Finance, General Administration, Health Care Management, Information Management, Insurance, Legal Environment of Business, Marketing, Personnel and Industrial Relations, Real Estate and Urban Land Economics, Transportation and Physical Distribution Management							
Chemistry	x	x	—	x	—	x	—
Child Development	—	x	—	—	—	—	—
City and Regional Planning	—	—	—	—	—	—	MCRP
Classical Studies	—	—	—	x	—	—	—
Communicative Disorders	x	—	—	x	x	—	—
Counseling	—	—	—	—	x	—	—
Criminology	—	x	—	—	—	x	—
(BS) Corrections, Law Enforcement							
Economics	x	—	—	x	x	—	—
Education	—	—	—	—	x	—	—
Engineering	—	—	—	—	—	x	—
(MS Civil)	—	—	—	—	—	x	—
Engineering, Civil	—	x	—	—	—	x	—
Engineering, Electrical	—	x	—	—	—	—	—
Engineering, Industrial	—	x	—	—	—	—	—
Engineering, Mechanical	—	x	—	—	—	—	—
English	x	—	—	—	x	—	—
(MA) Creative Writing, Composition							
Ethnic Studies	—	—	—	x	—	—	—
French	x	—	—	x	—	—	—
Geography	x	—	—	x	x	—	—
Geology	x	—	—	x	x	—	—
German	x	—	—	x	—	—	—
Gerontology	—	—	—	x	—	—	—

	Baccalaureate Degrees				Master's Degrees		
	BA	*BS*	*Other*	*Minor*	*MA*	*MS*	*Other*
Health Science	—	x	—	x	—	x	—
(BS) School and Community Health, Environmental Health Science, Occupational Safety and Health							
History	x	—	—	x	x	—	—
Home Economics	x	—	—	x	—	x	—
Industrial Arts	x	—	—	x	x	—	—
Industrial Technology	—	x	—	—	—	—	—
(BS) Manufacturing Industries, Construction							
Journalism	x	—	—	x	—	—	—
Advertising, News-Editorial, Photocommunication (see Mass Communication MA), Public Relations, R-TV News Communication							
La Raza Studies	—	—	—	x	—	—	—
Latin	—	—	—	x	—	—	—
Latin American Studies	—	—	—	x	—	—	—
Liberal Studies	x	—	—	—	—	—	—
Credential, Non-Credential							
Linguistics	x	—	—	x	x	—	—
(MA) Bilingual Studies, French, German							
Marine Sciences	—	—	—	—	—	x	—
Mass Communication	—	—	—	—	x	—	—
Print Media, Electronic Media							
Mathematics	x	—	—	x	x	x	—
Microbiology	—	x	—	—	x	—	—
Music	x	—	—	x	x	—	—
(BA) Options I, II							
Nursing	—	x	—	—	—	x	—
Office Administration	—	—	—	x	—	—	—
Performing Arts, Administration of	—	—	—	x	—	—	—
Philosophy	x	—	—	x	—	—	—
(BA) Religious Studies							
Physical Education	x	—	—	—	x	—	—
(BA) General							
Physical Science	—	—	—	x	—	—	—
Physical Therapy	—	x	—	—	—	—	—
Physics	x	x	—	x	x	x	—
Political Science	x	—	—	x	x	—	—
Psychology	x	—	—	x	x	x	—
Public Administration	x	—	—	x	—	—	MPA
Radio-Television Broadcasting	x	—	—	x	—	—	—
(see Mass Communication MA degrees)							
Recreation Administration	—	x	—	x	—	—	—
(MA) Option under Physical Education (BS) General, Therapeutic							
Rehabilitation Counseling	—	—	—	—	x	—	—
Russian	x	—	—	x	—	—	—
Social Science	x	—	—	—	—	—	—
Social Welfare	x	—	—	—	—	—	—
Social Work	—	—	—	—	—	—	MSW
Sociology	x	—	—	x	—	—	—
Spanish	x	—	—	x	x	—	—
Special	x	—	—	—	x	—	—
Special Education	—	—	—	—	x	—	—
Speech	—	—	—	—	x	—	—
Speech Communication	x	—	—	x	—	—	—
Surveying and Photogrammetry	—	x	—	—	—	—	—
Theatre Arts	x	—	—	x	—	—	—
(BA) Dance (see Speech MA)							
Vocational Education	—	—	BVEd	—	—	—	—
Women's Studies	—	—	—	x	—	—	—

SPECIAL MAJOR FOR THE BACHELOR OF ARTS DEGREE

The special major for a bachelor of arts degree provides an opportunity for students to engage in an individualized course of study leading to a degree when legitimate academic and professional goals are not accommodated by standard degree majors. The special major consists of correlated studies in two or more fields. It is not intended as a means of bypassing normal graduation requirements or a means by which students may graduate who fail to complete the degree major in which they are enrolled.

The special major must be approved in the office of the Vice President for Academic Affairs, with approval based upon a case-by-case justification. The candidate must have one full year of academic work (at least 30 units) still to be completed to meet minimum degree requirements. The minimum requirement for the special major is an approved program of 30 units at least 24 units of which must be upper division work. Units applied to satisfy general education requirements may not be counted.

A student requesting a special major must obtain application forms from the Office of Advising Services. On these forms the student must: 1) Prepare a statement giving his or her reasons for desiring a special major in terms of his academic and professional goals and why the student cannot meet these goals through a standard major; 2) Develop a specific list of courses which would, in his or her opinion, lead to the academic and professional goals stated above; 3) Secure the signed approval from the Office of Advising Services as well as from special major advisor and the department chairmen in the areas from which the special major courses are drawn. The student must submit the foregoing material to the Office of the Vice President for Academic Affairs for final approval.

PUBLIC SCHOOL CREDENTIALS

California State University, Fresno, is authorized by the Commission for Teacher Preparation and Licensing to recommend candidates for the following credentials. See School of Education and Human Development for program requirements.

Basic Teaching Credentials
Multiple subjects (Elementary)
Multiple subjects, with emphasis in Early Childhood Education
Multiple subjects, with emphasis in Bilingual/Cross-Cultural Education (Spanish)

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

Services Credentials
Administrative
Clinical-Rehabilitative
Health (School Nurse)
Pupil Personnel, including School Psychologist

Basic Teaching Credentials
Single Subject (Secondary)
Agriculture
Art
Business
English, with separate concentrations in Drama and Speech
Foreign Languages
Home Economics
Industrial Arts
Life Science (Biology)
Mathematics
Music
Physical Education, Men
Physical Education, Women
Physical Science
Social Science

COURSES OF INSTRUCTION

Courses of instruction are offered in the areas indicated below; titles, designations, descriptions, and unit values appear in the school and department sections of the Bulletin. For innovative course groupings *see Special and Interdisciplinary Programs.*

School of Agriculture and Home Economics (Agri)
- Agricultural Economics and Education Department
  - Agricultural Economics (Ag Ec)
  - Agricultural Education (Ag Ed)
  - International Agricultural (Agri)
  - Graduate (Agri)
- Animal Science Department
  - Animal Science (A Sci)
  - Graduate (Agri)
  - Enology, Food Science, and Nutrition Department
  - Dairy Industry (D Ind)
  - Enology (Enol)
  - Food Science and Nutrition (FScN)
  - Graduate (Agri, H Ec)
- Plant Science and Mechanized Agriculture Department
  - Plant Science (Plant)
  - Mechanized Agriculture (Ag Me)
  - Graduate (Agri)
- Family Studies and Home Economics Department
  - Home Economics (H Ec)
  - Consumer Science (CS)
  - Fashion Merchandising (FM)
  - Child and Family Studies (CFS)
  - Food Science and Nutrition (FScN)
  - Interior Design and Housing (IDH)
  - Home Economics Education (H Ec)
  - Graduate (H Ec)
- Industrial Arts and Technology
  - Industrial Arts and Technology (Ind A)
  - Interior Design and Housing (IDH)

School of Arts and Humanities (Hum)
- Art Department (Art)
  - Art History (Art H)
- Communication Arts and Sciences Department
  - Radio-Television (R–TV)
  - Speech Communication (Spch)
  - Theatre Arts (Drama, Dance)
- English Department (Engl)
- Foreign Language Department (FL)
  - Armenian (Arm)
  - French (Fren)
  - German (Germ)
  - Greek (Grk)
  - Italian (Ital)
  - Japanese (Japn)
  - Latin (Latin)
  - Portuguese (Port)
  - Russian (Russ)
  - Spanish (Span)
- Journalism Department (Jour)
- Linguistics Department (Ling)
  - Chinese (Chin)
  - Hebrew (Hebr)
  - Japanese (Japn)
  - Sanskrit (Skt)
- Music Department (Music)
- Philosophy Department (Phil)
- Women's Studies (W S) (See special and interdisciplinary programs)

School of Business and Administrative Sciences (Bus)
- Accountancy Department (Acct)
- Aerospace Studies Department (A Sp)
- Finance and Industry Department (B A, Fin)
- Information Systems and Decision Sciences Department (IS, DS)
- Management and Marketing Department (Ind R, Mgt, Mktg)

School of Education and Human Development (Educ)
- Advanced Studies Department (A S)
- Teacher Education Department (T Ed)

School of Engineering (Engr)
C E, E E, I E, M E, S & P)

School of Health and Social Work (HP)
- Athletics Department (PE IC)
- Communicative Disorders Department (CD)
- Health Science Department (H S)
- Nursing Department (Nurs)
- Physical Education— Recreation Department
  - Physical Education (PE, PE-AC)
  - Recreation (Rec)
- Physical Therapy Program (Ph Th)
- Rehabilitation Counseling Program (R C)
- Social Welfare Program (S Wel)
- Graduate Program in Social Work (S Wrk)

School of Natural Sciences (N Sci)
- Biology Department
  - Biology (Biol)
  - Botany (Bot)
  - Entomology (Ent)
  - Microbiology (Micro)
  - Physiology (Phy)
  - Zoology (Zool)
- Chemistry Department (Chem)
- Geology Department (Geol)
- Mathematics Department (Math)
- Physical Science (P Sci)
- Physics Department (Phys)
- Psychology Department (Psych)

School of Social Sciences (S Sci)
- Anthropology Department (Anth)
  - Asian-American Studies (As Am)
- Criminology Department (Crim)
- Economics Department (Econ)
- Ethnic Studies Program (Eth S)
  - Armenian Studies (Arm S)
  - Black Studies (Bl S)
  - Native American Studies (N A S)
- Geography Department (Geog)
- History Department (Hist)
- La Raza Studies Program (La R)
- Political Science Department (Pl Si)
- Sociology Department (Soc)
- Urban and Regional Planning Department (U R P)

Special and Interdisciplinary Programs
- Armenian Studies (Arm S)
- Basic Written English (BWE)
- Computer Sciences (C S C)
- Graduate Studies (GS)
- International Studies—Campus (I S C)
- International Studies—Abroad (I S A)
- Mass Communication (M Com)
- Moss Landing Marine Laboratories (M Sci)
- NEXA Courses (NEXA)
- Women's Studies (W S)

See following section, *Special and Interdisciplinary Programs,* for innovative course groupings of traditional courses.

COURSE NUMBERING SYSTEM

DEFINITIONS AND ELIGIBILITY

Numbers

1–99 *Lower division* (ld) courses designed for first- and second-year students; students who have completed fewer than 45 units at the time of enrollment in 100–199 numbered courses will receive credit in this category.

100–199 *Upper division* (ud) courses designed for third-, fourth-, and fifth-year students; enrollment permitted by second-semester sophomores with adequate preparation who have completed a minimum of 45 units. Counted as graduate work for students with graduate status; permitted for use on a master's degree program only with departmental approval.

190 Independent study, undergraduate.

100G–199G For *graduate* students only; designed for use in the first year of two-year master's degree programs; intensive combination of material normally offered at the undergraduate level.

200–299 *Graduate courses* open to holders of baccalaureate degrees and, with prior approval of the instructor, to second-semester seniors with superior preparation and ability; designed for use on master's degree programs; when taught by extension, count as upper division in master's degree programs.

290 Independent study, graduate.

299 Master's degree thesis or project.

300–399 Designed to meet professional needs which cannot be served by regular established course offerings. *These courses are offered only through extension and summer sessions.* They assume completion of the bachelor's degree and/or appropriate professional service and are focused upon the problems that enrolled students encounter in their professional service. Although these courses are designed primarily for purposes other than the partial fulfillment of degree and credential requirements, they may, with approval by the department, be applied toward the major. They may be used as part of the forty-unit upper division requirement for the BA degree and as electives in the fulfillment of the total requirements for a baccalaureate degree and/or credential. They may not be used to meet the requirements of a master's degree.

Symbols

A-B Two-semester course normally taken in sequence.

A,B Listed as separate courses, may be taken independently.

F Field course.

L Laboratory associated with another course.

T Topics course, varied area subject matter, repeatable for credit.

W Writing skills course, meets upper division requirement for graduation.

Courses are listed by number, title, units and maximum total credit. Each unit generally represents one hour per week in class and two hours of preparation; courses involving laboratory, activity, or other application normally require additional hours of class attendance. Lecture-laboratory hours indicate deviation from the usual one class hour per week for one unit of credit. Prerequisites are listed at the beginning of the course description. Course offerings are listed each semester in the *Schedule of Courses.*

Course Prerequisites

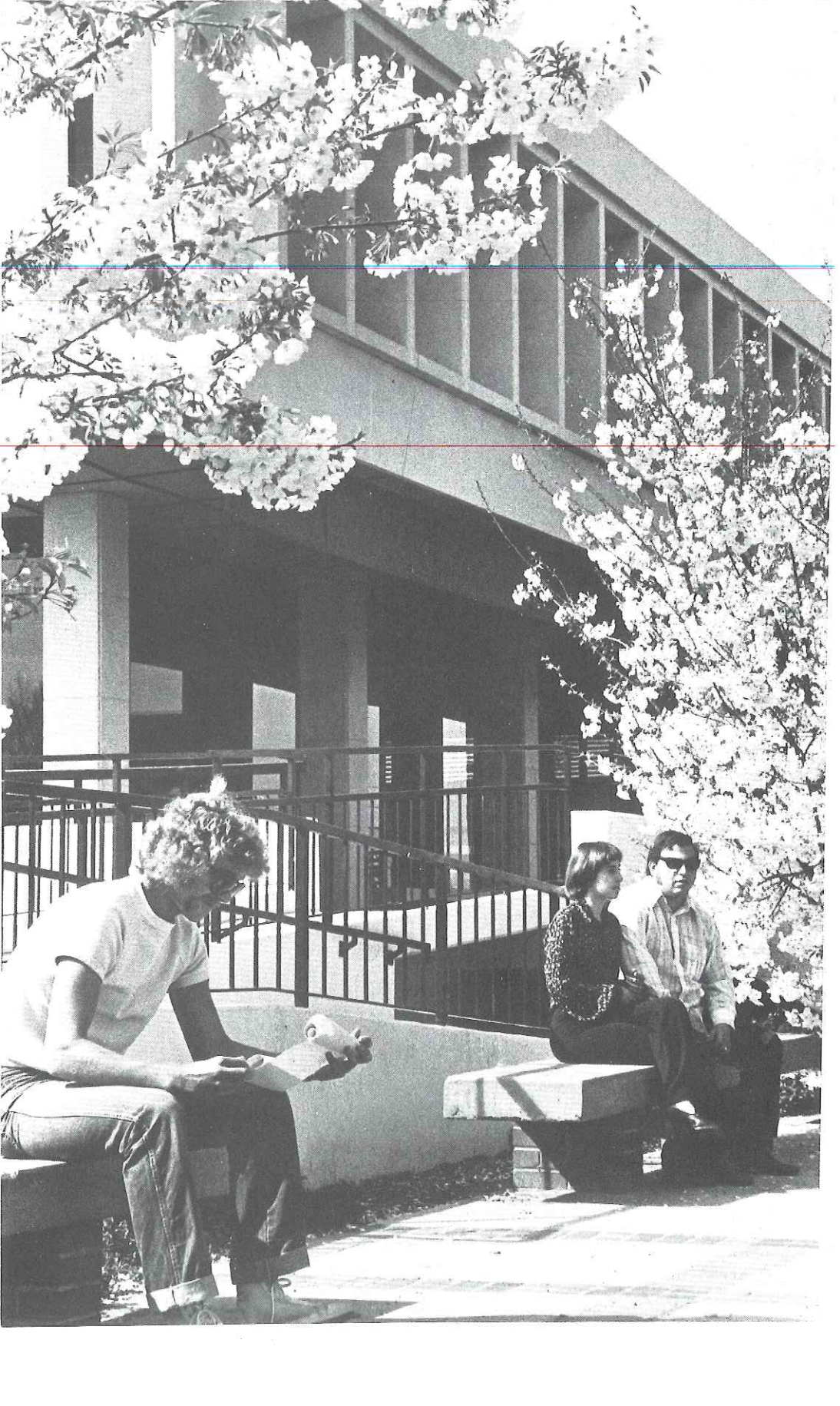
Course prerequisites are designed to protect the student by ensuring that he or she has the necessary background and preparation for success in the course. Transfer courses with equivalent content will be accepted in lieu of stated prerequisites. Students should check the prerequisites carefully before registering in a course to be sure that they have been met. The instructor can deny admission to a course to a student who has not met the prerequisites.

However, the instructor also has the authority to waive the stated prerequisites for a course if it is in the interests of the student to do so and if in the instructor's judgment, the student has a background sufficiently adequate to permit satisfactory performance in the course.



SPECIAL AND INTERDISCIPLINARY PROGRAMS

Photo: *Arthur Wahlberg—Director, Music*
Fresno State Normal School, circa 1917



SPECIAL AND INTERDISCIPLINARY PROGRAMS

The university has certain programs and course groupings whose organization or administration does not fall within a single department. These programs and courses are described or referred to in this section. Successful completion of courses in these programs, with minor exceptions, will lead to credit which may be applicable to certain departmental or university requirements. Interested students should consult the appropriate advisers.

ARMENIAN STUDIES

California State University, Fresno, offers courses in Armenian Studies, including Armenian language, literature, history, and art, as well as courses in other disciplines which are related to Armenian Studies. Although the university does not offer a bachelor's degree program in Armenian Studies, by careful selection of electives and of requirements in various majors, a student can secure a useful background for the understanding of Armenian language, history, and culture. The minor in Armenian Studies provides the student with a useful multi-disciplined background for the understanding of Armenia's rich and diverse past. This concentration can prepare a student for teaching in Armenian schools in the United States, employment with large Armenian charitable or community organizations, or for graduate work in Armenian Studies at such institutions as UCLA, Harvard, Columbia, or the University of Pennsylvania.

The following list includes the Armenian courses currently offered and related subjects in other fields. For further information consult the Coordinator of Armenian Studies, Professor Dickran Kouymjian.

ARMENIAN STUDIES (Arm S)

10. Introduction to Armenian Studies (3)

The history, geography, literature, language and art of Armenia from ancient times to the present with emphasis on resources, bibliography and report writing.

50T. Studies in Armenian Literature (3)

Various themes and aspects of Armenian literature from ancient times to the present: David of Sassoun, the Armenian Folk Epic; William Saroyan; Armenian Historical Literature; Modern Armenian Literature; Armenian World of Richard Hagopian; Armenian-American Authors.

120T. Topics in Armenian Studies (1–3; max total 6)

Designed to offer specialized topics in the realm of Armenian history, Art, and culture, not normally covered in other Armenian Studies courses. Topics include: Armenian Church, Armenian Minor Arts, Armenian Film and Film-makers, Source of Armenian History, the Armenian Diaspora.

121. Armenian Painting (3)

History and development of Armenian painting from earliest times to the present with special concentration on the art of manuscript illumination; rudiments of early Christian art and iconography; Armenian art in proper context of world art. Armenian painters of 19th and 20th century will also be considered. (Former Art H 109T section)

123. Armenian Architecture (3)

History and development of the church building in Armenian architecture, the first national architecture in the history of Christianity. There will be a survey of monuments from the 4th to the 17th century. (Former Art H 109T section)

190. Independent Study (1–3)
See *Academic Placement—Independent Study.*

ART (Art H)

109T Topic: Islamic Art and Its Relation to Armenian Art (3)
109T Topic: Late Antique and Byzantine Art and Their Relation to Armenian Art (3)
109T Topic: Survey of Middle Eastern Art, I and II (3–3)
190 Independent Study (1–3; max see reference)
290 Independent Study (1–3; max see reference)

ENGLISH (Engl)

50T William Saroyan (4)
169T Armenian Literature (1–4)

ETHNIC STUDIES (Eth S)

130T Armenian Oral History (3)

FOREIGN LANGUAGE (Arm)

1A-B Elementary Armenian (4–4)
2A-B Intermediate Armenian (4–4)
111 Composition and Conversation (3)
112 Advanced Composition and Conversation (3)
190 Independent Study (1–3; max see reference)

HISTORY (Hist)

106 The Near East and Islamic Civilization to 1500 (3)
108A Armenian History to the Mongol Invasion (3)
108B Armenian History from the Mongol Invasion to the Present (3)
109T Topics: Armenian Culture (1–3; max total 6 if no topic repeated)
124T Topic: Armenia and the Ottoman Empire (1)
124T Topic: The Armenian Genocide (1–3)
190 Independent Study (1–3; max see reference)
290 Independent Study (1–3)

ASIAN STUDIES

CSUF offers courses in many disciplines which are concerned with South, Southeast, and East Asia. Although there is no degree program in Asian Studies at this time, an interdisciplinary undergraduate minor is available for students who desire a knowledge of Asia as a complement to their chosen academic discipline or profession. For further information and for aid in planning such a course of study, consult the Coordinator of Asian Studies, Dr. Shien-min Jen, Department of Anthropology.

MINOR

A minor in Asian Studies consists of 21 units, including a minimum of nine upper division units. Specific Requirements: (1) 6–9 units in one of the areas subsumed under Section I or II below; (2) a total of four courses, two (at least 6 units) from Section I and two (at least 6 units) from Section II, but none in the area chosen in Requirement (1); (3) up to three units of electives from Sections I, II, or III. Independent Study (190) courses in any department may be applied toward the minor as long as they cover some aspect of Asian Studies and are approved by the Coordinator. Unspecified topics courses and seminar courses listed below must cover some aspect of Asia to be counted toward the minor.

COURSES

Section I. Humanities

Art H 109T Topics in Art History (1–3; max 3 per area)
140 India and South East Asia (3)
142 China and Japan (3)

Language

Chinese 1A–1B Elementary Chinese (4-4)
2A–2B Intermediate Chinese (4-4)
Japanese 1A–1B Elementary Japanese (4-4)
2A–2B Intermediate Japanese (4-4)
Sanskrit 10A-B Sanskrit (3-3)

Philosophy and Religion

Philosophy 136 Buddhism (3)
137 Hinduism (3)
138 Chinese Thought (3)
172T Seminar in Religious Issues (4; maximum total 12, if no topic repeated)

Section II. Social Sciences

Anthropology 123 Peoples and Cultures of Southeast Asia (3)
124 Peoples and Cultures of East Asia (3)
129T Topics in Ethnology (1–4; max total 8)
159T Topics in Cultural Anthropology (1–4; max total 8)
Economics 114 Economics of Underdeveloped Areas (3)
188T Special Topics (1–3; maximum total 6)
Geography 177T Asian Regions (3; maximum total 9, if no area repeated)
History 6 East Asian Civilization (3)
191 History of China (3)
192 East Asian Communism (3)
193 Japan and Korea (3)
194 Southeast Asia and the Modern World (3)
199T Studies in Far Eastern History (1–3; max total 6, if no topic repeated))
Political Science 183 Comparative Administration (3)

Section III. Courses Partially Related to Asia

Agriculture 161 International Agriculture (3)
170 Seminar in International Agriculture (3)
Food Science and Nutrition 165 Cultural Foods (3)
Marketing 176 International Marketing (3)
Radio-Television 188T Topics in Broadcasting:
International Broadcasting (3)

BASIC WRITTEN ENGLISH

The minicourses described below are designed to help students improve their writing skills. Each course offers intensive work in a specific area. Students may take one or all or any combination of these one-unit courses. These courses may be taken prior to, concurrently with, or after English 1 or A. Classes are taught by members of the English and Linguistics Departments.

BASIC WRITTEN ENGLISH (B W E)

4A. Spelling and Word Formation (1)

Developing awareness of the systematic nature of English spelling in relation to the sound system and rules for word formation in the language. Mastery of the system rather than word memorization will be emphasized. (Former EXP 64A)

4B. Vocabulary Building (1)

Acquiring greater sensitivity to the literal and implied meanings of words, developing an awareness of the processes of word formation in English, and expanding the active vocabulary. (Former EXP 64B)

4C. Sentence Structure (1)

Developing skill in writing clear, mature sentences. The focus of the course is on structure—that is, on the alternative ways of phrasing the same idea and the consequences of choosing one alternative and not another. Sentence and phrase expansion, reduction, combination and rearrangement are emphasized, not traditional grammar. (Former EXP 64C)

4D. Punctuation (1)

Learning to use punctuation marks so that readers readily understand the writer's ideas. Particular attention to the use of commas, semicolons, apostrophes, and dashes. A minimum number of unvarying rules will be emphasized. (Former EXP 64C)

4E. Paragraph and Essay Organization (1)

Developing skills in identifying the sub-topics which make up the central idea of a paragraph or essay, in expanding and supporting ideas, and in arranging them so that the author's purpose is carried out as effectively as possible. (Former EXP 64D, 64E)

CHILD DEVELOPMENT

106 The university offers an interdisciplinary major leading to the Bachelor of Science Degree in Child Development. The major is appropriate for students interested in vocational opportunities based on children. It may lead to employment in the areas of preschool, child center, private nursery, special programs for disadvantaged children, and other child-related vocations.

The program includes a behavioral science base from psychology, sociology, home economics and courses in communicative disorders, and speech communications.

The major consists of a core of 10 courses listed below, plus approved electives. Note: CFS 37, 39, Psych 10 and Soc 1 are prerequisites to some of these courses. Please consult bulletin.

	Units
Psych 101	3
CFS 131 or Soc 165	3
Psych 178 or CFS 134	3
CFS 139	3
Psych 136	3
Spch 162	3
A S 174	3
CFS 132T (Planning & Adm of Programs for Children)	3
A S 172	3
C D 100	3
Required	30
Additional requirements: 15 units of approved electives. (See adviser for approved course listings.) Electives	15
Total	45

Under the restrictions of the major, students may make approved adaptations in their programs to fulfill specific needs and career objectives. Students interested in this interdisciplinary major should consult the Chairman of the Family Studies and Home Economics Department in the School of Agriculture and Home Economics for assistance in program planning and

assignment of advisers. (See brochure on *Child Development,* Family Studies and Home Economics Department, for additional information.)

CLASSICAL STUDIES

Although the university does not offer a bachelor's degree program in classical studies, many courses in several disciplines are concerned with this subject. By appropriate selection from these courses as electives or within the requirements of various majors, a student can secure a useful background of study as preparation either for graduate study or for his or her vocation.

MINOR

The Classical Studies minor is designed for students who are interested in classical civilization and for those who wish to have a chance to teach classical languages and culture or who wish to enter a graduate school where such a minor would give a sound foundation for further work in any of the areas mentioned above.

The minor in Classical Studies consists of 20 units; the student's program of study is arranged from the courses listed below with the approval of the Coordinator of Classical Studies.

Requirements are as follows:

Required courses:	History 111 Ancient Greece	3 units
	History 112 Ancient Rome	3 units
	Latin 1, A & B	6 units
	or	
	Greek 1, A & B	6 units
	or	
	Latin 1A & Greek 1A	6 units
	Total required	12 units
Electives:	Total required	8 units
	Total	20 units

HISTORY MAJOR (Classical Studies)

The History Major requirements can be fulfilled by taking a substantial number of courses directly related to the classics. For details consult the chairman of the Department of History or the Coordinator of Classical Studies.

The following list includes the courses most directly concerned. For further information consult the Coordinator of Classical Studies, Dr. Stephen Benko, Department of History.

Art

Art H 10 The Ancient and Primitive World (3)
109T Topics in Art History (1–3; max 3 per area)

Drama 185. History of the Theatre and Drama I (3)

English 112. World Literature: Ancient (4)
113W. World Literature: Medieval and Renaissance (4)
115W. Literature of the New Testament (3) (See Phil 133)
116W. Literature of the Old Testament (3) (See Phil 134)
169T. Forms of Literature, (1–4): Comedy, Mythology
191T. Supervised Independent Reading (1–4): World Literature, Ancient-Medieval

Foreign Language

Greek 1A-B. Elementary Greek (3–3)
2A-B. Intermediate Greek (3–3)
148. Greek Literature in English Translation (3)
190. Independent Study (1–3)

Latin 1A-B. Elementary Latin (3–3)
2A-B. Intermediate Latin (3–3)
131T. Classical, Medieval, Renaissance Latin (3; max total 9 if no topic repeated)
132. Classical Mythology (3)

148. Roman Literature in English Translation (3)
190. Independent Study (1–3)

History 1. Western Heritage I (3)
103A. History of Early Christianity (3)
103B. History of Medieval Christianity (3)
108A. Armenian History to the Mongol Invasion (3)
108B. Armenian History from the Mongol Invasion to the Present (3)
110. Ancient Near East (3)
111. Ancient Greece (3)
112. Ancient Rome (3)
114. The Ancient Mediterranean (3)
115. Ancient Israel (3)
119T. Studies in Ancient History (1–3; max total 6 if no topic repeated)
120. Later Eastern Roman or Byzantine Civilization (3)
190. Independent Study (1–3)
201. Seminar in United States History (3)

Linguistics
Hebrew 1A-B. Basic Hebrew (3–3)

Philosophy 101. Ancient Philosophy (3)
116. History of Ethics (3)
133W. Literature of the New Testament (3) (Same as Engl 115W)
134W. Literature of the Old Testament (3) (Same as Engl 116W)
170T. Seminar in History of Philosophy (4; max total 12)
190. Independent Study (1–3)

Physical Science 106. History and Philosophy of Physical Science (3)

Political Science 110. Seminar in History of Political Thought to Macchiavelli (3)

COMPUTER SCIENCE

Until the university inaugurates a formal Computer Science major, students interested in Computer Science can fill their needs by taking the computer-related courses that are offered by several departments of the university. A list of such courses is presented below. See the appropriate department for non-CSC course descriptions.

COMPUTER SCIENCE (C S C)

180T. Programming in Specialized Computer Languages (2–3)
Prerequisite: permission of instructor. Programming and usage of an application oriented language selected from the areas of string and list processing, simulation, CAI, formal algebraic manipulation, query, text editing and processing (e.g. GPSS, SNOBOL, LISP, CSMP).

RELATED COURSES

Business

IS 50. Computer Concepts (3)
53. Programming Languages—FORTRAN (3)
54. Programming Languates—COBOL (3)
107. Management of Information Systems (3)
152. Advanced Computer Programming (3)
159. Machine Language Programming (3)
163. Business Models and Simulation (3)
164. Computer Configurations (3)
165. File Organization and Data Base Systems (3)
166. Applied Computer Systems (3)
168. Data Processing Management (3)
Bus 209. Computers and Programming (3)
262. Seminar in Programming (3)
265. Seminar in Information Systems
266. Data Processing Management and Computer Selection (3)

Engineering

S&P 34. Survey Computations (3)
E E 85. Logic Design and Microprocessors (3)
106. Switching and Automata (3)
107. Digital Data Handling (3)
133. Mini-Microcomputers as System Components (3)
175. Design of Digital Systems (3)
Engr 70. FORTRAN IV Programming (2)
173. Analog Computation (2)

Industrial Arts

Ind A 100. Computer-Aided Production (3)
107. Industrial Computer Concepts and Applications (3)
151. Elements of Digital Computers (3)
151L. Elements of Digital Computers Laboratory (1)
155. Integrated Circuits (3)

Mathematics

Math 19. Intensive BASIC Programming (1)
20. Introductory Computer Programming: FORTRAN (2)
21. Computer Programming II (3)
113. Theory of Computation (3)
114. Discrete Structures (3)
120. Structures of Programming Languages (3)
121. Numerical Analysis I (3)
122. Numerical Analysis II (3)
221. Advanced Numerical Analysis (3)

GERONTOLOGY

The interdisciplinary minor in gerontology (study of aging) is open to students in any major. It is especially designed to serve undergraduate majors in Communicative Disorders, Home Economics, Health Sciences, Nursing, Physical Therapy, Psychology, Recreation, Social Welfare and Sociology; graduate majors in various social science and health professions areas; those currently working for service agencies for the aging; and aging individuals who are interested in gaining greater insight into this period of their lives.

The minor consists of from 21 to 24 semester units of credit. The total to be determined by the student's major adviser and the Coordinator of Services to Older Adults.

The following list indicates the course requirements of the minor:

	Units
*A. Basic courses (required)	6
Soc 105 Orientation to Gerontology (3)	
Soc 166 Social Gerontology (3)	
B. Core courses (three of the following six courses are required)	9
Psych 103 Maturity and Old Age (3)	
S Wel 122T Social Services for Aging (3)	
H S 115 Health Problems of Aging (3)	
CS 117 Resource Management of Aging (3)	
F ScN 167 Nutrition and Aging (3)	
N Sci 140T Biology of Aging (3)	
Educ 180T Counseling the Older Adult (3)	
C. Elective courses (any of the following courses required—or the course not completed in group B)	3
Anthro 155 Folk Medicine (3)	

* Sociology 105 and 166 are recommended prerequisites for all core and elective courses.

CD 100 Principles of Communicative Disorders (3)
La R 125T Aging and the Chicano (3)
Rec 159 Volunteer Coordination (3)
Rec 165 Foundations of Therapeutic Recreation Service (3)
W S 10 Introduction to Changing Woman (3)

In addition classes on aging which are offered through Division of Extended Education, and the Saturday classes may be accepted for meeting elective credit requirements.

D. Intern or research course. Required field work or a research project relating to the aging, in the student's major field and supervised by an instructor in the student's major. The number of units required determined by the department concerned. Consideration will be given to previous work experience with the aging 3–6

21–24

The basic and core courses in the minor can be beneficial to any student in understanding the aging process and in correcting misconceptions about characteristics of aged individuals.

For further information, please call or write W. Donald Albright, Coordinator of Services to Older Adults.

GRADUATE STUDIES

110 It is the policy of the Division of Graduate Studies and Research that a graduate student who makes use of university resources while completing course work under an SP grade must be enrolled at the university. Two special courses, Graduate Studies 295 and 299, have been created to make this enrollment possible when the student is not registered in any regular course. GS 295 is to be used when the student is continuing work in any course besides a thesis (299) or is preparing for comprehensive examinations. GS 299 is to be used for thesis continuation only. The courses carry zero units and are to be used only to maintain enrollment at the university. The work must be completed within the stipulated time period. If a student must suspend work for more than one semester on the thesis or other courses in which the SP grade was given, application for an academic leave of absence should be filed. (*See: Grades, Scholarship, Records—SP Grade and Special Programs—Graduate Studies.*)

GRADUATE STUDIES (GS)

295. Graduate Work Continuation (0)

Prerequisite: prior registration in a departmental graduate course with an assigned grade of SP or certification by the major department that the student will be using university facilities to prepare for departmental comprehensive examinations for the completion of master's degree requirements.

299. Thesis or Project Continuation (0)

Prerequisite: prior registration in a departmental thesis 299 course with an assigned grade of SP. Registration is required in any semester in which the student expects to use the facilities and resources of the university after receiving the grade of SP in Course 299.

SPECIAL GRADUATE PROGRAMS

MASS COMMUNICATION

The master of arts degree in mass communication is an interdisciplinary degree program jointly offered by the journalism and radio-television-film faculties of the college. The program has been developed to prepare students for professional roles in the various mass communication industries, as

teachers in the mass communication disciplines, or as candidates for advanced graduate study and research.

The Division of Graduate Studies and Research provides administrative coordination for graduate interdisciplinary programs and courses.

Supervised by a joint committee of representatives from the Communication Arts and Sciences Department and the Journalism Department, the program has options in print media and electronic media administered by the two respective departments.

MASTER OF ARTS DEGREE REQUIREMENTS

The master of arts degree program in mass communication assumes that the student has an undergraduate major in a directly related field, such as radio, television, film, journalism, etc.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

Under the direction of an advisory commitee, each student prepares and submits an individually designed course of study within the following framework:

	Units
Required core courses (see *Specific Requirements*)	10–12
Courses in selected major option (print or electronic media)	10–15
Approved electives in cognate areas (e.g., psychology, political science, sociology)	6–9
Total (at least 15 units in 200-series)	30

Specific Requirements: MC 201, 202, 299 (minimum of 4 units).

COURSES

The following graduate courses in mass communication may be used on master's degree programs.

MASS COMMUNICATION (M Com)

201. Seminar in Theory and Research (3)

(Core) Theory of the mass media, its development and application; basic research methodologies applicable in the various areas of the mass media.

202. Seminar in Literature of Mass Communications (3)

(Core) Critical examination of the literature in the field of mass communication. Exploration of the concepts in various areas through a study of literary resources.

204T. Seminar in Journalism (3; max total 9)

Seminar in a print media topic: government information policy, news media and urban affairs, social responsibility in public relations, magazine influence in America.

205T. Seminar in Radio-Television-Film (3; max total 9)

Seminar in an electronic media topic: current regulatory issues, quantitative research, ETV/ITV problems, film as social comment.

230. Criticism of Broadcasting and Film (3)

Development of ethical, artistic, and critical standards for broadcast and motion picture evaluation. Principles of criticism are traced from an historical to a contemporary context. Research papers and reports required.

250. Comparative and International Broadcasting (3)

Formal study of national systems of broadcasting and the social, geographic, and political forces that have shaped national roles in international communications. Research papers required.

290. Independent Study (1–3; max total 6)

(See *Academic Placement-Independent Study.*)

299. Thesis (2–6)

(Core) Prerequisite: see *Master's Degrees-Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the Master's degree.

SPECIAL MAJOR

The special major for the Master of Arts Degree provides an opportunity for a graduate student to engage in an individualized course of study leading to a master's degree when academic and professional goals are not accommodated by existing master's degree programs. The special master's degree major consists of correlated studies in two or more fields. It is not intended as a means of bypassing normal master's degree requirements.

To embark on a special major master's degree the student must meet the criteria for at least conditionally classified standing in a master's degree program at California State University, Fresno, and must have the sanction of the Dean of the Division of Graduate Studies and Research. Permission to embark on a special major master's degree will be based on a case-by-case justification, including 1) a written statement of the reasons for desiring the special major, in terms of academic and professional goals and showing why these goals cannot be met within an existing master's degree program; 2) the discipline areas which, in the student's opinion, would lead to the specified academic and professional goals.

If the student is qualified and the request appears to be justified, the Dean of the Graduate Division will authorize the student to apply formally for admission to the special major program. Applications may be obtained in the Division of Graduate Studies and Research. It is the responsibility of the student to consult with appropriate faculty members and/or department chairmen regarding the proposed program of study, eventually obtaining on the application form the signatures of the faculty members who will comprise the student's program committee. The final approval of the student's application by the Dean, Division of Graduate Studies and Research, constitutes the official appointment of the program committee.

From this point on procedures are the same as in any other master's degree program, e.g., determination of classified standing, administration of the qualifying examination, advancement to candidacy, etc.

For more detailed information on the application process and the procedures to be followed, consult the Office of the Division of Graduate Studies and Research.

INTERNATIONAL PROGRAMS

The university offers two programs under this heading, a campus program, and an overseas program. The campus program of International Studies Courses (ISC) is designed for students whose native language is not English and for those whose education has been in a language other than English. All such students are required to participate in post-admission English language

testing. As a result of such testing, any student may be required to register for certain International Studies Courses.

CAMPUS PROGRAM

The International Program (Campus) provides courses intended to help the foreign student gain adequate skill in the use of the English language and sufficient familiarity with American customs and tradition to obtain maximum benefit from his experience at an American college. The following program is required of all entering foreign students, unless excused from part or all of it by the Admissions Committee on the advice of the persons concerned with the instruction and administration of the program. This decision will be based on a consideration of test scores and other data supplied by the student with his application. (See *Admission to the College—Entrance Examinations*). After arrival on campus, examinations and an interview may lead to the student's being excused from certain courses.

First Semester Program: Most students will be required to enroll in I S C 10, 21, and 93 in the first semester of residence. In addition, students with less skill in English may be required to take I S C 2. With permission of his adviser, a student may enroll in other regular courses.

Other Undergraduate Courses: A course in English, I S C 110W, will be taken during the second semester of residence unless the foreign student is advised that it is unnecessary for him.

Courses Taken in Graduate Standing: An entering graduate student whose previous education has been in a language other than English is held to the same standards of English proficiency as are undergraduate students and may be required to enroll in the above-listed undergraduate courses when considered necessary by his advisers. Graduate students will be required to enroll in I S C 193.

COURSES (I S C)

1. Oral English: Pronunciation (2)
The sound patterns of American English. Sound contrasts and stress, rhythm and intonation drills. Must be taken for CR-NC grade only and is not applicable to the requirements for the baccalaureate degree.

2. English Sentence Patterns (3)
Practice in the use of intermediate and advanced grammatical patterns. Reading comprehension and vocabulary building. Must be taken for CR-NC grade only and is not applicable to the requirements for the baccalaureate degree.

10. English Composition for Foreign Students (3)
Practice in writing paragraphs, short essays and other types of writing. Mechanics of term papers. Brief review of certain grammar problems and punctuation.

21. Advanced Oral Practice in American English (3)
Advanced drills in articulation, intonation, rhythm, and word and sentence stress. Speech composition including organization, delivery, and support.

93. Contemporary American Society (3)
Introduction to contemporary American society to familiarize the student with political and social issues and ideological conflicts.

110W. Advanced Composition for Foreign Students (3)

Review of selected points of English usage. Conventions of writing formal research reports. Writing of short essays. Practice in paraphrasing and summarizing. Writing complex sentences in concise form. Meets upper division writing skills requirement for graduation.

193. Contemporary America (3)

Open only to students from abroad. Prerequisite: permission of instructor. Examination of selected issues in contemporary American society from an international/intercultural perspective. Individual student projects required, including field research. (Former ISC 293)

INTERNATIONAL PROGRAM (OVERSEAS)

The California State University and Colleges (CSUC) offers opportunities for students to pursue their studies as full-time residents at a distinguished foreign university or special study center. Under the auspices of the CSUC Office of International Programs participants in this program are concurrently enrolled at their home CSUC campus, where they earn full academic credit for their overseas studies.

Cooperating universities abroad include the University of Sao Paulo, Brazil; The University of Copenhagen, Denmark (through Denmark's International Studies Program); The Universities of Hamburg, Heidelberg, and Tubingen, Germany; the Hebrew University of Jerusalem, Israel; the University of Florence, Italy; Waseda University, Japan; the Universidad Ibero-Americana, Mexico; Massey University and Lincoln University College, New Zealand; the Universidad Catolica, Peru; the Universities of Quebec (Canada); National Chengchi University, the Republic of China (Taiwan); the Universities of Madrid and Granada, Spain; and the University of Uppsala, Sweden.

Eligibility for application is limited to those students who will have upper division or graduate standing by September 1982 at a CSUC campus, who possess a cumulative grade point average of 2.75 for all college level work completed at the time of application (some programs require a 3.0 cumulative grade point average), and who will have completed required language study where applicable. (Brazil, France, Germany, Mexico, Peru, Quebec francophone universities, and Spain currently require language study.) Selection is competitive and is based on home campus recommendations and the applicant's academic record. Final selection is made by the Office of International Programs in consultation with a statewide faculty selection committee. Applicants to the programs in Israel, Japan, New Zealand, and Quebec must also be accepted by the respective cooperating universities.

The International Programs supports all tuition and other academic and administrative costs overseas for each of its participants to the same extent that such funds would be expended to support similar costs in California. Students assume costs for pre-departure orientation, insurance, transportation, housing, and meals. Home campus registration and other fees and personal incidental expenses or vacation travel costs while abroad are also paid by the student. Non-resident students are subject to non-resident fees. The Office of International Programs collects and administers funds for those items which the program must arrange or can negotiate more effectively, such as home campus fees, orientation costs, insurance, outbound transportation, and, in some centers, housing. International Programs participants may apply for any financial aid available at their home campuses,

except for campus work-study.

Applications for the 1982–83 academic year must be submitted by February 9, 1982, except for the program in New Zealand for which applications must be submitted by May 15, 1982 for participation during calendar year 1983. The academic year in New Zealand begins in February and ends in October.

Detailed information and application materials may be obtained from Rita Bawanan, Coordinator, International Programs (Overseas) in the International Student Counseling Office, Joyal 211, or Maurice Gendron, Academic Council Member; further information may also be obtained by writing to The California State University and Colleges International Programs, 400 Golden Shore, Suite 300, Long Beach, California 90802.

COURSES (I S A)

California State University, Fresno students under The California State University and Colleges International Programs register concurrently on campus and at the host institution abroad, with credit assigned in terms of CSUF courses. Undergraduate students who find appropriate study opportunities at the host institution but no local counterpart course may use Independent Study (190), and International Study Abroad 92 or 192. Graduate students may use Independent Study (290), and International Study 292.

92. Projects in Study Abroad: (Subject) (Units variable; max total 18)

Open only to students in California State University and Colleges International Programs. Study undertaken in a university abroad under the auspices of the California State University and Colleges.

192. Projects in Study Abroad: (Subject) (Units variable; max total 18)

Open only to students in California State University and Colleges International Programs. Study undertaken in a university abroad under the auspices of the California State University and Colleges.

292. Projects in Study Abroad: (Subject) (Units variable; max total 18)

One- to three-unit registrations. Prerequisite: admission to master's degree program; written plan approved by the Fresno State instructor, department chairman, and the Dean of the Division of Graduate Studies and Research. May require one or more papers and oral or written examination on the student's return before the recording of the final grade.

LATIN AMERICAN STUDIES

CSUF offers several interdisciplinary courses designed to meet the needs of students interested in Latin American Studies. There is no degree program available at this time, however, an interdisciplinary undergraduate minor is available. Under certain circumstances a special major may be designed to meet specific needs of students in this area. Consult the Coordinator of the Latin American Studies program, Dr. James S. Kus, Department of Geography, for additional information.

MINOR

The minor consists of 21 units of upper division courses in the area. The program must be approved by the Coordinator of Latin American Studies and a Latin American Studies adviser in the area of concentration. A maximum of 9 units must be taken in any one area listed below and the remaining 12 units from any three of the other areas. One year of lower division Spanish or Portuguese is recommended.

COURSES

AGRICULTURAL SCIENCES (Agri)

161. International Agriculture (3)
170. Seminar in International Agriculture (3)

ANTHROPOLOGY (Anth)

120. Peoples and Cultures of North America (3)
121. Peoples and Cultures of South America (3)
130. Archaeology of Meso-America (3)

ART HISTORY (Art H)

173. Pre-Columbian Mexico (3)
175. Pre-Columbian Andes (3)

BUSINESS—Business Administration (B A), Marketing (Mktg)

Bus 272. Seminar in International Finance (3)
275. Seminar in International Business (3)
Mktg 176. International Marketing (3)

ECONOMICS (Econ)

114. Economics of Underdeveloped Areas (3)
178. International Economics (3)
179. Global Corporations and the Third World: The World Economy (3)
188T. Political Economy Special Topics (1–3; max total 6)

FOREIGN LANGUAGE (Span)

125T. Hispanic Culture (3)
143. Introduction to Spanish-American Literature (3)
145. Mexican Literature (3)
147. Twentieth Century Spanish-American Literature (3)
148T. Major Figures in Hispanic Literature (3)
240. Spanish-American Literature (3; max total 9 if no topic repeated)

GEOGRAPHY (Geog)

170T. Latin American Regions (3, max total 9 if no area repeated)
188T. Topics in Geography (1–3; max total 9)
195. Field Geography (1–6; max total 6)

HISTORY (Hist)

145. Spain and Portugal (3)
160. The Great American Civilizations: Maya, Aztec, Inca (3)
161. Caribbean America (3)
165. Modern Mexico (3)
169T. Studies in Latin American History (1–3; max total 6 if no topic repeated)
183. The Hispanic Southwest (3)

POLITICAL SCIENCE (Pl Si)

126. International Law and Organization (3)
128T. Topics in International Relations (1–4; max total 8 if no topic repeated)
146T. Area Studies in Latin America (1–4; max total 8 if no topic repeated)

Departmental Independent Studies (190 and 290) and Directed Readings (191, 192, and 292) may be applied to the major and minor requirements with adviser approval.

LIBERAL STUDIES

The Liberal Studies Major, which leads to the bachelor of arts degree, is an 84-unit program which utilizes courses from twenty-one departments of the university to provide an interdisciplinary course of study involving the

areas of English; Humanities and the Fine Arts (including Foreign Language); Mathematics and the Physical or Life Sciences; and Social Science.

Each area has an A and B section. A minimum of 12 units is required from each A section (48), a minimum of 6 units is required from each B section (24), and 12 units may be selected from A or B for a total of 84 units. The major incorporates within its structure the general education requirements for graduation.

The major is designed to meet the needs of: (1) students wishing to qualify for a teaching credential authorizing multiple subject teaching, and (2) students desiring a liberal arts foundation for professional training in medicine, law, journalism, and various fields of public service.

Since the major utilizes 84 units of the 124 units required for the degree, careful planning by the student is essential if all requirements for the degree, or requirements for the degree and credential, are to be satisfied within a four-year time space.

Students in their first semester at CSUF are *required* to consult with the Coordinator, Liberal Studies Major, in the first two weeks of the semester. Appointments are to be made in Room 120 Education-Psychology building.

Students completing the Liberal Studies major toward a teaching credential should refer to the Department of Teacher Education.

LIBERAL STUDIES MAJOR (Noncredential)

Area I *English*
- A. Select 12 units from:
  1. Engl 1
  2. Engl 20
  3. Ling 10 or 134
  4. Spch 3 or 4 or 8
- B. Select 6–12 units in upper division courses in one of the following disciplines: English, Linguistics, Speech

Area II *Humanities and Fine Arts*
- A. Select 12 units in lower division courses from three of the following disciplines: Art, Drama, Ethnic Studies, one Foreign Language, Humanities, Music, Philosophy.
- B. Select 6–12 units in upper division courses from one of the following disciplines: Art, Drama, one Foreign Language, La Raza, Music, Philosophy.

Area III *Mathematics and Sciences*
- A. Select 6 units from: Math 4, 5, 11, 41, 51, 71, 72, 75, 76, 143.
- B. Select 6 units from: Anth 1, Biol 10, 20; Bot 1, 10; Chem 1, 1A-B, 2A-B, 2C, 8; Geog 5, 7, 112, 120, 128; Geol 1, 2, 12, 189; P Sci 20, 21, 22, 23; Phys 1A-B, 2A-B, 55; Plant 108; Psych 36; Zool 1, 10.
- C. Select 6–12 units in upper division courses from one of the following disciplines: Biology, Chemistry, Geology, Mathematics, Physical Geography (select from 111, 112, 114, 117, 118, 120, 121, 126, 128, 129), Physics.

Area IV *Social Sciences*
- A. Select 12 units from: Eth S 1; Hist 1, 12; Geog 2, 4; Anth 2; Soc 1; Psych 10; Pl Si 1 or 2; Econ 1A or 1B.
- B. Select 6–12 units in upper division courses from one of the following disciplines: Anthropology, Economics, Geography (excluding 111, 112, 114, 117, 120, 121, 126, 128, 129), History, La Raza, Political Science, Psychology, Sociology.

MOSS LANDING MARINE LABORATORIES

The California State University and Colleges began operation of the Moss Landing Marine Laboratories, Moss Landing, California, in the fall semester 1966. This facility functions as a seaside extension of the campuses of six

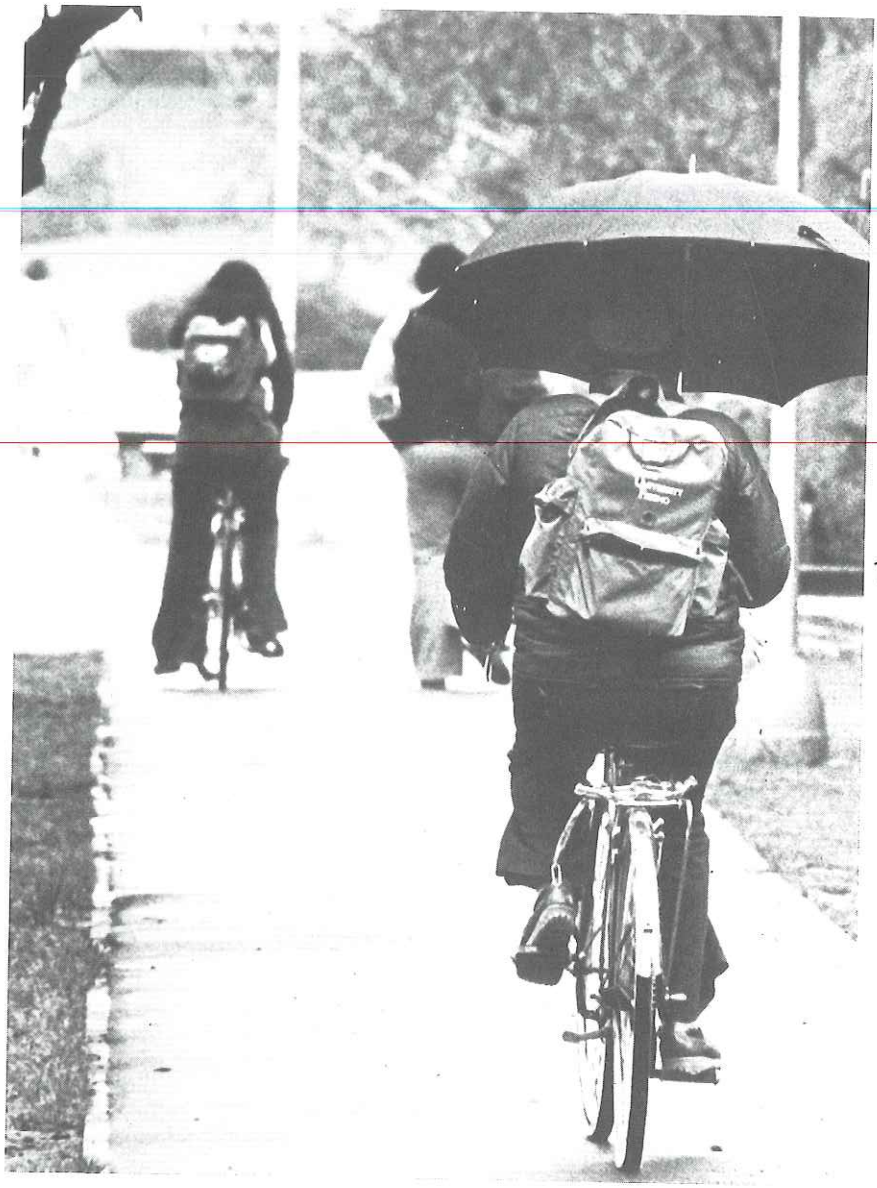
cooperating state universities (Fresno, Hayward, Sacramento, San Francisco, San Jose, and Stanislaus). It offers full-time course work in marine biology, oceanography, and other marine sciences for majors in either the biological (botany, biology, zoology) or physical sciences whose objectives include further graduate study, teaching the sciences, or research in the marine sciences. Properly qualified upper division and graduate students may enroll on the CSU, Fresno campus for a term of instruction at Moss Landing and earn resident credit for such course work. See *Geology Department* for on-campus course work in general oceanography and geology courses related to marine science.

Space reservation is required for attending Moss Landing Marine Laboratories. Forms for this purpose are available from the Biology Department or Moss Landing Marine Laboratories, P.O. Box 223, Moss Landing, CA 95039. Priority is determined based upon the date space reservation form is received at Moss Landing Marine Laboratories. Since enrollment is limited, interested students should make early application.

COURSES (M Sci)

Note: The following courses are taught at the Monterey Bay location of the Moss Landing Marine Laboratories. For course descriptions see Biology Department.

101. General Oceanography (4)
102. Marine Science Techniques (4)
103. Marine Ecology (4)
104. Quantitative Marine Science (4)
105. Marine Science Diving (3)
106. Subtidal Ecology (4)
111. Zoology of Marine Vertebrates(4)
112. Marine Birds and Mammals (4)
113. Marine Ichthyology (4)
122. Marine Invertebrate Embryology (4)
123. Marine Invertebrate Physiology (4)
124. Marine Invertebrate Zoology I (4)
125. Marine Invertebrate Zoology II (3)
131. Marine Phycology (4)
132. Introduction to Marine Plankton (4)
141. Geological Oceanography (4)
151. Marine Meteorology (3)
161. Marine Fisheries (4)
171. Oceanographic Summer Cruise (4)
175T. Topics in Marine Sciences (1-6)
177. Microscopic Techniques (3)
180. Independent Study (1–4)
201. Advanced Studies in the Marine Sciences (3)
202. Marine Instrumental Analysis (4)
203. Advanced Marine Ecology (4)
211. Behavior of Marine Animals (4)
212T. Topics in Marine Vertebrates (4; max total 8)
221T. Topics in Marine Invertebrates (4; max total 8)
222. Biology of the Mollusca (4)
231. Advanced Marine Phycology (4)
232. Advanced Marine Plankton (4)
241. Marine Microorganisms (3)
242. Plate Tectonics (3)
243. Coastal Geomorphology (4)
244. Marine Biogenic Sedimentation (4)
251. Marine Geochemistry (4)



252T. Topics in Marine Chemistry (4; max total 8)
261. Descriptive Physical Oceanography (4)
271. Population Biology of Marine Organisms (3)
273. Environmental Studies of Monterey Bay (3)
275T. Advanced Topics in Marine Sciences (1–6; max total 8)
277. Human Ecology of Monterey Bay (3)
282T. Seminar in the Marine Sciences (2)
285T. Seminar in Marine Biology (2; max total 4)
286T. Seminar in Marine Geology (2; max total 4)
287T. Seminar in Oceanograph (2; max total 4)
298. Research in the Marine Sciences (1–4)
299. Thesis (1–4; max total 4)

NEXA (Nexa)

The following courses were developed with support from the Andrew W. Mellon Foundation through the Science-Humanities Convergence Program at San Francisco State University. The courses are team-taught interdisciplinary offerings exploring the interrelationships between concepts in the sciences and the humanities.

101. Space and Time (3)

An interdisciplinary study of the changing concepts of space and time that underlie our vision of the world and the ways in which these concepts are expressed, especially in Art, Astronomy, Literature, and Physics.

102. Understandings of Human Behavior (3)

A philosophical, psychological, and biological investigation of the main issues involved in understanding human behavior. Reading and discussion of literary and historical accounts of behavior, with emphasis on the development of scientific explanation. Ethical scientific consequences of the use of experimental methods.

103. Ascent of Man (3)

Exploration of basic ideas found in Jacob Bronowski's *Ascent of Man*. The course will explore the implications, both scientific and humanistic, of Bronowski's interpretation of man's cultural history. Guest lecturers from various arts and science disciplines will add their insights.

104. Psychological Issues Through Literature (3)

Examination of fundamental and controversial issues in Psychology as they appear in novels, plays, and short stories.

OFF-CAMPUS CREDIT TOWARD DEGREE

Certain circumstances, such as full-time employment, travel or other personal commitments, may prevent a student from continuing with formal course work on the CSUF campus for one or two semesters. Even though regular attendance on campus is impossible, a capable and motivated student may earn credit through Independent Study and Directed Readings and thus continue to make progress toward a degree. The credit will be entered on the transcript as lower division elective credit and a maximum of six units for any combination of the courses will be counted toward degree requirements. It is necessary to have the approval of a faculty member willing to supervise the study and of the department through which the credit will be awarded prior to enrollment.

The student must enroll during the late registration period and pay the required fees if credit is to be received.

For further information, assistance and referral to a supervising faculty member, contact the Student Counseling Service.

90 IS. Independent Study (1–3)

Except in unusual circumstances, available only to students with an average of 3.0 or higher. See page 60 of this catalog for additional regulations governing Independent Study.

91 DR. Directed Reading (1–3)

Completion of a structured reading program dealing with a specific topic or area of study. Written reports as required by the supervising faculty.

RUSSIAN AREA STUDIES

CSUF offers courses in several disciplines that are concerned with Russia and the Soviet Union. Although the university does not offer a major or minor in Russian Area Studies, a student may, through the selection of elective courses, acquire a broad knowledge of the Russian and Soviet Area. Such

courses may complement a number of academic majors. They may prepare a student for graduate work in a major center of Soviet studies, or may prove helpful to students seeking employment with public or private organizations dealing extensively with the Soviet Union.

The following list suggests the principal subjects covered in Russian Studies on this campus, and presents the current courses most directly concerned with those subjects.

COURSES

Russian Language (Russ)

1A-B Elementary Russian (4–4)
2A-B Intermediate Russian (4–4)
101 Composition and Conversation (3; max total 9)
118A-B Twentieth Century Literature (3–3)

Russian Literature (Russ)

110 Landmarks in Russian Literature (3)
148A-B Russian Literature in Translation (3–3)

Russian and Soviet Culture

Russian 103T Topics in Russian Culture (3; max total 9 if no topic repeated)
Russian 127T Soviet Russian Topics (3; max total 9 if no topic repeated)
History 144 Russian Culture (3)

Russian and Soviet History (Hist)

142 Russia (3)
143 The Soviet Union (3)

Soviet Geography (Geog)

176 Geography of the USSR (3)

Soviet Politics (Pl Si)

125 Soviet Foreign Policy (3)
143T Soviet Politics (1–4; max total 8 if no topic repeated)

WOMEN'S STUDIES

The Women's Studies Program is an interdisciplinary program offering courses in several disciplines. These are designed to develop awareness of the contributions of women throughout history and the roles in which they have been cast as well as to help women discover what is pertinent to themselves and their abilities.

MINOR

An interdisciplinary minor is available, the purpose of which is to give students interested in pursuing this area an opportunity to make a systematic study of women—their roles, their problems, and their contributions.

The minor in Women's Studies requires a minimum of 20 units, including W S 10 and W S 175. The other 14 units shall be selected from at least two of the following groups of courses:

Humanities: W S 50T, 124, 128, 145, 150T, 168T, 176T, 194T
Social Sciences: W S 101, 105, 119, 126, 131, 135, 137, 172, 179T
Electives: W S 108, 110, 112, 114, 118, 127, 150T, 160, 190 (Electives also may be chosen from special topics courses on women offered periodically by certain departments.)

COURSES (W S)

10. Introduction to Changing Women (3)
Introductory interdisciplinary course designed to provide a foundation for Women's Studies; focus on women in the areas of sociology, psychology, history, economics, and the arts.

37. Math Confidence (2) (See N Sci 37) (Former WS 55T section)

42. Continuing Education for Women (3)
Introduction to and application of learning, communication, family relations, and aging theories as they apply to personal, social, and academic problems of older women returning to the university.

50T. Studies in Literature (4) (See Engl 50T section)
Women in Novels section.

55T. Topics in Women's Studies (1–4; max total 12)
Topics of current issues in the Women's Movement, covering a wide variety of interest. (See *Schedule of Courses* for specific topics.)

101. Women in History (3) (Former WS 118) **(See Hist 101)**

105. Education and Sex Role Stereotypes (3)
Designed to meet the needs of parents, teachers, counselors, administrators. How sex role stereotypes affect the educational system, pre-K through higher education.

108. Rape (1)
An inquiry into the phenomenon of rape, myths about rape and rapists, treatment of rape victims, discussion of physical and psychological preparation for possibility of attack. Lecture, film, paper, speakers. An all day workshop held on two consecutive Saturdays. (Former W S 150T section)

110. Women in Sport (3) (See PE 110)

112. Assertive Training (1)
Women's special needs in becoming assertive; blocks preventing assertion and methods of getting around them. An all day workshop held on two consecutive Saturdays. (Former W S 150 section)

114. Marriage and the Family in the 1980's (1)
A re-examination of the concept of traditional marriage and the family, and emerging concepts of the 1980's. Contemporary complaints against traditional family roles, proposed alternatives, and their implications. Films, speakers. An all day workshop held on two consecutive Saturdays. (Former W S 150T section)

118. Women and Aging (1)
An exploration into the myths and realities of the aging process, with a focus on women. The class will confront the issues of aging in order to stimulate constructive change and positive alternatives for women. (Former W S 150T section)

119. The Chicano Family (3) (See La R 118)

124. Feminist Art (3; max total 6) (See Art 114)

126. Legal Rights of Women (3) (Former W S 121) **(See Crim 126)**

127. Female Sexuality (3) (See H S 126)

128. Feminist Theory (3) (See Phil 128)

131. Sociology of Sex Roles (3) (See Soc 131)

135. Women in Other Cultures (3)
Examines the religious, economic, and social roles of women in the world, including their current status in at least four of the following areas: China, Southeast Asia, India, Africa, Middle East, South America.

137. Black Women (3) (See Bl S 137)

145. Women in the Theatre (3) (See Drama 145)

150T. Topics in Women's Studies (1–4; max total 12)
Topics of current issues in the Women's Movement, covering a wide variety of interests. (See *Schedule of Courses* for specific topics.)

160. Feminist Issues in Counseling (3)
Brief introduction to counseling theories, individual and group techniques, the relocation signs of serious maladjustment, referral techniques, feminine role crisis, re-entry crisis, feminist therapy, and location and use of counseling resources. (Former W S 150T—Counseling of Women)

168T. Women and Literature (4) (Former Engl 169T section) **(See Engl 168T)**

172. Psychology of Women (3) (See Psych 172)

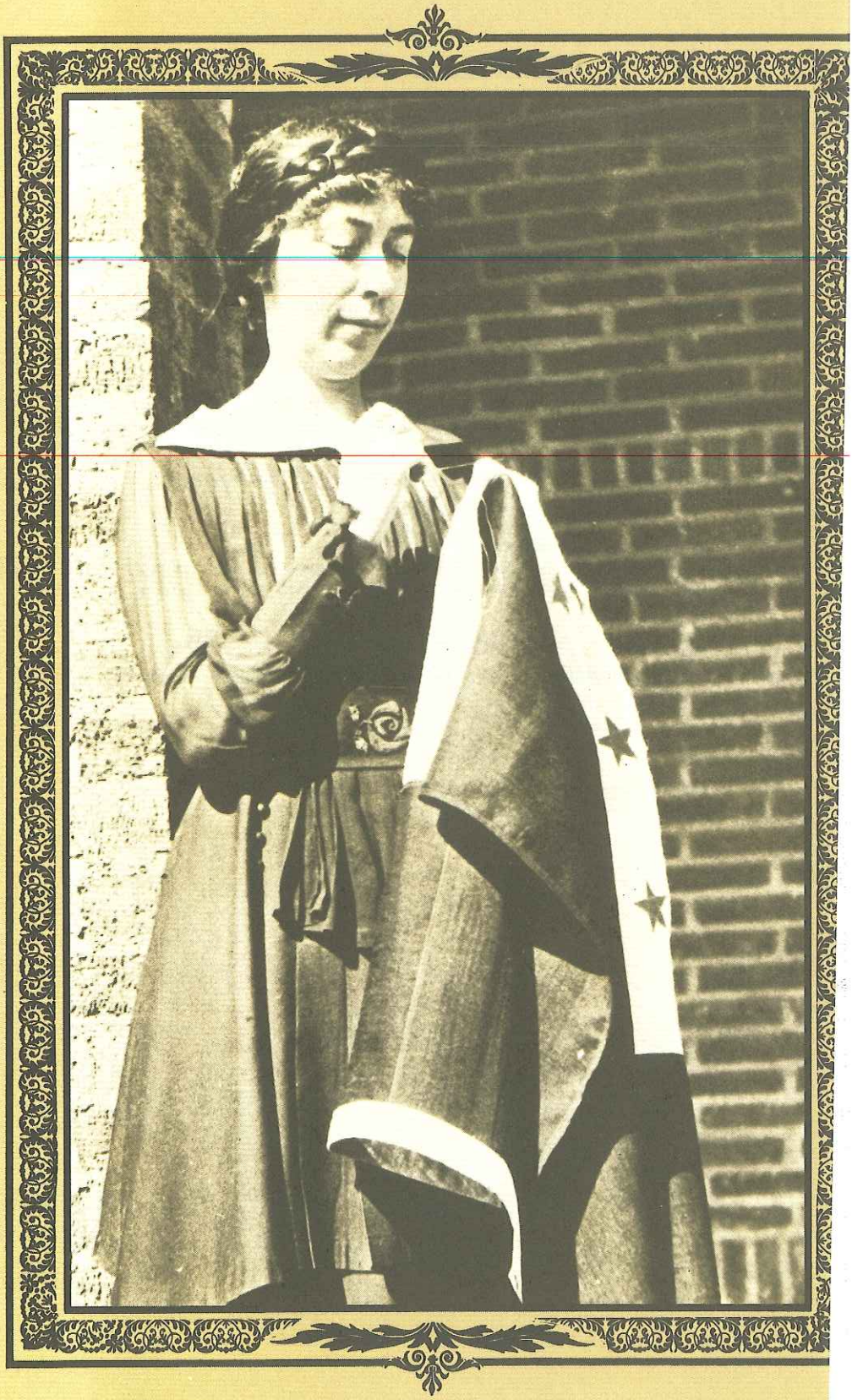
175. Seminar in Women's Studies (3)
Primarily for Women's Studies minors. Prerequisite: 15 units in Women's Studies (including W S 10). A synthesis of objective and subjective experience in Women's Studies. In depth research project required.

176T. Genre Film: Form and Function (1–4 max total 8) (See Engl 176T)

179T. Studies in United States History (1–3; max total 6 if no topic repeated) (See Hist 179T)

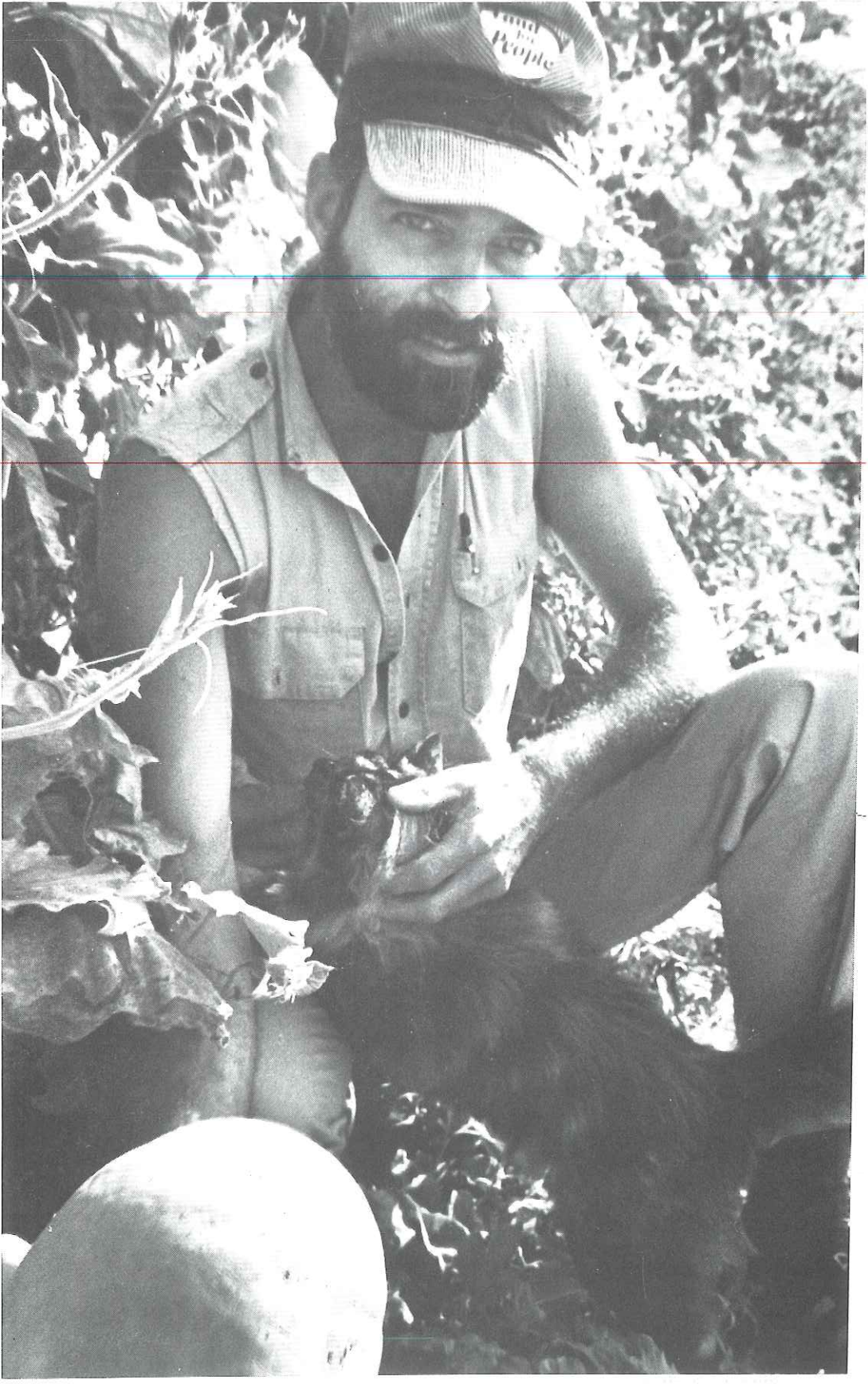
190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study*

194T. Seminar in Women and Literature (4; repeatable with different topics) (Former Engl 193T section.) **(See Engl 194T)**



SCHOOL OF AGRICULTURE AND HOME ECONOMICS

Photo: *Cora Burdick—Teacher, Home Economics*
Fresno State Normal School, circa 1917



SCHOOL OF AGRICULTURE AND HOME ECONOMICS

Charles M. Smallwood, Dean

Earl H. Bowerman, Assistant Dean for Agricultural Operations

M. Van Elswyk, Jr., Assistant Dean for Academic Affairs/International Programs

Department	*Chairman*
Agricultural Economics and Education	Carl L. Pherson
Animal Science	Edwin J. Rousek
Enology, Food Science, and Nutrition	Ratana S. Newsome
Plant Science and Mechanized Agriculture	Harry P. Karle
Family Studies and Home Economics	
Industrial Arts and Technology	Gary E. Grannis

DEGREES OFFERED

BA (Home Economics), BA (Industrial Arts), BS (Agricultural Business), BS (Agricultural Education), BS (Agricultural Sciences), BS (Industrial Technology), Minor in Agricultural Sciences, Home Economics, or Industrial Arts, MA (Industrial Arts), MS (Agriculture), MS (Home Economics).

SCHOOL PROGRAMS

The School of Agriculture and Home Economics provides degree curricula preparatory to professions and occupations in home economics and agriculturally related industries. The university farm is organized and operated to provide experience and practical training. Eleven hundred and ninety acres serve as a laboratory and production unit where students carry on supervised farming programs in animal and plant science. In addition, livestock, vineyards, orchards, and crop land are maintained for laboratory use. For information on supervised projects see *Animal Science or Plant Science and Mechanized Agriculture Departments.*

The school offers programs leading to the bachelor of arts degree in Home Economics and the bachelor of science degree in three specialized majors: Agricultural Business, Agricultural Education, and Agricultural Science; an agriculture or home economics minor; short courses for those not enrolled in the university program but engaged in farming or allied occupations and occupations related to home economics.

Students desiring to qualify for teaching credentials should consult the Dean of the School of Agriculture and Home Economics or credential advisers. For credential structure, see *School of Education and Human Development.* The School has an approved major/waiver for certification of subject matter competency, as part of the requirement leading to a public school teaching credential. See credential adviser for details.

UNDERGRADUATE PROGRAM

The bachelor of science degree is granted upon completion of a four-year curriculum consisting of 128 semester units, *including 40 units upper division,* selected within the framework of one of the three major programs. Upper division courses taken before the student has earned 45 units may not be applied on the 40-unit requirement. The bachelor of arts degree is granted upon completion of 124 semester units selected from the various emphasis areas within the home economics discipline. An official *Program of Study* must be filed with the registrar to complete major requirements for the degree. No more than 15 upper division units from any combination of internships, independent study, and undergraduate research may be applied toward the degree. The general requirements for the bachelor of science or bachelor of arts degrees must be completed (see *Degrees and Credentials*).

CAREER PLANNING

Listed below are a few of the many fields of study in which a student may be interested. Students should consult the appropriate department to select an adviser for their field of interest. The assigned adviser will assist students in the preparation of programs of study for the bachelor of science (Agriculture) or bachelor of arts (Home Economics) degree. (See *Individual Counseling.*)

Field of Interest	*Department*
Agribusiness Management	
Agricultural Communications	
Agricultural Economics	
Agricultural Education	
Agricultural Finance	
Commodity Brokerage	
Diversified Farming	
Extension Service	Agricultural Economics and Education
Farm Appraisal	
Farm Labor Relations	
Farm Management	
General Agriculture	
International Agriculture	
Marketing	
Public Relations	
Sales	
Animal husbandry	
Dairy husbandry	
Poultry husbandry	
Horse husbandry	
Animal nutrition	Animal Science
Preveterinarian	
Meat technology, meat science	
Agriculture Communications (animal industry)	
Dairy Industry	
Enology	
Dietetics and food administration	
Food Science	Enology, Food Science, and Nutrition
Food and nutrition	
Food in business	
Agronomy, field crops	
Horticulture	
Mechanized Agriculture	
Agricultural Engineering Technology	
Ornamental Horticulture	
Natural resources	
Environmental sciences	
Agricultural chemistry	
Agricultural inspection and services	
Viticulture	Plant Science
Floriculture	
Plant protection	
Soil science	
Irrigation	
Vegetable Crops	
Agricultural Communications (plant science industry)	
Child Development	
Child and family studies	
Fashion merchandising	
Food and nutrition	Family Studies and Home Economics
Consumer science	
Interior design and housing	

INDIVIDUAL COUNSELING

The School of Agriculture and Home Economics offers, within the framework of one of the four major programs, an individually designed program of study to prepare the student for his or her specific career objective. Flexibility is an important characteristic of the programs. Advisers will assist the students in evaluating the alternatives this flexibility allows. They can and do play a significant role in planning the educational programs because of their close personal contact with students and with potential employers.

Departmental advisers are competent in guiding the selection of courses necessary to prepare a student for his or her individual career objective. Each student possesses specific and unique characteristics and objectives which will be taken into consideration in program planning.

Each student must consult his adviser at least once a semester. Prior to completion of 90 units, each student shall, in consultation with his adviser, develop an official *Program of Study*. This official program, when approved by the adviser, department chairman, and school dean, must be filed with the registrar upon completion of 90 units.

HIGH SCHOOL AND COMMUNITY COLLEGE PREPARATION

To assure the most rapid progress through a major program, high school and community college preparation should include the following:

Fundamental courses in agricultural sciences or home economics.
Biological sciences, such as botany and zoology or physiology.
Physical sciences, such as chemistry through organic chemistry.
American history and government.
Communication skills.
Mathematics through college algebra.

SCHOOL DEGREE REQUIREMENTS

BACHELOR OF ARTS DEGREE
HOME ECONOMICS MAJOR

The bachelor of arts degree with a major in home economics consists of 124 units. The home economics core is required of all majors and consists of 15 units. Students may select a program of study which prepares them for careers in general home economics, teaching home economics, and as home economists in business.

	Units
General education (may include additional requirements)	40
Special course requirements (US History, US Constitution)	(6)
Major requirements (including 24 units upper division)	48
Home Economics core (15 units) selected from CFS 39, 131; CS 105, 113; FM 20, 108, 120; FScN 50, 54; IDH 70, 107 (at least one course from each discipline area)	
Home Economics approved electives (33 units) selected from courses in the following discipline areas: Child and family studies, fashion merchandising, food and nutrition, consumer science, interior design and housing, home economics education.	
Electives and additional requirements	30–36
(At least 40 units upper division)	124

Additional Requirements: Certain courses may be recommended for specific career goals in home economics. Consult departmental adviser; file official *Program of Study* with the registrar.

Credential Program in Home Economics

The single subject waiver program in Home Economics consists of CFS 39, 131, 135; CS 113 or 115, 114; FM 20, 24 or 26; FScN 50, 54, 150; H Ec 148, 149T (15 units, 3 units from each topic), 240; IDH 70, 107, 171. Additional requirements include T Ed 151, 152, 155A, 155B, 156, 161, H S 121, and 3 graduate units in secondary education.

BACHELOR OF SCIENCE DEGREE
AGRICULTURAL BUSINESS MAJOR

The agricultural business major prepares students for employment in management positions in farming or businesses related to agriculture. Programs of study are available for students seeking careers in agribusiness (management of businesses related to agriculture), marketing of agriculture products, farm management, and agricultural economics. Under this major a student may elect various routes through a combination of subject matter in agricultural economics, plant science, animal science, mechanized agriculture, food science, and other specialized agricultural fields.

	Units
General education (may include additional requirements)	40
Special course requirements (US History, US Constitution)	(6)
Major requirements (including 20 units upper division)	60
Select one course in four of the following six disciplines (12 units):	
Plant science, animal science, food science, soil science, mechanized agriculture, agricultural economics.	
Approved electives in agricultural sciences, business, economics, and/or mathematics (48 units)	
Electives and additional requirements	22–28
(At least 40 units upper division)	128

Additional Requirements: Each student is required to complete certain courses in biological and physical sciences, mathematics, and related subject matter. Consult departmental adviser; file official *Program of Study* with the registrar.

BACHELOR OF SCIENCE DEGREE
AGRICULTURAL EDUCATION MAJOR

The Agricultural Education major is designed to prepare vocational agricultural teachers for secondary schools. They may become especially prepared to teach in agricultural production, mechanized agriculture, and areas of both plant and animal sciences as well as food science. Moreover this program will help prepare the graduate for a wide spectrum of career opportunities in the industry of agriculture.

For information on the current credential program, consult departmental advisers and the School of Education and Human Development; see the section on *Agricultural Specialist Credential.*

	Units
General education (may include additional requirements)	40
Special course requirements (US History, US Constitution)	(6)
Major (including 20 units upper division)	54
Electives in: animal science (15 units), plant science (18 units), mechanized agriculture (15 units), agricultural economics (6 units)	
Electives and additional requirements	28–34
(At least 40 units upper division)	128

Additional Requirements: Each student is required to complete certain courses in biological and physical sciences, mathematics, and related subject matter. Consult departmental adviser; file official *Program of Study* with the registrar.

Single Subject Credential Waiver Program

The Single Subject waiver program in Agriculture consists of 54 units in the following:

Agricultural Economics	Ag Ec 31, 111
Animal Science	Animal Science A Sci 10, 10L, 105, 120, 70 or 170, 125 or Biol 120
Mechanized Agriculture	Ag Me 15, 18, 111, 111L, 151A, 153
Plant Science	Plant 13, 15, 33, 106, 108, 114

Agricultural Specialist Credential Program

The Agricultural Specialist Credential is offered jointly by the School of Agriculture and Home Economics and the School of Education and Human Development. It requires completion of the Single Subject waiver program (above); professional education courses (see Teacher Education Department—Professional Preparation: Preliminary Credential); and an approved fifth-year program of 30 postgraduate units, including the courses listed below. The credential authorizes holders to teach secondary school vocational agriculture. (For further information, see the departmental coordinator in Agriculture and the Department Chairman of Teacher Education.) Required fifth-year courses are Ag Ed 135, 187, 189; Agri 150, 280, 281; T Ed 155B, 161.

Additional Requirements: Each student is required to complete certain courses in biological and physical sciences, mathematics, and related subject matter. Consult departmental adviser; file official *Program of Study* with the registrar.

BACHELOR OF SCIENCE DEGREE
AGRICULTURAL SCIENCE MAJOR

The Agricultural Science major, with its flexible design, will afford the student an opportunity to acquire the necessary background for a wide variety of career objectives in agricultural industry and professional or graduate study.

Option I provides an opportunity for the students to pursue careers in, but not limited to, dairy industry, food science, enology, animal science, dairy science, poultry science, plant science,

agronomy, horticulture, ornamental horticulture, viticulture, international agriculture, or mechanized agriculture.

Option II provides the necessary background in mathematics, chemistry, physics, and modern concepts of biology in preparation for professional or graduate study, including veterinary medicine.

The Option in Dietetics and Food Administration meets the requirements of Plan IV of the American Dietetic Association for admission to its internship program with specialization in general, management, clinical, or community dietetics; and prepares students for careers in food service management, dietetic consultant service, hospital dietetics, cooperative extension service, community nutrition, and in foreign service.

	Units
General education (may include additional requirements)	40
Special course requirements (US History, US Constitution)	(6)
Major: Option I (including 20 units upper division)	45
Select one course in four of the following six disciplines (12 units): Animal science, plant science, food science, soil science, mechanized agriculture, agricultural economics.	
Approved electives in agricultural sciences or related disciplines (33 units)	
Major: Option II (including 20 units upper division)	60
Approved electives in agricultural sciences or related disciplines (30 units)	
Approved electives in biological and physical sciences, mathematics through elementary analysis (calculus) (30 units)	
Major: Option in Dietetics and Food Administration (including 24 units upper division)	48
FScN 50, 52, 54, 150, 153, 154, 159, 151 or 160, 165 (27 units)	
Selected FScN electives (21 units)	
Electives and additional requirements	22–43
(At least 40 units upper division)	128

Additional Requirements Options I and II: Each student is required to complete certain courses in biological and physical sciences, mathematics, and related subject matter. Consult departmental adviser; file official *Program of Study* with the registrar.

Additional Requirements, Option in Dietetics and Food Administration: Chem 2A-B, 8, 105, 109, 150, 151; Micro 20; Phy 33; Soc 1 or Anthro 2; Psych 10; Econ 1A; Mgmt 110A; Math 11; Engl 1; T Ed 130 or T Ed 152; Agri 110W.

MINOR

A minor in agriculture or home economics is available to degree students in other departments. The minor consists of 21 units of which 12 must be taken in a particular department and/or area. Of the total units in the minor, at least 9 units must be upper division. Each student is expected to consult with an agriculture or home economics adviser for planning a minor program.

PREVETERINARY PREPARATION

Students planning to attend a school of veterinary medicine may satisfy the entrance requirements at CSU, Fresno. The School of Agriculture and Home Economics is equipped to provide valuable experience with large animals through the student project program. Students desiring further information regarding the preveterinary curriculum should consult the Chairman of the Animal Science Department.

GRADUATE PROGRAMS

MASTER OF SCIENCE DEGREE IN AGRICULTURE

The master of science degree in agriculture is designed to extend competence for agricultural research, agricultural field work, and the teaching of agriculture, and to provide the first graduate degree for students anticipating advanced graduate study in the agricultural sciences. Authorized options exist in animal and plant science and in agricultural chemistry. Fields covered by courses available under the program include animal and plant physiology, nutrition and genetics; pathology; nematology; soils and irrigation; food science; agricultural economics; mechanized agriculture.

REQUIREMENTS

The master of science degree program in agriculture assumes preparation equivalent to a CSUF undergraduate major in one of the areas in the agricultural sciences. A major in one of the life or physical sciences is also acceptable when supplemented by the core courses of the discipline area. It is recommended that graduate students desiring classes in agricultural economics or agricultural business take the following courses: Agri 211, 212, 213, 214. These four courses are also suggested for MBA students in the School of Business and Administrative Sciences selecting an agricultural business emphasis.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed according to Plan A or Plan B listed below:

Plan A—Thesis Program	*Units*
Courses in the Agricultural Sciences, 200 level	18
Electives in the Agricultural Sciences, or related fields	12
Total	30

Specific requirements: Agri 200; 299 (2–6 units); 9 units in one of the following series: Agri 210; 221–229; 230; 240; 250; 280. Other courses may be specified upon examination of the student's record and performance on the departmental qualifying examination. Students are required to complete 2 units in discipline area graduate seminar.

Plan B—Non-Thesis Program	*Units*
Courses in the Agricultural Sciences, 200 series	21
Electives in the Agricultural Sciences, or related fields	9
Total	30

Specific requirements: Agri 200; 220; 290 (2 units); 12 units in one of the following series: Agri 210; 221–229; 230; 240; 250; 280. Other courses may be specified upon examination of the student's record and the performance on a departmental qualifying examination. Successful completion of oral and written final examinations consisting of two parts is required: a) a general examination in a field of agricultural science b) an examination dealing with 3 specific areas (e.g., physiology, nutrition, genetics). Students are required to complete 2 units in discipline area graduate seminar.

MASTER OF SCIENCE DEGREE IN HOME ECONOMICS

The master of science degree program in home economics is designed to increase the competencies of dietitians and secondary school teachers; to prepare teachers for positions in two- and four-year colleges, and to provide the foundation which will qualify some to pursue the doctor's degree. Through appropriate choice of courses, students may focus their study programs in any one of the five areas of home economics; child development and family relations; clothing and textiles, and fashion merchandising; consumer sciences and home management; food and nutrition; and housing and interior design.

REQUIREMENTS

The Department of Family Studies and Home Economics offers two options, one in Dietetics and Nutrition; the other in Teaching.

Admission to the master of science degree program in home economics assumes preparation equivalent to a CSUF undergraduate major in home economics with a 3.0 average (GPA) in the last 60 units of course work. Students selecting the Dietetics and Nutrition option must also meet the undergraduate requirements of the American Dietetic Association's Plan IV. Students having undergraduate majors in fields other than home economics or who do not meet the above requirements may be admitted to the program but will be assigned additional prerequisites to clear deficiencies in their academic background. Such prerequisite course work will be assigned in addition to the 30-unit master's degree course work. (See Graduate Progress Sheet, Department of Family Studies and Home Economics.)

The student, under the direction of a graduate adviser, prepares and submits a program individually designed within the following framework:

	Units
H Ec 200 and 299	9
Approved electives in 100- or 200-series, 9 units of which must be in the 200-series (see specific option requirements)	21
Total	30

Specific Requirements: For students in the Dietetics and Nutrition option, the 9 units of required 200-level courses shall be in dietetics- or nutrition-related offerings within the home economics department. Approved electives may be selected from 100- or 200-level offerings within the home economics department or in related disciplines such as food science, chemistry, biology, and management.

For students in the Teaching option, the required 200-level courses shall include at least 3 units from H Ec 240 or 281T. Approved electives shall be selected from 100- or 200-level offerings to complement the home economics concentration or from related disciplines.

INTERDISCIPLINARY UNDERGRADUATE STUDY

The school offers the opportunity for interdisciplinary study designed to meet student interest in subject areas compatible but not limited to specific career objectives.

COURSES

Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.

AGRICULTURE (Agri)

100. Applied Statistics (3)

Application of experimental methods and statistical procedures in agricultural research. Emphasis on use of standard design and analysis techniques as used in plant and animal science. (2 lecture, 3 lab hours)

106. Enterprise Management (1; max total 6) (Former A Sci 106, 160T section)

Concurrent participation in project program required. Theory and field application of management principles in cotton, field crops, beef, sheep, swine, vineyard, orchard, and other appropriate agricultural operations.

110W. Dimensions in Agriculture (2)

Current agricultural problems and developments presented by guest speakers. Nature of agricultural industries in a changing world; interrelationships among agriculture, government, labor, and public; personal development for middle and top management positions. Meets the upper division writing skills requirement for graduation.

150. Resource Material (2)

Prerequisite: junior standing. Development and application of techniques for obtaining and using resource material including government documents, university and experiment station reports; educational material and services available from governmental agencies, allied industries and professional organizations. Emphasis on material for agriculture and allied fields.

173. Agricultural Internship (1–8; max total 8)

Prerequisite: junior or senior standing and approval of internship committee. Emphasis on development of decision-making ability through industrial experience integrated with basic principles acquired in the classroom.

AGRICULTURAL ECONOMICS AND EDUCATION

FACULTY

Carl L. Pherson, Department Chairman

Wilbur P. Ball, Thomas I. Gunn, John W. Hagen, Richard A. Rogers, John R. Shields

DEPARTMENTAL PROGRAMS

The Department of Agricultural Economics and Education offers programs of study in, *but not limited to,* agricultural business, agricultural economics, agricultural education, and international agriculture. Within the framework of the agricultural business major, students may prepare for positions in agricultural marketing, farm management and the management of businesses related to agriculture.

Students majoring in agricultural business may follow various educational routes in pursuing their areas of interest (plant science, animal science, mechanized agriculture, food science, enology, and other specialized fields) or they may prepare for a career as professional agricultural economist. See *School Degree Requirements.*

The courses offered in the disciplinary areas listed below provide the necessary background to prepare students for career objectives. See *School Degree Requirements.*

Agricultural Business (Ag Ec) prepares students for career positions in the general areas of agribusiness management, agricultural finance, farm management, and marketing. Students may also prepare for a career as a professional agricultural economist.

Agricultural Education (Ag Ed) prepares students as teachers of agriculture for the public school grades 7 through 14.

International Agriculture (Agri) prepares students for opportunities of travel, study, and work in other countries; provides training for work with agencies such as Peace Corps, agricultural missions, international agricultural companies, and private organizations.

Programs of Study: The department provides competent advisers for students pursuing career objectives in, *but not limited to,* the following areas:

Career Objective	*Suggested Major*
Farm management:	Agricultural business or agricultural science
Agricultural economics	Agricultural business or agricultural science
Agribusiness management	Agricultural business
Production economics: animal science, plant science	Agricultural business
Agricultural law	Agricultural business or agricultural science
Agricultural marketing	Agricultural business
Agricultural sales: animal science, plant science	Agricultural business
Agricultural sales: mechanized agriculture, food science, agricultural chemicals, animal pharmaceuticals	Agricultural business or agricultural science
Agricultural communications	Agricultural business or agricultural science
Agricultural finance	Agricultural business
Commodity brokerage	Agricultural business
Diversified farming	Agricultural business or agricultural science or agricultural education
Extension service	Agricultural business or agricultural education or agricultural science
Farm Appraisal	Agricultural business
Farm Labor relations	Agricultural business
General Agriculture	Agricultural business or agricultural education or agricultural science
International Agriculture	Agricultural business or agricultural science
Public relations	Agricultural business or agricultural science
Teacher training in agriculture	Agricultural education

Suggested Courses: The following core of courses is recommended for all students majoring in agricultural business: Ag Ec 41, 112, 120, 161, 170, 179, upper division elective; B A 18, IS 50, Acct 4A or Ag Ec 111. Students planning for graduate study in this area are encouraged to select additional electives in economic theory, statistics, and mathematics. Additional requirements which also fulfill General Education requirements are Chem 2A, 2C; two biological science courses; and two economics principles courses. Intermediate algebra equivalency is expected in Ag Ec 41. Request departmental advising check sheet.

COURSES

Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.

AGRICULTURAL ECONOMICS (Ag Ec)

31. Introductory Agricultural Economics (3)

Microeconomic principles of resource allocation, production, cost analysis, price stability and economic growth with primary application to the agricultural sector; laws of supply and demand in commodity pricing under perfect and imperfect competition; survey of agricultural marketing, policy, and trade.

41. Agricultural Business Statistics (3)

Prerequisite: Math 4. Measures of central tendencies and dispersion, time series analysis, index numbers, seasonal variation, data collection and presentation, introduction to probability theory, and discrete and continuous probability distributions.

80. Undergraduate Research (1–4; max total 4)

Open to freshmen or sophomores with permission of instructor. Directed study or research on particular problems in the field of agricultural economics.

111. Farm Accounting (3)

Prerequisite: Ag Ec 31. Farm accounting systems, farm records, budgets, income tax returns. (2 lecture, 3 lab hours) (Former Ag Ec 151)

112. Farm Management (4)

Prerequisite: Ag Ec 31. Basic economic principles relating to farm management; organizing the farm, managing crop and livestock enterprises; farm business administration. (2 lecture, 4 lab hours)

114. Advanced Farm Management (3)

Prerequisite: Ag Ec 112. Economic principles and modern decision-making techniques applied to farm management. (Former Ag Ec 174)

116. Farm and Ranch Appraisal (3)

Prerequisite: Ag Ec 112. Basic principles of farm and ranch appraisal. Appraisal procedures, case studies and field problems. relating to the valuation of agricultural properties. (Former Ag Ec 185T section)

120. Agribusiness Management (3)

Prerequisite: Ag Ec 31. Management of businesses related to agriculture, including, for example, farmer cooperatives, feed-seed-fertilizer suppliers, food processors, equipment dealers, and marketing firms; application of management principles and problem solving in agribusiness firms. (Former Ag Ec 167)

125. Agricultural Labor-Management Relations (3)

Prerequisite: Ag Ec 31. Economic analysis of the farm labor market; labor productivity, agricultural mechanization and farm employment; farm labor laws and government regulations; agricultural labor relations, unionization, and collective bargaining; farm personnel administration practices and supervisory management principles (Former Ag Ec 165).

127. Agricultural Finance (3)

Prerequisite: Ag Ec 31. Analysis of farm financial statements; legal instruments of financial transactions; institutional sources of farm credit; time value of money and capital budgeting for agricultural investment; cost of debt and equity capital; risk management strategies; farm estate and tax planning. (Former Ag Ec 177).

128. Agricultural Law (3)

Prerequisite: B A 18. Legislative laws, administrative regulations and judicial decisions affecting agriculture; nature and disposition of lawsuits; torts covering trespass, negligence, liability for farm livestock and chemicals; surface and mineral property rights; water law; farm labor law; taxation of farm income and estates. (Former Ag Ec 185T section)

160. Agricultural Business Field Studies (2)

Business and economic functions performed by specialized agricultural agencies with emphasis on physical operating patterns. Field trips to production, marketing and finance firms. Workshops with agribusiness managers. (1 lecture, 2 lab hours)

161. Marketing of Agricultural Products (3)

Prerequisite: Ag Ec 31. Concurrent enrollment in Ag Ec 160 recommended for students desiring marketing field trips. Basic marketing functions, policies, and problems involved in handling agricultural products; economic concepts, business decisions, and practical applications. (Former Ag Ec 172)

162. Commodity Marketing (3)

Prerequisite: Ag Ec 31. Economics of future markets. Applications of speculating and hedging strategies in trading agricultural commodities. Marketing major California agricultural commodities, including marketing order case studies and problems. (Former Ag Ec 185T section)

163. Agricultural Export Marketing (3)

Prerequisite: Ag Ec 161. World agricultural trade patterns and international commodity agreements; relationships between domestic farm programs and foreign trade policies; economic effects of tariff and nontariff barriers on agricultural trade; overseas market research, product promotion, distribution channels, sales agreements, financial transactions, shipping documents. (Former Ag Ec 185T section)

166. Agricultural Sales and Communications (3)

Selling agricultural products, public relations in agriculture, agricultural journalism, promotion and advertising of agricultural products; written and oral presentations. (Former Ag Ec 175)

170. Agricultural Business Research (3)

Prerequisite: Econ 1A, Ag Ec 31, 41. Primary research methods applied to agricultural business. Problem definition, hypothesis formulation, research design, data collection, and results analysis including measures of central tendency and variability. Mechanics of writing research proposals and technical reports and making oral presentations.

171. Land and Water Economics (3)

Prerequisite: Ag Ec 31. Economic analysis of public policies governing land use, water management, mineral exploitation and forest administration; review of population pressures and resource conservation; examination of externalities, property rights issues, resource use planning, environmental regulations, and reclamation law.

179. Agricultural Policy (3)

Prerequisite: Ag Ec 31, Econ 1A. Analysis of public policies affecting the economic position of U.S. and California agriculture; government programs which influence agricultural production, commodity distribution, market prices, and farm income; selected topics concerning American food and fiber system; comparative foreign agricultural policies.

180. Undergraduate Research (1–4; max total 4)

Open to juniors or seniors with permission of instructor. Directed study or research on particular problems in the field of agricultural economics.

185T. Current Topics in Agricultural Business (1–4; max total 6)
Prerequisite: junior standing. Agricultural economics, marketing, sales and communication, policy, agribusiness, and farm management. Topics may require lab hours.

AGRICULTURAL EDUCATION (Ag Ed)

80. Undergraduate Research (1–4; max total 4)
Open to freshmen and sophomores with permission of instructor. Exploratory work on a suitable agricultural problem in agricultural education. (Former Agri 80)

135. Introduction to Agricultural Education (3)
Survey of agricultural education; vocational surveys; occupational analysis; relationship of agriculture to occupational opportunities; qualification for teaching agriculture. Includes field trips to high school vocational agriculture departments.

160T. Topics in Agriculture (1–4; max total 6 per discipline if no topic repeated)
Prerequisite: junior standing, permission of instructor. Agricultural education. Topics may require lab hours. (Former Agri 160T)

180. Undergraduate Research (1–4; max total 4)
Open to juniors or seniors with permission of instructor. Exploratory work on a suitable agricultural problem in agricultural education. (Former Agri 180)

187. Organization, Administration, and Supervision of Agricultural Education (3)
Prerequisite: senior standing. A study of the California and federal plans for vocational education as they pertain to agricultural education.

189. Adult and Continuation Education in Agriculture (3)
Prerequisite: senior standing. History, philosophy, organization, administration, and development of teaching rural and urban adult education programs in agricultural mechanics and agricultural sciences.

190. Independent Study (1–3; max see reference)
See *Academic Placement*—Independent Study. (Former Agri 190)

INTERNATIONAL AGRICULTURE (Agri)

80. Undergraduate Research (1–4; max total 4)
Open to freshmen and sophomores with permission of instructor. Exploratory work on a suitable agricultural problem in international agriculture.

160T. Topics in Agriculture (1–4; max total 6 per discipline if no topic repeated)
Prerequisite: junior standing, permission of instructor. International agriculture. Topics may require lab hours.

161. International Agriculture (3)
Prerequisite: junior or senior standing. Social, economic and technological aspects of agricultural production and distribution in developing countries.

170. Seminar in International Agriculture (3)
Prerequisites: Ag Ec 31, Agri 161. Written and oral presentation of researched topics on recent developments in international agriculture.

180. Undergraduate Research (1–4; max total 4)
Open to juniors or seniors with permission of instructor. Exploratory work on a suitable agricultural problem in international agriculture.

190. Independent Study (1–3; max see reference)
See *Academic Placement*—Independent Study.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

AGRICULTURE (Agri)

200. Biometrics in Agriculture (3)
Prerequisite: Math 11; permission of instructor. Statistical principles in agricultural research. Emphasis on collection, summarization of data and the design, conduct, analysis, and interpretation of experiments.

210T. Topics in Agricultural Economics (3; max total 15)
Prerequisite: upper division agricultural economics courses appropriate to study topic; permission of instructor. Agricultural marketing, farm management and production analysis, price, credit, and land economics study areas. Topics may require lab hours.

211. Public Policy in Agriculture (3)
Development of local, state, federal and international agricultural policies. Evaluation of alternative policies of such factors as production controls, land use, pesticides, foreign trade and governmental courses of action influencing agriculture.

212. Farm Management Analysis (3)
Modern decision-making techniques applied to farm management. Production economic principles, budgeting analysis, present value analysis, operations research, and risk management models are utilized on farm case studies.

213. Agricultural Marketing Analysis (3)
Marketing principles, problems and practices in agriculture. Evaluation of marketing programs of farm organizations in both domestic and in international trade.

214. Agricultural Management (3)
Case problem analysis and intern practicum of management decisions coordinating production, processing, marketing and financing for agricultural firms including strategies for cooperatives, use of futures markets, resource planning and demand analysis of producing and marketing an agricultural product.

219. Seminar in Agricultural Economics (1–4; max total 4)
Prerequisite: permission of instructor. Written and oral reports in recent literature and problems related to agricultural economics.

220. Research Communications in Agriculture (3)
Prerequisite: permission of instructor. Individually directed readings in a field of special concern to the student's graduate program; appropriate research writing and evaluation required.

280. Seminar in Agriculture (1–3; max see below)
Maximum total credit 9 units in any given area or any combination of the three areas. Prerequisite: bachelor's degree in agriculture. Advanced problems in agriculture; research and experimentation in a selected area; animal science, plant science, or agricultural mechanics.

281. Problems in Agricultural Education (1–3; max total 3)
Prerequisite: graduate standing. Individual supervised research in agricultural education; appropriate reports and evaluation required. Individual conferences.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirements.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

IN-SERVICE COURSES (Agri)

(See *Course Numbering System*)

300. Topics in Agriculture (1–3)
Topics may require lab hours.

ANIMAL SCIENCE

FACULTY

Edwin J. Rousek, Department Chairman

Jesse T. Bell, John Edwards, Gary L. Heusner, Darren M. Nelson, Robert B. Osland, Charles M. Smallwood

DEPARTMENTAL PROGRAMS

The Department of Animal Science offers programs of study in the animal sciences including beef, swine, sheep, horse, dairy, and poultry husbandry. The courses offered deal with the application of various principles of biological and physical sciences to animals. This includes management and production factors as related to environmental interrelationships, cultural modifications and adaptation, protection against pests and diseases, utilization, marketing, and research and development pertaining to the future. Students specializing in animal science may prepare for careers in business, government, foreign service, or the livestock industry where they may be engaged in consultation, management, production, research, teaching, advanced degrees, and other related professional services including veterinary medicine.

The courses offered in the disciplinary areas listed below provide the necessary background to prepare students for career objectives. See School Degree Requirements.

Animal Science (A Sci) provides in-depth study in subject areas designed to complement the livestock and poultry disciplines in preparing students for work opportunities in nutrition, reproduction, health, and related areas.

Animal Husbandry (A Sci) prepares students for positions in livestock production, management, and agricultural businesses where beef cattle, sheep, swine, and horse enterprises are an important part of the industry.

Dairy Husbandry (A Sci) trains students for commercial dairy farming enterprises, dairy herd management, milk quality control, field work for breeding associations, dairy sanitation, artificial breeding, and other agribusiness occupations.

Poultry Husbandry (A Sci) prepares students for occupations in commercial egg production, fryer operations, breeder flock management, hatchery management, processing, and sales positions with companies supplying the poultry industry. Graduates may operate their own turkey and poultry farms.

In addition, a selected variety of animal science and agricultural economics courses will provide the necessary background for the following career objective.

Animal Science-Agricultural Business. A combination of courses designed to train students in the important features of animal science and business.

Programs of Study: the Department of Animal Science provides competent advisers for students pursuing career objectives in, *but not limited to,* the following areas:

Career Objective	*Suggested Major*
Ranching	Agricultural science
Feed lot management	Agricultural business
Animal research	Agricultural science
Veterinary medicine	Agricultural science
Agricultural sales: feed, pharmaceuticals	Agricultural business or agricultural science
Dairy herd management	Agricultural business or agricultural science
Breeder, or field work with breed associations	Agricultural business or agricultural science
Foreign service in animal sciences	Agricultural science
Poultry management	Agricultural science or agricultural business
Animal nutrition: feed processing, research	Agricultural science
Meat technology: consumer products	Agricultural science or agricultural business
Artificial insemination: breeder, research	Agricultural science
Livestock judging, fair associations	Agricultural science or agricultural business

Animal Science Laboratory Units: Theoretical instruction in animal sciences is enhanced through practical application at the various laboratory units. These units include the Beef Husbandry Laboratory, Horse Husbandry Laboratory, Sheep Husbandry Laboratory, Swine Husbandry Laboratory, Dairy Husbandry Laboratory, Poultry Husbandry Laboratory, Meats Laboratory, Veterinary and Physiology Laboratory, and Feed Mill Laboratory.

SUPERVISED PROJECTS

The agricultural sciences program is unique in that it provides opportunity for students to gain both theoretical training and practical experience in farming while pursuing their university programs. The supervised project experience is designed to supplement the lecture and laboratory assignments, giving students greater opportunity to develop the practical side of farming. The university owns all of the necessary equipment for student projects. A rental fee is charged for use of equipment. Proficiency in operating equipment must be demonstrated before projects may be undertaken. Students sign contracts wherein they agree to perform the labor required in caring for their projects. The Agricultural Foundation serves as a banking agency in providing the money a student will or may need for project materials. Students must submit records on each enterprise to the Agricultural Foundation and share the profit or loss with the Foundation according to established percentages.

In the Animal Science Department, students may feed out steers, lambs, pigs, fryers or turkeys, or have commercial egg production projects. Animal science students may, with prior approval of the department, engage in self-financed projects. Concurrent registration in Agri 106, *Enterprise Management,* required.

COURSES

Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.

ANIMAL SCIENCE (A Sci)

10. Animal Science (3)
Types and breeds of farm animals and poultry in the United States; world distribution, adaptation, production methods; foods and products produced by farm animals, and their role in supplying food for a hungry world.

10L. Animal Science Laboratory (1)
Prerequisite: A Sci 10 (or concurrently). Laboratory practices to accompany A Sci 10. (2 lab hours)

65. Infectious Diseases of Domestic Animals (4)
Prerequisite: Biol 10. Classification, identification, pathogenicity and control of the important bacterial, viral and mycotic agents causing disease in domestic animals of the United States. (2 lecture, 4 lab hours) (Former A Sci 160T section)

70. Feeds and Feeding (3)
Prerequisite: Chem 2A. Principles of nutrition; nutrients and their metabolism; comparison of qualitative nutrient requirements of non-ruminant and ruminant animals and ration balancing to meet these requirements.

80. Undergraduate Research (1–4; max total 4)
Open to freshmen and sophomores with permission of instructor. Exploratory work on a suitable agricultural problem in animal science.

105. Advanced Animal Science Laboratory (2)
Prerequisite: A Sci 10. Not open to animal science majors. Development of skills in applying animal science principles and practices; discussion, demonstration, participation. (2 2-hour lecture-labs; field trips)

110. Anatomy and Physiology of Farm Animals (3)
Prerequisite: Zool 1, or 10. General structures of farm animals and physiological functions of organs of the animal body.

110L. Anatomy and Physiology Laboratory (1)
Prerequisite: A Sci 110 (or concurrently). Laboratory practices to accompany A Sci 110. (3 lab hours)

120. Animal Health and Disease (3)
Prerequisite: A Sci 110. Introduction to etiology, pathology, therapeutics and prevention of diseases of domestic animals.

120L. Animal Health Laboratory (1; max total 3)
Prerequisite: A Sci 120 (or concurrently). Laboratory practices to accompany A Sci 120. Separate sections for horses, dairy, livestock, house pets, and laboratory animals. No section may be repeated. (3 lab hours)

125. Principles of Animal Breeding (3)
Prerequisite: A Sci 10; introductory genetics. Principles of genetics as applied to domestic animals. Practices and problems commonly encountered in animal breeding.

136. Parasites of Domestic Animals (3)
Prerequisite: Zool 1 or A Sci 120. Classification, life cycle, treatment and control of helminth, arthropod and protozoa parasites pathogenic to domestic animals of United States. Emphasis placed on parasites of greatest veterinary importance. (2 lecture, 2 lab hours) (Former A Sci 160T section)

140. Behavior of Domestic Animals (3)
Not open to students with credit in this section of A Sci 160T. Prerequisite: A Sci 10. Man's understanding and utilization of the principles of behavior in confined and free-ranging domestic animals. (2 lecture, 3 lab hours)

145. Horses for Pleasure (3)
Not open to animal science majors or students with credit in A Sci 151. Intended for students who desire a general knowledge of the modern light horse industry: evaluation and selection, horsemanship principles, training techniques, diseases, and unsoundness, nutrition, breeding, buildings and equipment.

150. Animal Science Seminar (1; max total 2)
Open to seniors majoring in animal science. Latest developments in research; assigned papers in animal science to be presented in both oral and written form.

155. Animal Reproduction (3)
Prerequisite: A Sci 110. Principles of reproductive physiology and their application to domestic animals.

155L. Animal Reproduction Laboratory (1)
Prerequisite: A Sci 155 (or concurrently). Laboratory practices to accompany A Sci 155. (3 Lab hours)

160T. Topics in Animal Science (1–4; max total 6 per discipline if no topic repeated)
Prerequisite: junior standing, permission of instructor. Anatomy, physiology, pathology, nutrition, genetics, economics. Topics may require lab hours.

170. Animal Nutrition (3)
Prerequisite: A Sci 70. Principles of nutrition and metabolism; application of nutrients, nutrient sources, and nutrient requirements to domestic animals.

175. Animal Science Tour (2; max total 4)
A field study tour of animal science enterprises including ranches, processing plants, and other universities. (Former A Sci 160T section)

177. Animal Science Lectures (1; max total 4)
A series of lectures by prominent, successful animal scientists and agribusiness executives presenting current developments in their field. (Former A Sci 160T section)

180. Undergraduate Research (1–4; max total 4)
Open to juniors and seniors. Exploratory work on a suitable agricultural problem in animal science.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

ANIMAL HUSBANDRY (A Sci)

11. Livestock Selection and Evaluation (3)
Basic factors involved in selection and evaluation of beef cattle, horses, sheep, and swine; relationships of live market animal traits to carcass desirability. (2 lecture, 3 lab hours)

21. Beef Husbandry (3)
Prerequisite: A Sci 10. Management of purebred and commercial beef herds; selection of breeding stock; management practices in fattening cattle; marketing slaughter and purebred cattle. (2 lecture, 3 lab hours)

31. Swine Husbandry (3)
Prerequisite: A Sci 10. Principles and practices of purebred and commercial swine husbandry; breeding, feeding, and management program. (2 lecture, 3 lab hours)

41. Sheep Husbandry (3)

Prerequisite: A Sci 10. Breeding, feeding management, and marketing of commercial and purebred sheep; breeds, setting up a program of breeding, housing, and equipment requirements; feeding and care of ewes and lambs; docking, castrating, shearing, tying, sacking, storing wool. (2 lecture, 3 lab hours)

51. Horse Husbandry (3)
Not open to students with credit in A Sci 145. Breeds, selection, care, and feeding of light horses; their use and place in California agriculture. (2 lecture, 3 lab hours)

101. Livestock Evaluation (2; max total 4)
Prerequisite: A Sci 10, 11. Detailed analysis of various visual and physical methods of appraising animal body types as related to functional and economic value of livestock. Written and oral summaries of evaluations. (1 lecture, 3 lab hours; field trips)

111. Advanced Beef Management (3)
Prerequisite: A Sci 21. Management techniques and principles as applied to beef cattle industry; breeding, nutrition, animal health, and records of performance.

111L. Advanced Beef Management Laboratory (1)
Prerequisite: A Sci 111 (or concurrently). Laboratory practices to accompany A Sci 111. (3 lab hours)

121. Meats (3)
Prerequisite: A Sci 10. Evaluation of live animals and carcasses; selection and preparation of meats and meat products; survey of the meat industry in the United States. (2 lecture, 3 lab hours)

131. Meats and the Consumer (4)
Not open to animal science majors or students with credit in A Sci 121. Consumer problems in buying meat to include quality and price selection, identification, nutritive value, storage, processing, preparation for consumption, and government inspection and standards. (3 lecture, 2 lab hours)

141. Meat Evaluation (3)
Prerequisite: A Sci 10. Evaluation of live animals and carcasses with emphasis on current grading and evaluation concepts as applied to carcasses, meat products, and live animals. (2 lecture, 3 lab hours)

151. Advanced Horse Management (3)

Prerequisite: A Sci 51 or 145. Advanced principles of horse husbandry; management of horse breeding farms, breeding systems, training and selling horses, western equitation. (2 lecture, 3 lab hours)

171. Marketing Livestock and Meat (3)

Prerequisite: junior standing and permission of instructor. Economic principles in marketing livestock and livestock products; demand, supply, distribution; markets and marketing procedures; classifying, grading, evaluating livestock for marketing.

DAIRY HUSBANDRY (A Sci)

12. Dairying (3)

Selection, breeding, feeding, and management of dairy cattle; basic principles and practices involved in processing, marketing milk and its products.

12L. Dairying Laboratory (1)

Prerequisites: A Sci 12 (or concurrently). Laboratory in the area of dairy cattle fitting, breeding, production management, selection and other areas supporting A Sci 12. (2 lab hours)

112. Dairy Farm Management (4)

Prerequisite: A Sci 12. Planning the development and operation of a complete modern dairy production unit, including all costs and managerial responsibilities required for a successful operation. (3 lecture, 2 lab hours)

122. Dairy Cattle Evaluation (3)

Prerequisite: A Sci 12. Production records, pedigrees, and classification records in their application to evaluating the functional ability of dairy cattle. (2 lecture, 2 lab hours; field trips)

132. Advanced Dairy Cattle Evaluation (2)

Advanced principles of dairy cattle evaluation to include evaluation of all breeds, sexes, and ages of dairy cattle. Emphasis placed on development of students' ability to present oral defense of their reasoning. (1 lecture, 3 lab hours) (Former A Sci 160T section)

152. Applied Reproductive Control (3)

Prerequisite: A Sci 110. Basic principles of reproductive control in all species of domesticated animals including artificial insemination, estrus synchronization, super ovulation, ova transfer, sex control. (2 lecture, 2 lab hours)

GRADUATE COURSES

(See *Course Numbring System—Definitions and Eligibility*)

AGRICULTURE (Agri)

200. Biometrics in Agriculture (3)

Prerequisite: Math 11; permission of instructor. Statistical principles in agricultural research. Emphasis on collection, summarization of data and the design, conduct, analysis, and interpretation of experiments.

220. Research Communications in Agriculture (3)

Prerequisite: permission of instructor. Individually directed readings in a field of special concern to the student's graduate program; appropriate research writing and evaluation required.

240T. Topics in Animal Science (3; max total 12)

Prerequisite: upper division animal science appropriate to study topic; permission of instructor. Investigation of topic in animal science: anatomy, physiology, pathology, nutrition, genetics or economics. Topics may require lab hours.

241. Endocrine and Reproductive Physiology (3)

Prerequisite: A Sci 155. Physiology which deals with neural and hormonal integration and control of the animal body, including scientific aspects of the processes of reproduction and application of current knowledge in improving reproductive efficiency.

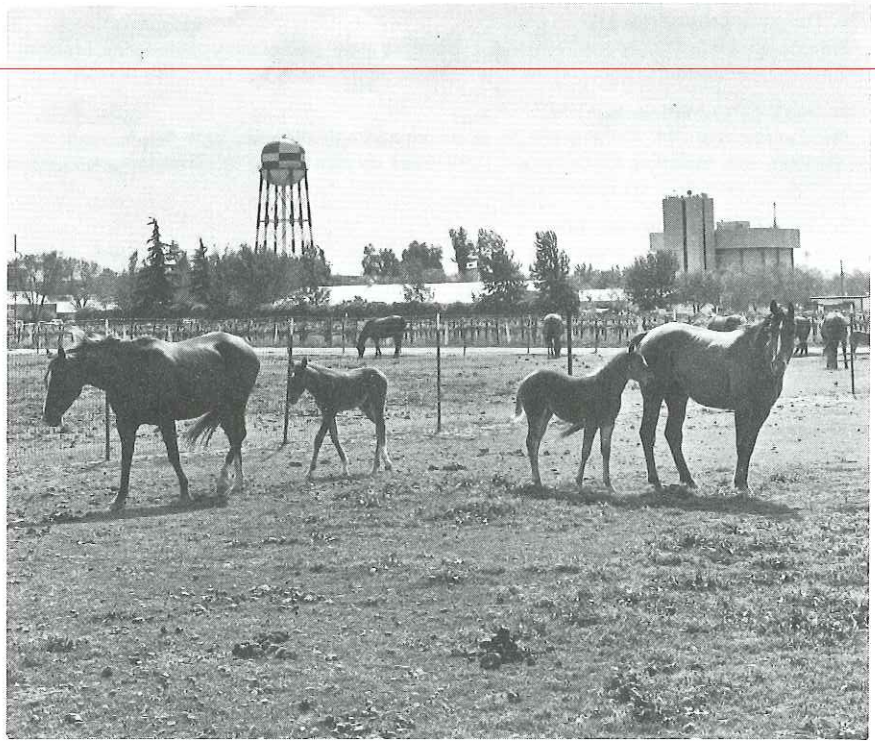
242. Environmental Physiology of Domestic Animals (3)

Prerequisite: A Sci 155; permission of instructor. A study of environmental factors affecting domestic animals under field and controlled conditions.

243. Metabolism and Energy Physiology (3)
Prerequisite: Chem 8. Current aspects of the integral processes involved in metabolism and energy physiology of laboratory and farm animals. Application of the principles concerned in intermediary metabolism. Selected readings in the current literature within the field.

244. Vitamin and Mineral Nutrition (3)
Prerequisites: A Sci 170. A survey of the biochemical and physiological importance of vitamins and minerals in the nutrition of man and his animals. Included is the diagnosis, prevention and treatment of both vitamin and mineral deficiencies.

245. Advanced Animal Breeding (3)
Prerequisite: A Sci 125, 155; permission of instructor. The application of genetic principles to the breeding of livestock and poultry. The study of applied selection and measurements of the results.



260. Seminar in Animal Science (1; max total 4)
Prerequisite: permission of instructor. Written and oral reports on selected areas of research on problems in animal science.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirements.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

IN-SERVICE COURSES (Agri)
(See *Course Numbering System*)

300. Topics in Agriculture (1–3)
Topics may require lab hours.

ENOLOGY, FOOD SCIENCE, AND NUTRITION

FACULTY

Ratana S. Newsome, Department Chairman

Shirley J. Bowden, N. Joanne Caid, Dean R. Frazeur, Elena F. Kissick, Carlos J. Muller, Fred S. Nury

DEPARTMENTAL PROGRAMS

The Department of Enology, Food Science, and Nutrition offers programs of study in dairy industry, enology, food science, nutrition, dietetics, food administration, and food in business. Students may qualify for career opportunities by selecting appropriate electives in their special area of interest in consultation with a department advisor.

The courses offered in the disciplinary areas listed below provide the necessary background to prepare students for career objectives. See *School Degree Requirements.*

Dairy Industry (D Ind) prepares students for positions in the dairy and food processing industry with in-depth subject matter in production, marketing, government inspection, and food technology.

The *Dietetics and Food Administration* option (Agricultural Science major) prepares students for admission to internship programs and careers in food service management, dietetic consultant service, hospital dietetics, cooperative extension service, community nutrition, and in foreign service. The program meets Plan IV of the American Dietetic Association.

Food and Nutrition (*FScN*) courses prepare students for careers in research, product development, consultant service, sales management, public relations, and food service.

Food Science (*FScN*) prepares students for employment opportunities with governmental agencies engaged in regulatory work; food industry including food processing, canning, freezing, and packaging plants; and research.

Enology (*Enol*) prepares students for positions in the California wine industry. Typical positions include laboratory technologist, plant sanitarian, wine chemist, processing department supervisor, and production manager.

Programs of Study: The Department of Enology, Food Science, and Nutrition provides competent advisers for students pursuing career objectives in, *but not limited to,* the following areas:

Career Objective	*Suggested Major*
Dairy industry technology	Agricultural science
Teaching: vocational agriculture, junior high school, community college, college or university	Agricultural education
Food technology, food processing	Agricultural science
Enology, wine technology	Agricultural science
Wine chemistry, food chemistry	Agricultural science
Food plant management	Agricultural business
Agricultural sales; food products, farm equipment	Agricultural business
General farming or ranching	Agricultural education or agricultural science
Food and dairy sanitation	Agricultural science
Agricultural research: food products, agricultural by-products	Agricultural science

Laboratory Units: Theoretical instruction is enhanced through practical application at the various laboratory units. These units include the Dairy Processing Laboratory and Enology Laboratory.

COURSES

Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.

DAIRY INDUSTRY (D Ind)

23. Dairy Foods and Man (3)
The history and geography, processes and processing of dairy products; their description, composition, and nutritive values; current role of the dairy industry and dairy foods.

80. Undergraduate Research (1–4; max total 4)
Open to freshmen and sophomores with permission of instructor. Exploratory work on a suitable agricultural problem in dairy industry. (Former Agri 80)

103. Manufacturing Dairy Products (3)
Prerequisite: junior standing. Making common varieties of cheese, mix making and freezing desserts, churning butter, and culturing dairy products. (2 lecture, 3 lab hours)

113. Dairy and Food Plant Sanitation (3)
Prerequisite: Micro 20 or equivalent, or permission of instructor. Dairy and food plant sanitation as related to food safety; requirements of regulatory agencies, cleaning and sanitational procedures; housekeeping and waste disposal.

143. Market Milk Products (3)
Market milk production, marketing, processing and distribution; common laboratory practices and processing methods. (2 lecture, 3 lab hours)

153. Dairy Inspection (3)
Application of the California Agricultural and the United States Public Health Codes to the inspection of dairies, dairy plants, and dairy products.

160T. Topics in Agriculture (1–4; max total 6 per discipline if no topic repeated)
Prerequisite: junior standing, permission of instructor. Dairy industry. Topics may require lab hours. (Former Agri 160T)

173. Dairy and Food Plant Management (3)
Junior standing or permission of instructor. Optimum utilization of technical facilities and resources to assure the successful management of dairy and food plants; purchasing, production, production scheduling, warehousing, shipping, and cost effectiveness.

180. Undergraduate Research (1–4; max total 4)
Open to juniors or seniors with permission of instructor. Exploratory work on a suitable agricultural problem in dairy industry. (Former Agri 180)

190. Independent Study (1–3; max see reference)
See *Academic Placement*—Independent Study. (Former Agri 190)

ENOLOGY (Enol)

15. Wine and the Consumer (3)
History and development of the wine industry; mechanics of various processes and factors affecting wine quality and consumer acceptance.

25. Organoleptic Wine Evaluation Techniques I (2)
Parameters which determine organoleptic quality in wines. Wine appreciation. Students may be expected to purchase supplementary material for use in laboratory. (1 lecture, 2 lab hours) (Former Enol 15L)

35. Organoleptic Wine Evaluation Techniques II (2; max total 4)
Prerequisite: Enol 25 or equivalent. Critical organoleptic evaluation of various wine types and styles including premium varietals. Students may be expected to purchase supplementary material for use in laboratory. (1 lecture, 2 lab hours)

115. Wine Analysis (4)
Prerequisite: Chem 105, Enol 15, Micro 104, Plant 127. Principles and practices of analysis of dessert and table wines. (2 lecture, 6 lab hours)

135. Field Studies (1)

Prerequisite: permission of instructor. A six-day field trip, during the Easter recess, covering the north coast wineries to study the techniques and handling methods employed by the many vintners.

165. Wine Technology (3)

Prerequisite: permission of instructor. Technological study of winery equipment; evaluation, location, and operation; sanitation procedures. (2 lectures, 3 lab hours; 3- or 4-day field trip)

175. Winery Management (3)

Prerequisite: permission of instructor. Physical properties of a winery; administrative organizational set-up; personnel; purchasing, packaging, and shipping; local, state, and federal regulatory statutes.

180. Undergraduate Research (1–4; max total 4)

Open to juniors or seniors with permission of instructor. Exploratory work on a suitable agricultural problem in enology. (Former Agri 180)

185. Cellar Operations (3)

Prerequisite: Enol 165. Survey of cellaring operations and equipment; blending; fining; ion exchange; finishing; and bottling. (2 lectures, 3 lab hours; local field trips)

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study.* (Former Agri 190)

FOOD SCIENCE AND NUTRITION (FScN)

1. Food Science and World Food Problems (3)

Modern food processing; world food problems; basic characteristics of processed foods. (Former F Sci 1)

50. Basic Foods and Nutrition (3)

Introduction to principles of food preparation and characteristics of a nutritionally adequate diet. (2 lecture, 2 lab hours) (Former H Ec 50)

52. Dietetics (3)

Elements of nutrition and diet in disease. (Former H Ec 52)

54. Elementary Nutrition (3)

Elementary knowledge of high school chemistry and biology strongly recommended. Scientific principles underlying normal nutritional requirements. (Former H Ec 54)

100. Food Appraisal and Evaluation (3)

Prerequisite: Math 4, F Sc N 1. Analysis, measurement, and methods used in evaluation of organoleptic, kinesthetic, and other quality factors in foods. (2 lecture, 3 lab hours) (Former F Sci 100)

103. Individual, Family and Near Environment (3)

Analysis of concepts in the area of food, clothing and shelter that are basic to the rapid changes in our society. Values and goals that are operative in interrelationships of three basic family needs are explored. (Former H Ec 3, H Ec 103)

110. Food Chemistry (3)

Prerequisite: Chem 8. Composition, structure, and properties of food; chemistry of changes occurring during processing and utilization. (Former F Sci 110)

120A–B. Food Engineering (3–3)

Prerequisite: Phys 2A–B, physical chemistry. (A) Laws of thermodynamics, closed and open (control volume) systems; thermodynamic properties; thermodynamic cycles, phase, and chemical equilibria; gas dynamics. (B) Fluid flow, heat transfer, connection, radiation, heat exchangers. (2 lecture, 3 lab hours) (Former F Sci 120A–B)

130. Food Analysis (4)

Prerequisite: 1 year of general chemistry, Chem 105 (F ScN 110 recommended). Principles of food analysis; sampling, separation, physical measurements, chemical and biochemical techniques. (2 lecture, 2 2-hour labs) (Former F Sci 130)

140A–B. Food Processing (3–3)

Prerequisite: F ScN 110; Chem 8 (or concurrent). (A) Food preservation by heat, low temperature, dehydration, fermentation, and radiation. (B) Sanitation and control of microbiological problems involved in processing and storing foods; case studies. (B: 2 lecture, 3 lab hours) (Former F Sci 140A–B)

150. Advanced Foods (4)

Prerequisite: F ScN 50 and Chem 2A–B or 2A–C. Experimental approach of foods emphasizing sensory and objective tests, standards for high quality foods and scientific principles which affect food preparation and product development. (2 lecture, 4 lab-discussion hours) (Former H Ec 150)

151. Experimental Food Study (3; max total 6)

Prerequisite: F ScN 150. Principles, procedures, sensory and objective evaluation methods necessary to organize professionally and carry through a food research project. Lectures, demonstrations, individual research and field trips. (1 lecture, 4 lab-discussion hours) (Former H Ec 151)

153. Advanced Nutrition (3)

Prerequisite: F ScN 54 and Chem 2A–B or F ScN 54 and Chem 2A–C. Present knowledge of the metabolism of carbohydrates, fats, proteins, vitamins and minerals. Dietary study and evaluation. (Former H Ec 153)

154. Nutrition in Disease (3)

Prerequisite: F ScN 153. Nutritional aspects and dietetic treatment of disease. (2 lecture, 2 lab hours) (Former H Ec 154)

155. Food Service Management I (3)

Prerequisite: Mgt 110A. Organization and operation of food services; management principles; food service personnel; food cost control; record keeping. (Former H Ec 155)

156. Food Service Management II (3)

Prerequisite: F ScN 50. Work simplification; plant layout; selecting, procuring and maintaining equipment and furnishings for food service units. Menu planning and quantity food purchasing. (Former H Ec 156)

158. Food Service Management III (4)

Prerequisite: F ScN 156. Quantity food production and management, food merchandising and catering. (2 lecture, 4 lab hours) (Former H Ec 158)

159. Institution Experience (3)

Prerequisite: F ScN 154 and 158. Supervised work experience in hospital dietary departments. (1 lecture, 4 lab hours) (Former H Ec 159)

160. Meal Management (3)

Prerequisite: F ScN 50. Principles of foods and nutrition applied to meal planning, preparation, and service. Economic, aesthetic, nutritional, and managerial aspects of meal planning. (2 lecture, 2 lab hours) (Former H Ec 160)

161. Food Service for Children (3)

Prerequisite: CFS 39 and F ScN 54 recommended. Role and responsibilities in providing meals to children and youth to comply with legislative and budgetary perimeters and to meet their nutritional, social, psychological and ethnic needs; and to integrate the food service program with classroom nutrition education activities. (Former H Ec 161)

162T. Topics in Food, Nutrition and Dietetics (1–4; max total 12 if no topic repeated)
Prerequisite: F ScN 50, 54. Topics relating to food, nutrition and dietetics. Some topics may have labs. (Former H Ec 162T)

164. Child Nutrition (3)
Prerequisite: CFS 39 and F ScN 54. Prenatal nutrition; nutritional requirements during different periods of growth; malnutrition and mental development; improving nutritional status of children. (Former H Ec 164)

165. Cultural Foods (3)
Prerequisite: F ScN 54, permission of instructor. Dietary and nutritional practices in different cultures, as influenced by cultural and economic conditions. (2 lecture, 2 lab-demonstration hours) (Former H Ec 165)

166. Community Nutrition (3)
Prerequisite: F ScN 54. Principles and practices of nutrition as applied to the community at large. (Former H Ec 162T section, Former H Ec 166)

167. Nutrition and Aging (3)
Prerequisite: F ScN 54. Current issues, nutrition problems and needs of the aging; effects of all aspects of aging on nutrition; nutrition program planning and evaluation. (Former H Ec 162T section, Former H Ec 167)

168. Drug-Induced Nutritional Deficiencies (3)
Prerequisite: F ScN 54. Drug-nutrient interactions; drug-induced nutritional disorders and nutrient deficiencies; dietary improvement. (Former H Ec 162T section, Former H Ec 168)

169. Nutrition and the Consumer (3)
Prerequisite: F ScN 54. Consumer's viewpoint on nutrition and food choices; factors influencing consumer's food choices; new approaches in nutrition education for the consumer. (Former H Ec 169)

170. Food Microbiology (3)
Prerequisite: Micro 20 (Micro 104 recommended). Control of microorganisms in production and handling of foods; microbiological methods of examining foods. (Former F Sci 170)

171. Food Microbiology II (2)
Food spoilage organisms and microbiological methods of examining foods. (1 lecture, 3 lab hours) (Former F Sci 171)

180. Undergraduate Research (1–4; max total 4)
Open to juniors or seniors with permission of instructor. Exploratory work on a suitable agricultural problem in food science. (Former Agri 180)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.* (Former Agri 190)

191. Food Science Literature (1)
Prerequisite: senior standing. Review of recent literature. (Former F Sci 191)

192. Readings and Conference (1–3)
Prerequisite: Permission of instructor. Individually directed readings; reports and evaluation. (hours arranged) (Former H Ec 192)

193. Supervised Work Experience (1–6; max total 6)
Prerequisite: second semester junior standing and permission of instructor. Supervised work experience in one of the following areas: child development and family relations; clothing, textiles and fashion merchandising; consumer science; housing and interior design; food and nutrition; dietetics; and home economics education. (Former H Ec 193)

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

AGRICULTURE (Agri)

200. Biometrics in Agriculture (3)
Prerequisite: Math 11; permission of instructor. Statistical principles in agricultural research. Emphasis on collection, summarization of data and the design, conduct, analysis, and interpretation of experiments.

220. Research Communications in Agriculture (3)
Prerequisite: permission of instructor. Individually directed readings in a field of special concern to the student's graduate program; appropriate research writing and evaluation required.

221T. Topics in Food Science (3; max total 12)
Prerequisite: upper division food science course appropriate to study topic; permission of instructor. Advanced studies in a given area; food preservations; processing effect on chemical components; flavor, texture, and other quality factors in foods. Topics may require lab hours.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirements.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

IN-SERVICE COURSES (Agri)
(See *Course Numbering System*)

300. Topics in Agriculture (1–3)
Topics may require lab hours.

HOME ECONOMICS (H Ec)

200. Research Methods in Home Economics (3)
Prerequisite: A statistics course, such as Math 11 or Soc 25 or equivalent. Methods, techniques of research; locating and formulating problems; collection and interpretation of data; preparation of research reports; analysis of professional literature.

250T. Seminar in Food, Nutrition and Dietetics (3; max total 6 if no topic repeated)
Prerequisite: H Ec 200. Recent developments in the area of food, nutrition and dietetics. Topics include: history of nutrition, current research in food and/or nutrition, the nutritionally disadvantaged family, health foods and herbs, nutrition-related health problems and international nutrition. Some topics may have labs. (Former H Ec 280T section)

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

292. Readings in Home Economics (2–3; max total 6 if no topic repeated)
Prerequisite: H Ec 200, and permission of instructor. Individually directed readings in a field of special concern to students in the graduate program; appropriate reports and evaluations required; individual conferences, no formal class meetings.

299. Thesis (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirement.*
Preparation, completion, and submission of an acceptable thesis for the master's degree.

IN-SERVICE COURSES (H Ec)
See *Course Numbering System*

380. Topics in Home Economics (1–3; max total 9 if no area repeated)

PLANT SCIENCE AND MECHANIZED AGRICULTURE

FACULTY

Harry P. Karle, Department Chairman

Sayed A. Badr, Mahendra S. Bhangoo, Wayne E. Biehler, Earl H. Bowerman, James R. Brownell, O. J. Burger, Bendt A. From, Allan A. Hewitt, Mahlon M. S. Hile, Joo I. Kim, Gary M. Koch, Moh Leng Kok-Yokomi, Charles F. Krauter, Howard J. Martin, Arthur J. Olney, Vincent E. Petrucci, Gary L. Ritenour, Marinus Van Elswyk, Jr., John H. Weiler, Julian W. Whaley

DEPARTMENTAL PROGRAMS

The Department of Plant Science and Mechanized Agriculture offers programs of study in the plant sciences, including all aspects of agriculture and applied biology related to the fields of agronomy, horticulture, mechanized agriculture, ornamental horticulture, and viticulture. These include management and production factors as related to environment (soil, water and atmospheric effects, air pollution), cultural modifications and adaptations, protection against pests (diseases, insects, weeds, nematodes), storage and handling practices, utilization, marketing, and mechanization. In addition, each career objective area listed below prepares the students in modern scientific agriculture for positions in management, sales and service, graduate studies, research, teaching, and government agencies.

The courses offered in the disciplinary areas listed below provide the necessary background to prepare students for career objectives. See *School Degree Requirements.*

Plant Science (Plant) provides study in subject areas designed to complement the production disciplines in preparing students for work opportunities in soils, irrigation, propagation, breeding, and related areas.

Plant Protection (Plant) provides a broad selection of courses for training in physical and biological sciences, plant diseases, insects, nematodes, weeds, agricultural inspection of food crops, and laws regulating food production. They are designed to prepare students for careers in agricultural chemical industries and private or governmental agencies dealing in crop care and crop protection.

Agronomy (Plant) prepares students for specific crop production and general farming involving combinations of crops and livestock, and also for employment opportunities in service and sales in seeds, pesticides, and fertilizers; agronomic research; farm management; and production agronomist.

Horticulture (Plant) prepares students for general fruit farming, as managers of orchards, as inspectors in fruit processing plants, post harvest handling, supervisory positions in fruit packing plants.

Mechanized Agriculture (Ag Me) prepares students for positions in farm equipment development, sales and service, rural electrification, farm building construction, and general farming. The courses deal with the ever-changing field of agricultural processes and mechanization.

Ornamental Horticulture (Plant) prepares students for the nursery industry, plant propagation, plant production, greenhouse management, landscape design, landscape construction, landscape management, turf management, floral industry, and a variety of sales positions. The subject matter serves to enhance participation in farm and home landscape gardening and floral design as an avocation.

Vegetable Crops (Plant) prepares students with the essential skills in cultural practices, marketing, handling, processing, regulatory inspection, and seed production of vegetables. The sustained growth of the vegetable industry in California and the San Joaquin Valley offers a wide variety of employment opportunities. A vegetable production area is maintained for both student observation and research. Land is also available for vegetable projects.

Viticulture (Plant) is one of two instructional programs of its kind in the United States that prepare students for employment as vineyard farmers, managers, developers and packinghouse managers for both fresh and dried grapes.

In addition, a selected variety of plant science courses will provide the necessary background for the following career objectives:

Natural Resources. Provides education in physical and biological sciences as they apply to the management of the renewable natural resources (soils, water, forests) designed for the student interested in an understanding of those parts of the environment managed by man or preparation for employment in soil conservation service, land and water use planning, or waste disposal management.

Soil and Water Science (Plant). Study in physical and biological sciences applied to soil-water-plant relationships designed for the student interested in farm management, irrigation system design, fertilizer or sprinkler equipment sales, research and irrigation district management.

Plant Science—Agricultural Business. A combination of courses to provide students an in-depth study in plant science with additional training in agricultural business.

The Department of Plant Science and Mechanized Agriculture provides competent advisers for students pursuing career objectives in, *but not limited to,* the following areas:

Career Objective	*Suggested Major*
Farming: field crops, vegetable crops	Agricultural science
Farm equipment sales and service	Agricultural business
Agricultural engineering	Agricultural science
Fruit production, citrus farming	Agricultural science
Vineyard management	Agricultural science or agricultural business
Ornamental horticulture: landscape design, nursery management, turf management, floriculture	Agricultural science
Viticulture	Agricultural science
Pomology: production, research	Agricultural science
Diversified farming	Agricultural science, agricultural business, or agricultural education
Fruit and vegetable processing	Agricultural science
Irrigation	Agricultural science
Soil science	Agricultural science
Agricultural sales	Agricultural science or agricultural business
Plant protection: disease, insect, nematode and weed control	Agricultural science
Range or pasture management	Agricultural science
Research and development	Agricultural science

Suggested Courses for Plant Science: The following core of courses is recommended for all students preparing for a career in one of the plant science disciplines: Chem 2A, 2B, 8; Bot 10, 104; Biol 120; Ent 106; Zool 10; Plant 59, 108, 131, 171.

Laboratory Units: Theoretical instruction in plant sciences and mechanized agriculture is enhanced through practical application at the various laboratory units. These units include the Orchard Laboratory (65 acres), Vineyard Laboratory (160 acres), Raisin Processing Laboratory, Post-Harvest Physiology Laboratory, Seed Processing Laboratory, Ornamental Horticulture Laboratory, Pasture and Field Crop Laboratory (950 acres), Sprinkler Irrigation Test Laboratory, Field Irrigation Laboratory (80 acres), Soil-Water-Tissue Testing Laboratory, Agricultural Mechanization Laboratory, Honey Bee Management Laboratory and Apiary.

SUPERVISED PROJECTS

The agricultural sciences program is unique in that it provides opportunity for students to gain both theoretical training and practical experience in farming while pursuing their university programs. The supervised project experience is designed to supplement the lecture and laboratory assignments, giving students greater opportunity to develop the practical side of farming. The university owns all of the necessary equipment for student projects. A rental fee is charged for use of equipment. Proficiency in operating equipment must be demonstrated or acquired via short training sessions before projects may be undertaken. Students sign contracts wherein they agree to perform the labor required in caring for their projects. The Agricultural Foundation serves as a banking agency in providing the money students may need for the project materials. Students must submit records on each enterprise to the Agricultural Foundation and

share the profit or loss with the Foundation according to established percentages.

In the Department of Plant Science and Mechanized Agriculture students have an opportunity for project participation, usually limited to five-acre plots. Under certain conditions, reduced or expanded acreage may be allowed. Students prepare seed beds, plant, cultivate, irrigate, control insect pests and weeds, harvest and market their crops, and make managerial decisions necessary to complete the enterprise. Concurrent registration in Agri 106, *Enterprise Management,* required.

COURSES

Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.

PLANT SCIENCE (Plant)

10. Plant and Man (3)

Principles of plant structure, physiology, heredity, and environment in relation to growth, adaptation and management of crops. Techniques of research; future developments in plant sciences.

20. Plant Propagation (3)

Principles of sexual and asexual propagation; seed identification, seedage, cuttage, specialized plant structures for propagation; propagation media, rooting aids, structures. (2 lecture, 3 lab hours)

40. Water and Man (3)

Problem approach to man's need for and use of water; his management of water supply, allocation, use, disposal, and quality control for domestic, aesthetic, agricultural, industrial, power, navigation, and recreational uses.

80. Undergraduate Research (1–4; max total 4)

Open to freshmen and sophomores with permission of instructor. Exploratory work on a suitable agricultural problem in plant science.

140. Plant Breeding (3)

Prerequisite: Biol 120. Application of genetic and environmental principles to improvement of plants; heredity and variation in plants, effects of environmental factors on plant improvements, effects of self and cross fertilization, principles and results of selection and hybridization in plant improvement. (2 lecture, 3 lab hours)

170. Micropropagation (3)

Prerequisite: college botany and chemistry. Principles of plant propagation by aseptic cell and organ culture as a means of rapid cloning; elimination of systemic plant diseases; production of somatic hybrids, ploidy change, and other genetic variants for use in plant breeding. (2 lecture, 3 lab hours) (Former Plant 170T section).

170T. Topics in Plant Science (1–4; max total 6 per discipline if no topic repeated. Same as Geog 114 section)

Prerequisite: junior standing. Plant science, agricultural climatology, agronomy, horticulture, and other associated areas. Topics may require lab hours.

180. Undergraduate Research (1–4; max total 4)

Open to juniors and seniors. Exploratory work on a suitable agricultural problem in plant science.

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study.*

PLANT PROTECTION (Plant)

21. Plant and Food Protection (3)

Origin, history, and evaluation of protective measures (chemical, biological, cultural) for the control of diseases, weeds, insects, and rodents in the field and around the home.

91. Beekeeping (3)
Fundamentals of beekeeping; manipulation of the hive; diseases and enemies of bees; nectar sources and pollination problems; production and marketing of honey and beeswax; laws and regulations pertaining to beekeeping. (2 lecture, 3 lab hours)

111. Fruit and Vegetable Standards (3)
State and federal standards and regulations for packing, processing, and shipping fruits and vegetables.

121. Economic Entomology (3) (Same as Ent 106)
Prerequisite: Bot 10 or Zool 10. General and economic entomology; taxonomy of the principal orders of insects; life histories, habits, recognition, and control of the principal agriculture insect pests of the San Joaquin Valley. (2 lecture, 3 lab hours; field trips)

131. Weeds (3)
Prerequisite: Bot 10, Chem 2A. Weed control in California. Identification of common weeds. Fundamentals of preventive, cultural, biological, physical and chemical weed control methods. (2 lecture, 3 lab hours)

132. Agricultural Chemical Application (3)
Application techniques of agricultural chemicals: fertilizers, insecticides, herbicides, fungicides, nematocides, fumigants. Emphasis on effective and safe use of chemicals and on equipment calibration to ensure proper rate of application. (2 lecture, 3 lab hours)

151. Properties of Pesticides (3)
Prerequisite: Chem 8. Typical uses, modes of action, mechanisms of selectivity, environmental interactions, and user safety of insecticides, herbicides, fungicides, nematocides, rodenticides and plant growth regulators.

161. Plant Nematology (3)
Prerequisite: Zool 10. Morphology, life history, parasitic activity, and control of economically important nematodes with emphasis on plant-parasitic forms. (2 lecture, 3 lab hours)

171. Introduction to Plant Pathology (3)
Prerequisite: Bot 1 or 10. Study of causal agents, disease cycles, and control of diseases. Student participates in a faculty led discussion each week. (2 lecture, 3 lab-discussion hours)

171A. Diseases of Fruit Crops (2)
Prerequisite or concurrently: Plant 171. A laboratory and field study of causal agents, diseases, and control of plant diseases afflicting major fruit, nut, and vine crops. (1 lecture, 3 lab hours) (Former Plant 141)

171B. Diseases of Vegetable and Field Crops (2)
Prerequisite or concurrently: Plant 171. A laboratory and field study of causal agents, diseases, and control of diseases afflicting major vegetable and field crops. (1 lecture, 3 lab hours) (Former Plant 170T section)

171C. Diseases of Ornamental Crops (2)
Prerequisite or concurrently: Plant 171. A laboratory and field study of causal agents, diseases, and control of diseases afflicting ornamental crops. (1 lecture, 3 lab hours)

181. Soil Microbiology (3)
Prerequisite: Plant 171 or Microbiology. Isolation, population studies and biochemical activities of soil organisms related to organic matter and agricultural chemicals decomposition, including their effects on plant growth. (2 lecture, 3 lab hours)

191. Integrated Pest Management (3)
Prerequisite: Ent 106. Concepts and principles of integrated pest management. Insect and mite pest problems; sampling techniques; biology and ecology of major agricultural crop pests; integration of control measures for management of economic pests. (2 lecture, 3 lab hours)

AGRONOMY (Plant)

13. Agronomy (3)

Principles of crop production and survey of important field crops; cultural methods, uses and marketing in California and the San Joaquin Valley. (2 lecture, 3 lab hours; 2 Saturday field trips)

33. Row Crops (3)

Cultural methods, uses, and marketing of major California and San Joaquin Valley row crops: sugar beets, beans, cotton, and other fiber and oil crops. (2 lecture, 3 lab hours)

43. Cereal Crops (3)

Cultural practices, varieties, harvesting, and marketing of wheat, barley, rice, corn, grain sorghum, oats and rye. (2 lecture, 3 lab hours; 2 Saturday field trips)

113. Seed Production (3)

Prerequisite: Plant 13. Principles and practices in the culture of vegetable and field crops for seed production; harvesting, storage, yields, quality, seed laws, certification, seed cleaning, and marketing. (2 lecture, 3 lab hours)

123. Field Crop Technology (3)

Prerequisite: Chem 2A, 6 units of agronomy. Evaluation of factors that impart quality to fiber and oil crops, cotton, cereals, and other major California field crops. Relationship of crop quality to varieties, cultural practices, insects and disease, harvesting and storage. (2 lecture, 3 lab hours)

133. Forage Crops (3)

Prerequisite: junior standing. Forage crops of California; alfalfa, silage, irrigated pasture, range, related to livestock feed enterprises, cultural methods, uses and marketing. (2 lecture, 3 lab hours)

173. Range Improvement (3)

Prerequisite: junior standing. Identification of range plants; carrying capacity; methods of range improvement, grazing management, water development, rodents, fertilization, reseeding, brush removal; mountain range resources. (2 lecture, 3 lab hours; 1 Saturday field trip)

183. Advanced Agronomy (3)

Prerequisite: 6 units of agronomy; senior standing. Relating the various production techniques and problems to the functions of agronomic crops. Practical problem solving; field experimentation; research paper evaluation.

VEGETABLE CROPS (Plant)

14. Vegetable Crops (3)

Culture of vegetable crops for market and home; importance, varieties, cultivation, harvesting, storing, and marketing; vegetable diseases and insect pests; vegetables adapted to the San Joaquin Valley. Student garden maintained. (2 lecture, 3 lab hours; 2 Saturday field trips)

114. Vegetable Field Crops I (3)

Prerequisite: Plant 14. Cultural practices, harvesting, processing, and marketing of warm season vegetables of economic importance to California and the San Joaquin Valley. (2 lecture, 3 lab hours; 3-day field trip)

124. Vegetable Field Crops II (3)

Prerequisite: Plant 14. Cultural practices, harvesting, processing, and marketing of cool season vegetables of economic importance to California and the San Joaquin Valley. (2 lecture, 3 lab hours; 3-day field trip) (Former Plant 170T section)

154. Organic Gardening (3)

Prerequisite: Bot 10. Organic method of growing food. Demonstrations, applications in student gardens of principles of composting, crop rotation, mulching, sowing times, natural fertilizers, bio-control of pests and diseases. Emphasis on plant interactions with the environment pertaining to plant/human health. (2 lecture, 3 lab hours)

174. Physiology of Vegetable Crops (3)

Prerequisite: Plant 14, Bot 104. Principles of plant physiology related to factors associated with maturity, quality, pest resistance, development of new varieties, and production of vegetables. (2 lecture, 3 lab hours)

ORNAMENTAL HORTICULTURE (Plant)

15. Introductory Ornamental Horticulture (3)

Planting and maintenance of the garden; selection, planting, fertilization, and pruning of ornamental plants; lawn planting and care. (2 lecture, 3 lab hours)

25. Plant Identification (3)

Identification, habits of growth, culture and landscape use of trees, shrubs, vines, annuals, herbaceous perennials including tropicals, subtropicals, conservatory and house plants. (2 lecture, 3 lab hours)

35. Principles of Nursery Operation (3)

Prerequisite: Plant 20. Nursery structures; practice in production of ornamental, fruit, nut, annual, perennial, bedding, vegetable, and pot plants; retail and wholesale nursery practices. (2 lecture, 3 lab hours)

55. Introductory Landscape Design (3)

History and development in the field of landscape design. A study of the need for landscaping in modern man's environment. Consideration of landscaping practices for the modern home and their effect on the home microenvironment.

65. Floral Design (3)

Introductory floral design; principles and rules of design and color using plants as the media; influence of the Japanese and European schools; emphasis on modern American line-mass design. $10 materials fee required. (2 lecture, 3 lab hours)

75. Indoor Plants (3)

Prerequisite: Bot 1 or 10. Identification, growth habits and techniques of growing indoor plants. Use of foliage and flowering plants for interior decoration. (2 lecture, 3 lab hours; 1-day field trip) (Former Plant 170T section)

105. Arboretums and Botanical Gardens (2)

Arboretums and botanical gardens in the United States; purpose, design, and functions of arboretums and botanical gardens in the present environment. (1 lecture, 3 lab hours)

115. Landscape Graphics (3)

Lettering techniques, styles, basic and special drafting equipment used by landscape architects. Graphic construction and techniques used in developing landscape plans, including symbols and rendering techniques. Site plan and elevation rendering; section and detail drawing in landscape architecture. (1 lecture, 6 lab hours) (Former Plant 170T section)

125. Ornamental Trees (3)

Prerequisite: Bot 1 or Bot 10. Trees grown in California for landscaping, shade and ornamentation; identification, habits of growth, cultural requirements, landscape, use. (2 lecture, 3 lab hours; 1-day field trip)

135. Flower Shop Management (3)

Prerequisite: Plant 65. Practices and principles in planning and managing a retail flower shop. Design of floral compositions for special occasions, weddings, and funerals, including the use of dried and permanent materials. $10 materials fee required. (2 lecture, 3 lab hours; 1-day field trip)

145. Floriculture (3)

Prerequisite; Plant 15. The construction, operation, and management of greenhouses and other forcing structures. The greenhouse environment and its relationship to the production of commercial florist crop. (2 lecture, 3 lab hours; 1-day field trip)

155. Plant Hormones (3)

The effects of plant hormones and other growth regulating chemicals on the physiology, growth, and development of horticultural plants. (2 lecture, 3 lab hours)

165. Turfgrass Production and Management (3)

Prerequisite: Plant 15. Production and maintenance of grass for lawns, public parks, public institutions, playgrounds, playing fields, golf courses, bowling greens; identification of turfgrasses and turfgrass seed. (2 lecture, 3 lab hours)

175. Nursery Management (3)

Prerequisite: Plant 15, 25. Design, construction and utilization of nursery structures; control of temperature and lighting; business organization. (2 lecture, 3 lab hours)

185. Landscape Design (4)

Prerequisite: Plant 115; senior standing. The analysis and solution of construction problems as they relate to design and site development. (2 lecture, 6 lab hours)

195. Advanced Floriculture (3)

Prerequisite: Plant 145. Practices and techniques in the production of major floricultural crops with emphasis on cut flowers, potted plants, and bedding plants. (2 lecture, 3 lab hours; 2-day field trip)

HORTICULTURE (Plant)

16. Fruits of the World (3)

Origin, history, nutrition value and world distribution of fruits; factors affecting growth, storage and handling, fruit processing, and marketing.

106. Fruit Species of California (3)

Prerequisite: junior standing. Fruit and nut species common to California; their adaptation and uses.

116. Fruit Production I (3)

Prerequisite: Plant 16. Adaptations of fruits to their environments; training, pruning, propagation, rootstocks; fundamentals of fall cultural practices. (2 lecture, 3 lab hours)

126. Fruit Production II (3)

Prerequisite: Plant 16. Fruit and vegetative development; pollination, nutrition, product utilization; fundamentals of spring cultural practices. (2 lecture, 3 lab hours)

136. Citriculture (3)

Prerequisite: Plant 16. History and botany of citriculture; species adaptation to our environment; fruit and vegetative development; cultural practices; production and economics. (2 lecture, 3 lab hours)

166. Postharvest Physiology of Horticultural Crops (3)

Prerequisite: Bot 104. Physiology of maturation, ripening, and senescence of tree fruits, grapes, and vegetables. Principles of handling fresh produce: harvesting, precooling, packaging, storage, and transportation. Control of postharvest problems. (2 lecture, 3 lab hours)

186. Orchard Management (3)

Prerequisite: Plant 116. Practices and principles in planning, establishing, and maintaining fruit and nut crops; new development analysis; survey of scientific literature. (2 lecture, 3 lab hours)

VITICULTURE (Plant)

17. General Viticulture (3)

History and origin of the grape industry; study of major grape producing countries; current trends in the raisin, table, wine, fresh juice and canning segments of the grape industry.

27. Raisin Production and Processing (3)

Prerequisite: Plant 17. Principles and practices of raisin production, dehydration and processing operations; utilization of the university vineyard and raisin processing laboratory. (2 lecture, 3 lab hours)

107. Viticulture I (3)

Prerequisite: Plant 17. Current status and future of grape industry; commercial classes of grapes; climatic and soil requirements for grape growing. Principles and practices of vineyard fertilization, cultivation, and pruning. (2 lecture, 3 lab hours)

117. Viticulture II (3)

Prerequisite: Plant 17. Planning of new vineyards. Principles and practices of propagation, planting, and training grapes. Morphology and physiology of the grapevine and response of the vine to growth regulators and other means of improving grape quality. (2 lecture, 3 lab hours)

127. Grape Varieties (3)

Prerequisite: Plant 17. Grape varieties common to California; rootstocks and species, identification, adaptability, use and acreage; taste testing fresh grapes.

177. Marketing Grapes and Tree Fruit (3)

Prerequisite: Plant 116 or 117, Ag Ec 31. Principles of marketing dealing specifically with grape and tree fruit, fresh and processed; marketing orders, modes of transportation, market news, competing countries, and the export market. (3-day field trip)

187. Advanced Viticulture (3)

Prerequisite: permission of instructor. Relating the various cultural techniques to the physiology of the grape vines; effect of these techniques on vine health and vigor; economics and management of vineyards. (2 lecture, 3 lab hours; 3-day field trip)

SOILS (Plant)

108. Soils (3)

Prerequisite: high school chemistry or Chem 2A (Chem 2B or 2C concurrent). Physical and chemical properties of soils as a medium for plant growth; factors that influence soil formation; evaluation of current studies including food production, soil map interpretation, fertilizer use, soil's role in the biosphere. (3 lecture hours, 1 Saturday field trip) (Former Plant 130)

108L. Soils Laboratory (1)

Prerequisite: Plant 108 (or concurrently). Physical, chemical and biological analysis. Interpretation of field and laboratory data. (3 lab hours) (Former Plant 130L)

118. Soil Classification and Survey (3)

Prerequisite: Plant 108. Influence of environmental factors on soil development; description and identification of soil profiles and mapping, interpretation of survey data. (2 lecture, 3 lab hours) (Former Plant 120)

128. Soil Management (3)

Prerequisite: Plant 108. Factors affecting soil fertility, management of soils, attaining continuous optimum productivity. Physical, chemical, and field tests on soil productivity and crop management. (2 lecture, 3 lab hours; 1 Saturday field trip) (Former Plant 150)

138. Soil Fertility (3)

Prerequisite: Chem 2A–B and 3 units of soils. Evaluation of plant nutrient status of soils, chemistry of the nutrient elements, soil and plant tissue analyses and interpretation, fertilizer use. (2 lecture, 3 lab hours) (Former Plant 152)

148. Fertilizers (3)

Prerequisites: college chemistry, Plant 108. Essential plant nutrients and sources; manufacturing of fertilizers, their properties, reactions, methods of application and placement; utilization of organic wastes as manures, impact on environment; crop nutrient requirements and fertilizer recommendations; economics of fertilizer use. (Former Plant 170T section)

158. Environmental Chemistry (3)

Prerequisite: Chem 8. The chemistry of the environment; air, water, and soil reactions; agricultural and waste disposal impacts. Student research project and report required. (2 lecture, 3 lab hours) (Former Plant 170T section)

IRRIGATION (Plant)

59. Irrigation (3)

Methods of irrigation adapted to the San Joaquin Valley; water requirements of various crops and methods of application. (2 lecture, 3 lab hours; 1 week end field trip) (Former Plant 50)

119. Ornamental Horticulture Irrigation (3)

Prerequisite: Plant 59, 108; senior standing. Design, installation, and operation of irrigation systems used for ornamental plants, turf areas, nurseries, and greenhouse operations. (2 lecture, 3 lab hours; 1 Saturday field trip) (Former Plant 170T section)

129. Field Crop Irrigation (3)

Prerequisite: Plant 59, 108; senior standing. Design, installation and operation of irrigation systems for field, vine, and tree crops. (2 lecture, 3 lab hours; 1 Saturday field trip) (Former Plant 170T section)

MECHANIZED AGRICULTURE (Ag Me)

Note: Suitable eye protection is required in all Mechanized Agriculture laboratory classes.

15. Agricultural Mechanics (3)

Mechanical skills in field of agriculture; selection, care and use of common farm tools; projects of wood and metal in farm appliances. (2 lecture, 2 lab hours)

17. Farm Tractors (3)

Operation and maintenance of farm tractors; operation of farm tractor under field conditions; service, maintenance and minor repair of gas, diesel, and butane type engines of wheel and crawler type (2 lecture, 2 lab hours; 5 hours field operation.)

18. Agricultural Welding (3)

Prerequisite: Ag Me 15. Metallurgy of mechanized agriculture. Arc and oxyacetylene welding, cutting and brazing process as tools of construction, maintenance and repair of the machines of modern agriculture. (2 lecture, 2 lab hours)

25. Agricultural Drafting (3)

May be taken concurrently with Ag Me 15. Use of drafting instruments, lettering, dimensioning, scale drawings and working drawings of projects in agricultural mechanics; elementary plan and perspective drawings of small buildings (2 lecture, 2 lab hours)

80. Undergraduate Research (1–4; max total 4)

Open to freshmen and sophomores with permission of instructor. Exploratory work on a suitable agricultural problem in agricultural education, international agriculture, agricultural mechanics, dairy industry, enology, or food science (Former Agri 80)

81. Farm Structures and Equipment (3)

Prerequisite: Ag Me 15. Construction and repair of farm structures and equipment; farm carpentry and construction principles; engineering principles, codes; farmstead layouts and basic requirements of farm structures. (2 lecture, 2 lab hours)

91. Farm Surveying (3)

Prerequisite: sophomore standing. Use of the steel tape, level, transit and compass; field problems in chaining distances, laying out building lines, profile leveling for irrigation ditches and drains, land leveling, and measuring land areas. (2 lecture, 2 lab hours)

111. Rural Electrification (2)

Prerequisite: junior standing. Fundamentals of alternating current, wiring practices, circuit layouts and problems, motor and branch circuit protection; safe use of electricity; wiring of farmstead.

111L. Rural Electrification Laboratory (1)
Laboratory experiments to accompany Ag Me 111. (3 lab hours)

115. Farm Machinery (3)
Prerequisite: Ag Me 15. Study and operation of tillage tools, interaction of the soil and tool; cotton, grain, and specialized harvesting machinery and equipment. (2 lecture, 3 lab hours)

116. Farm Machinery (3)
Prerequisite: Ag Me 15. A study of farm machinery used in spring and summer operations. Orchard and field spraying equipment, field and row crop planters, cultivating tools, and haying machinery (2 lecture, 3 lab hours)

121. Advanced Agricultural Welding (3)
Prerequisite: Ag Me 18. Arc and gas welding processes in construction and repair of farm equipment; inert arc welding; radiograph and shape burning; aluminum and stainless steels; welding tests and design of welded structures. (2 lecture, 3 lab hours)

125. Landscape Ornamental Structures (3)
Prerequisite: Ag Me 15, junior standing. Layout and construction of landscape structures. Type of construction; properties and uses of masonry, wood, concrete, and steel. (2 lecture, 3 lab hours) (Former Agri 160T section)

131. Agricultural Fluid Power (3)

Prerequisite: junior standing. Theory and practice in the operation, service, adjustment, and function of the component parts of fluid power systems. Design application of systems to farm machines. (2 lectures, 3 lab hours)

147. Agricultural Processing Technology I (3)
Prerequisite: junior or senior standing. Principles of plant operations in the food and fiber industries. Basic theory of heat transfer, fluid mechanics, refrigeration, dehydration, cleaning and sorting, cost analysis and plant layout. (2 lecture, 3 lab hours) (Former Ag Me 140)

148. Agricultural Processing Technology II (3)
Prerequisite: junior or senior standing. Processing techniques including heat exchange equipment, distillation, process condition, pumps in food industry, fluid flow measurement. (2 lecture, 3 lab hours) (Former Ag Me 141)

151A–B Farm Power (3–3)
Prerequisite: Ag Me 15. (A) Principles of the internal combustion engine; adjusting, servicing, and minor repairs practical in farming operations. (B) Overhauling and repairing of gasoline and diesel farm tractors and engines; field servicing and and repairing of auxiliary power plants on farm machinery. (2 lecture, 3 lab hours)

153. Small Engines (3)
Prerequisite: junior or senior standing. Theory of operation, maintenance and repair of small gasoline internal combustion engines, both 2-cycle and 4-cycle. (2 lecture, 3 lab hours)

159. Pumps and Motors (3)
Prerequisite: Ag Me 15, Plant 59. Operation and study of centrifugal and deep well turbines; testing of pumps and motors under operating conditions to determine efficiency; installation, protective devices, maintenance and proper selection of single and three-phase motors used on the farm. (2 lecture, 3 lab hours)

160T. Topics in Agriculture (1–4; max total 6 per discipline if no topic repeated)
Prerequisite: junior standing, permission of instructor. Mechanized agriculture. Topics may require lab hours. (Former Agri 160T)

180. Undergraduate Research (1–4; max total 4)
Open to juniors or seniors with permission of instructor. Exploratory work on a suitable agricultural problem in agricultural education, international agriculture, agricultural mechanics, dairy industry, enology, or food science. (Former Agri 180)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.* (Former Agri 180)

GRADUATE COURSES

(See *Course Numbering System–Definitions and Eligibility*)

AGRICULTURE (Agri)

200. Biometrics in Agriculture (3)
Prerequisite: Math 11; permission of instructor. Statistical principles in agricultural research. Emphasis on collection, summarization of data and the design, conduct, analysis, and interpretation of experiments.

201. Agricultural Laboratory Techniques (3)
Prerequisite: upper division laboratory experience and classified standing. Agricultural problem solving through the application of advances in laboratory technology to soils, plant and animal nutrition, water quality and crop management. Theory and practice operation of scientific instruments and techniques will be taught. Student defined project and report required. (Former Agri 250T section)

220. Research Communications in Agriculture (3)
Prerequisite: permission of instructor. Individually directed readings in a field of special concern to the student's graduate program; appropriate research writing and evaluation required.

230T. Topics in Mechanized Agriculture (3; max total 12)
Prerequisite: upper division mechanized agriculture course appropriate to study topic. Advanced studies in a given area; farm power and machinery, agricultural processes, machinery management. Topics may require lab hours.

250T. Topics in Plant Science (3; max total 12)
Prerequisite: upper division plant science appropriate to study topic, permission of instructor. Advanced studies in a given area: crop physiology, plant breeding, plant pathology, plant nutrition, or economics. Topics may require lab hours.

251. Pesticides (3)
Prerequisite: Bot 10, Chem 8. Modes of action of pesticides. Absorption and translocation of pesticides. Mechanisms of pesticide specificity. Interaction with soil and soil microbes. Methods of pesticide investigations (biological assay, instrumental detection, chemical assay, chemical and microbial degradation). (2 lecture, 3 lab hours)

252. Plant Nutrition (3)
Prerequisite: Bot 104. Mineral requirements of plants; the acquisition and translocation of nutrients by higher plants and the role of nutrient elements in plant development. (2 lecture, 3 lab hours)

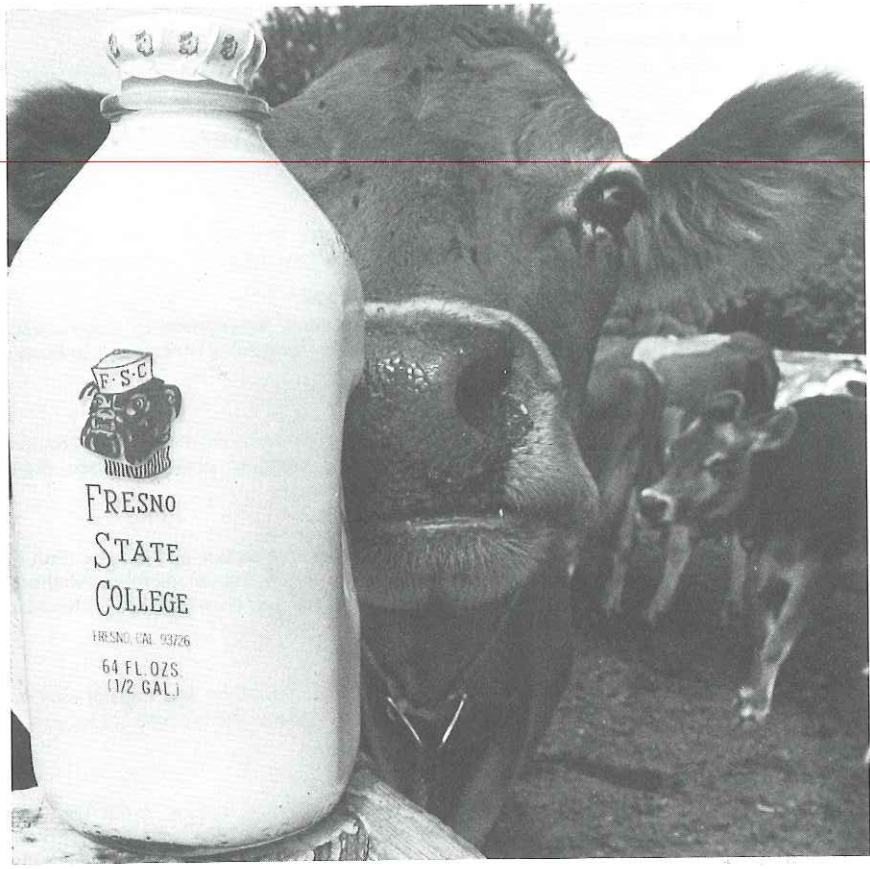
254. Plant Hormones and Regulators (3)
Prerequisite: Bot 104, Chem 8. History of discovery, chemical nature, extraction, and identification of naturally occurring hormones. Physiological and biochemical effects of plant growth substances and hormones. Mechanism of action of auxins, gibberellins, cytokinins, inhibitors (ABA), ethylene, and other hormones. Agricultural impacts of growth regulators. (2 lecture, 3 lab hours)

255. Advanced Plant Breeding (3)
Prerequisite: Plant 140. Principles and techniques of plant improvement, breeding methods, combining ability, sterility systems, quantitative genetic analysis, heritability estimates, experimental designs for plant breeding.

256. Plant-Water Relationships (3)
Prerequisite: Bot 104. Physicochemical properties of water and solutions; movement of water, solutes, and growth regulators in plants; study of moisture-sensitive periods of various crops; factors affecting water absorption and retention.

257. Physiology of Cultivated Crops (3)
Prerequisite: Bot 104. Plant cell structure and function. Response of cultivated plants to the environment. Physiology and hormonal control of flower induction, fruit set, and development. Review of pertinent current publications.

258. Plant Disease Control (3)
Prerequisite: Plant 171. Principles of plant disease control; agricultural chemicals used in plant disease control. Methods and theory used in application of chemicals, biological control, and breeding for resistance. Insight into industrial research and development of control measures. (2 lecture, 3 lab hours)



270. Seminar in Plant Science (1; max total 4)
Prerequisite: permission of instructor. Reviews and reports on recent literature and problems in agronomy, horticulture, irrigation, soils, ornamental horticulture, or viticulture and enology.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis (2–6; max total 6)
Prerequisite: see *Master's Degrees-Thesis Requirements.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

IN-SERVICE COURSES (Agri)
(See *Course Numbering System*)

300. Topics in Agriculture (1–3)
Topics may require lab hours.

FAMILY STUDIES AND HOME ECONOMICS

FACULTY

Department Chairman

Richard D. Berrett, Shirley J. Bowden, N. Joanne Caid, Nina J. Dilbeck, David E. Goldbloom, Frances H. Harkins, Patricia L. Hennings, Michele M. Kilner, Elena F. Kissick, Vivian Y. Kunimitsu, William C. Rice, Laurence E. Smardan, Alice J. Sollie, Louise P. Turner, Wesley M. Williams

DEPARTMENTAL PROGRAMS

The Department of Family Studies and Home Economics offers programs of study leading to a major and a minor in home economics for the bachelor of arts degree, and a master of science degree. The Home Economics program is accredited by the American Home Economics Association. The programs of study, major/minor in home economics include course work in the various areas of the home economics discipline: Child and Family Studies; Fashion Merchandising; Food Science and Nutrition; Consumer Science; and Interior Design and Housing.

The Department of Family Studies and Home Economics has a cooperative relationship with The Merrill-Palmer Institute. Students may undertake a period of undergraduate or graduate off-campus study at Merrill-Palmer and these courses will apply toward graduation at CSUF.

Career opportunities for home economists in business are available in the areas of child and family studies, fashion design and merchandising, food and nutrition, consumer science and interior design and housing. Students may qualify for these career opportunities by selecting appropriate electives in their special area of interest. Students should consult with a departmental advisor in selecting appropriate courses for their special areas of interest. See *School Degree Requirements.*

Appropriate selection of courses offered in the disciplinary areas listed below will provide the necessary background to prepare students for careers as home economists.

Child and Family Studies courses focus on individual and family development through the life cycle with analysis of the forces affecting personal and family development and relationships. Employment possibilities include working with individuals and/or families in a variety of settings, including teachers in child care programs; cooperative extension; service, social and community agencies.

Fashion Merchandising courses prepare students for employment opportunities in business; extension; government and research laboratories; merchandising; quality control; or textile and apparel design.

Food Science and Nutrition courses prepare students for careers in research, product development, consultant service, sales management, public relations, and food service.

Consumer Science courses focus on the family as a social and economic unit and prepare students for careers as consumer affairs professionals with banks and finance companies, home service advisors, consumer representatives in business, and consumer relations specialists. Other opportunities include work in product testing and research, debt counseling, government agencies, cooperative extension, communications, and equipment consultant services.

Interior Design and Housing courses prepare students for employment as independent interior designers, design associates, or designers with architectural firms or retail stores. Employment may involve sales and/or design of commercial or residential furniture, accessories, floorcoverings, window treatments and wallcoverings. Designers work as space planners, consultants, specifiers and suppliers.

The *Home Economics (Teacher Education)* approved program for the single subject credential prepares students to teach in public intermediate and secondary schools and ROP and ROC vocational home economics; to serve as business consultants; and to work in cooperative extension service and continuing education.

COURSES

GENERAL (H Ec)

1. Contemporary Home Economics (2)
Home economics in America; past and present professional needs, successes and weaknesses; future of the field. Academic preparation for a variety of occupations; participation in the worlds of work, marriage, family, and community.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

192. Readings and Conference (1–3)
Prerequisite: Permission of instructor. Individually directed readings; reports and evaluation. (hours arranged)

193. Supervised Work Experience (1–6; max total 6)
Prerequisite: second semester junior standing and permission of instructor. Supervised work experience in one of the following areas: child development and family relations; clothing, textiles and fashion merchandising; consumer science; housing and interior design; food and nutrition; dietetics; and home economics education.

CONSUMER SCIENCE (CS)

10. Management for Effective Living (2)
Not open to home economics majors and minors. Human relationships, housing, family finance, consumer problems, meal management and nutrition as they relate to individual and family living. (Former H Ec 10)

105. Decision Making and Problem Solving (3)
Management concepts related to individual careers and family living. Analysis of values, goals, and standards and their relationship to decision making in the allocation of human and nonhuman resources with case studies in problem solving. (Former H Ec 5, 105)

110. Consumer Buying Strategies (3)
Emphasis on consumer buying strategies, sources of information relevant to consumer decision making and the activities and problems of buying goods and services in the marketplace. (Former H Ec 112T section, H Ec 110)

111. Household Equipment and Energy Use (3)
Selection, methods of operation, specifications of household appliances; utilization of energy; energy conservation strategies; kitchen and utility planning. (2 lecture, 2 lab hours) (Former H Ec 111)

112T. Topics in Consumer Science and Management (1–4; max total 12 if no topic repeated)
Current topics relating to consumers and home management; consumers in action (lobbying), financial counseling, product standards and safety, home ownership. Some topics may have labs. (Former H Ec 112T)

113. Economics for Consumers (3)
Prerequisite: Econ 1A recommended. Consumer spending related to social and psychological factors influencing consumers. Legislation that protects and relates to the consumer on local, state, and federal level. (Former H Ec 113)

114. Consumer Science Practicum (3)
Prerequisite: F ScN 54, CS 113. Integrated field experience in various phases of home economics as they apply to the consumer in the community. (6 lab hours) (Former H Ec 114)

115. Family Finance (3)

Financial activities of the individual and family; planned spending, bank services, consumer credit, insurance savings, investments, taxes; financial aspects of home ownership and estate planning. (Former H Ec 115)

117. Resource Management of Aging (3)

Study of the individual during the later stages of the life cycle with emphasis on the special problems of the elderly in management of personal and community resources. (Former H Ec 112T section, H Ec 117)

118. Consumer and Family Law (3)

A "law-for-the-layman" course. Broad coverage of individual and family rights in the areas of domestic relations, marriage, divorce, parenting, abortion, consumer protection, property rights, liability and court proceedings. (Former H Ec 112T section, H Ec 118)

FASHION MERCHANDISING (FM)

20. Beginning Textiles (3)

Fiber classification; methods of production; fabric construction; mechanical finishes. Selection, use, and care of fabrics in relation to consumer needs. (Former H Ec 20)

22. Fashion Analysis (1)

Factors influencing trends in dress. Selection of color, line and form related to individual needs. (Former H Ec 22)

24. Clothing Construction I (3)

Pattern and fabric selection; basic construction techniques, use of commercial patterns; application of these factors to consumer buying. Color line and design in apparel selection. (6 lab hours) (Former H Ec 24)

26. Clothing Construction II (3)

Prerequisite: FM 24 or experience in clothing construction. Individualization of basic and designer patterns: alteration principles; techniques of handling new fabrics. Selection of color, line and form related to individual and family needs. (6 lab hours) (Former H Ec 26)

120. Social and Psychological Aspects of Clothing (3)

The psychological, social, and economic aspects of clothing as related to the individual, family, and society. An understanding of fashion, its development and distribution. (Former H Ec 120)

121. Tailoring (3)

Prerequisite: FM 22, 24, or 26. Tailoring a suit or coat using various techniques. (6 lab hours) (Former H Ec 121)

122T. Topics in Clothing and Textiles (1–4; max total 12 if no topic repeated)

Topics relating to clothing, textiles and fashion merchandising. Some topics may have labs. (Former H Ec 122T)

123. Pattern Design (3)

Prerequisite: FM 22, 24, and/or 26. Application of flat pattern method to apparel design (6 lab hours) (Former H Ec 123)

124. Advanced Textiles (3)

Prerequisite: FM 20, 107; Fabric finishes; color and design in fabrics; detergency; and fabric analysis through standard laboratory tests. (2 lecture, 2 lab hours) (Former H Ec 124)

125. Weaving Techniques (3; max total 6)

Basic and advanced weaving techniques. Handweaving methodology for the beginning and intermediate student with emphasis directed to on-loom 2–4 harness techniques, pattern drafting and decorative experiments with ikat resist dyeing methods. Emphasis on weave construction. (6 lab hours) (Former H Ec 122T section)

127. Fashion Merchandising (3)
Prerequisite: H Ec 20, 107. Aspects of fashion marketing and fashion related careers. Resource personnel and field trips. Expenses for required off-campus visits are incurred by the student. (2 lecture, 2 lab hours) (Former H Ec 127)

128. Fashion Display Techniques (3)
Prerequisite: IDH 107, 127. Design fundamentals applied to the aesthetic arrangement of promotional and institutional displays in the retail store. Resource personnel and local field trips. Expenses for required off-campus visits are incurred by the student. (2 lecture, 2 lab hours) (Former H Ec 128)

129. Fashion Merchandising Practicum (3; max total 6)
Prerequisite: FM 127, senior standing. Supervised work experience in fashion merchandising. (6 lab hours)

CHILD AND FAMILY STUDIES (CFS)

32. Preparation for Marriage (3)
Analysis of various motivations for intimate interpersonal relationships, particularly those which lead to marriage; attitudes, values and goals related to mate selection. (Former H Ec 32)

37. Introductory Child Development Practicum (3)
Observation and interaction with the young child in a laboratory setting. Utilize a case study to focus on the child's growth and development to gain an understanding of his/her relationship to family, peers and adults. (2 lecture, 3 lab hours) (Former H Ec 37)

39. Child Development (3)
Physical, intellectual, social and emotional development of the child from conception through adolescence, in the cultural context of the family approached from an interdisciplinary perspective. (Former H Ec 39)

108. The Individual and Family Interaction (3)
Individual and family development and family interaction throughout the family life cycle. Diversity of family life styles and forces that influence family relationships and the quality of life will be among the topics examined. (Former H Ec 8, H Ec 108)

131. Family Relationships (3)
Interpersonal relationships within the family; needs, values, and goals of the family at various stages of its life cycle. (Former H Ec 131)

132T. Topics in Child Development and Family Relationships (1–4; max total 12 if no topic repeated)
Prerequisite: CFS 39 and/or 131. Topics relating to child development and family relationships. Some topics may have labs. (Former H Ec 132T)

133. Children and Family Crises (3)
Prerequisite: CFS 39 and 131. Crises experienced by children and their families; separation, dissolution, divorce, remarriage and the consequent formation of step-relationships, death, alcoholism, and drug abuse included. (Former H Ec 133)

134. Cultural Aspects of Child Rearing (3)
Prerequisites: CFS 39 and 131 or CFS 39 and Soc 165. Cultural and subcultural aspects of child rearing; survey of research studies and findings on cultural child-rearing attitudes and practices. (Former H Ec 134)

135. Contemporary Parenting (3)
Prerequisite: CFS 39. Examination and critique of several contemporary theories of effective adult/child relationships. (Former H Ec 132T section, H Ec 135))

136. Middle Childhood and Adolescence (3)
Prerequisite: CFS 39. Family influences on the physical, intellectual, social and emotional development of children in middle childhood and adolescence. Emphasis on the search for identity, heterosexual development, vocational choice and interpersonal relations. (Former H Ec 136)

137. Infant in the Family (3)

Prerequisite: CFS 39. A functional and theoretical study of the infant's physical, emotional, social and intellectual development during the first two years of life within the family. (2 lecture, 2 lab hours) (Former H Ec 132T section, H Ec 137)

139. Child Development Practicum (3)

Prerequisite: CFS 37. Assume the responsibility of a nursery school head teacher; plan learning episodes for the young child based on his or her needs, abilities, and interests; work with parents and do diagnostic assessments of children. (2 lecture, 3 lab hours) (Former H Ec 139)

FOOD SCIENCE AND NUTRITION (FScN)

50. Basic Foods and Nutrition (3)

Introduction to principles of food preparation and characteristics of a nutritionally adequate diet. (2 lecture, 2 lab hours) (Former H Ec 50)

52. Dietetics (3)

Elements of nutrition and diet in disease. (Former H Ec 52)

54. Elementary Nutrition (3)

Elementary knowledge of high school chemistry and biology strongly recommended. Scientific principles underlying normal nutritional requirements. (Former H Ec 54)

103. Individual, Family and Near Environment (3)

Analysis of concepts in the area of food, clothing and shelter that are basic to the rapid changes in our society. Values and goals that are operative in interrelationships of three basic family needs are explored. (Former H Ec 3, 103)

150. Advanced Foods (4)

Prerequisite: F ScN 50 and Chem 2A-B or 2A-C. Experimental approach of foods emphasizing sensory and objective tests, standards for high quality foods and scientific principles which affect food preparation and product development. (2 lecture, 4 lab-discussion hours) (Former H Ec 150)

151. Experimental Food Study (3; max total 6)

Prerequisite: F ScN 150. Principles, procedures, sensory and objective evaluation methods necessary to organize professionally and carry through a food research project. Lectures, demonstrations, individual research and field trips. (1 lecture, 4 lab-discussion hours) (Former H Ec 151)

153. Advanced Nutrition (3)

Prerequisite: F ScN 54 and Chem 2A-B or F ScN 54 and Chem 2A-C. Present knowledge of the metabolism of carbohydrates, fats, proteins, vitamins and minerals. Dietary study and evaluation. (Former H Ec 153)

154. Nutrition in Disease (3)

Prerequisite: F ScN 153. Nutritional aspects and dietetic treatment of disease. (2 lecture, 2 lab hours) (Former H Ec 154)

155. Food Service Management I (3)

Prerequisite: Mgt 110A. Organization and operation of food services; management principles; food service personnel; food cost control; record keeping. (Former H Ec 155)

156. Food Service Management II (3)

Prerequisite: F ScN 50. Work simplification; plant layout; selecting, procuring and maintaining equipment and furnishings for food service units. Menu planning and quantity food purchasing. (Former H Ec 156)

158. Food Service Management III (4)

Prerequisite: F ScN 156. Quantity food production and management, food merchandising and catering. (2 lecture, 4 lab hours) (Former H Ec 158)

159. Institution Experience (3)
Prerequisite: F ScN 154, 158; Phy 33. Supervised work experience in hospital dietary departments. (1 lecture, 4 lab hours) (Former H Ec 159)

160. Meal Management (3)
Prerequisite: F ScN 50. Principles of foods and nutrition applied to meal planning, preparation, and service. Economic, aesthetic, nutritional, and managerial aspects of meal planning. (2 lecture, 2 lab hours) (Former H Ec 160)

161. Food Service for Children (3)
Prerequisite: CFS 39 and F ScN 54 recommended. Role and responsibilities in providing meals to children and youth to comply with legislative and budgetary perimeters and to meet their nutritional, social, psychological and ethnic needs; and to integrate the food service program with classroom nutrition education activities. (Former H Ec 161)

162T. Topics in Food, Nutrition and Dietetics (1–4; max total 12 if no topic repeated)
Prerequisite: F ScN 50, 54. Topics relating to food, nutrition and dietetics. Some topics may have labs. (Former H Ec 162T)

164. Child Nutrition (3)
Prerequisite: CFS 39 and F ScN 54. Prenatal nutrition; nutritional requirements during different periods of growth; malnutrition and mental development; improving nutritional status of children. (Former H Ec 164)

165. Cultural Foods (3)
Prerequisite: F ScN 54, permission of instructor. Dietary and nutritional practices in different cultures, as influenced by cultural and economic conditions. (2 lecture, 2 lab-demonstration hours) (Former H Ec 165)

166. Community Nutrition (3)
Prerequisite: F ScN 54. Principles and practices of nutrition as applied to the community at large. (Former H Ec 162T section, H Ec 166)

167. Nutrition and Aging (3)
Prerequisite: F ScN 54. Current issues, nutrition problems and needs of the aging; effects of all aspects of aging on nutrition; nutrition program planning and evalulation. (Former H Ec 162T section, H Ec 167)

168. Drug-Induced Nutritional Deficiencies (3)
Prerequisite: F ScN 54. Drug-nutrient interactions; drug-induced nutritional disorders and nutrient deficiencies; dietary improvement. (Former H Ec 162T section, 168)

169. Nutrition and the Consumer (3)
Prerequisite: F ScN 54. Consumer's viewpoint on nutrition and food choices; factors influencing consumer's food choices; new approaches in nutrition education for the consumer. (Former H Ec 169)

INTERIOR DESIGN AND HOUSING (IDH)

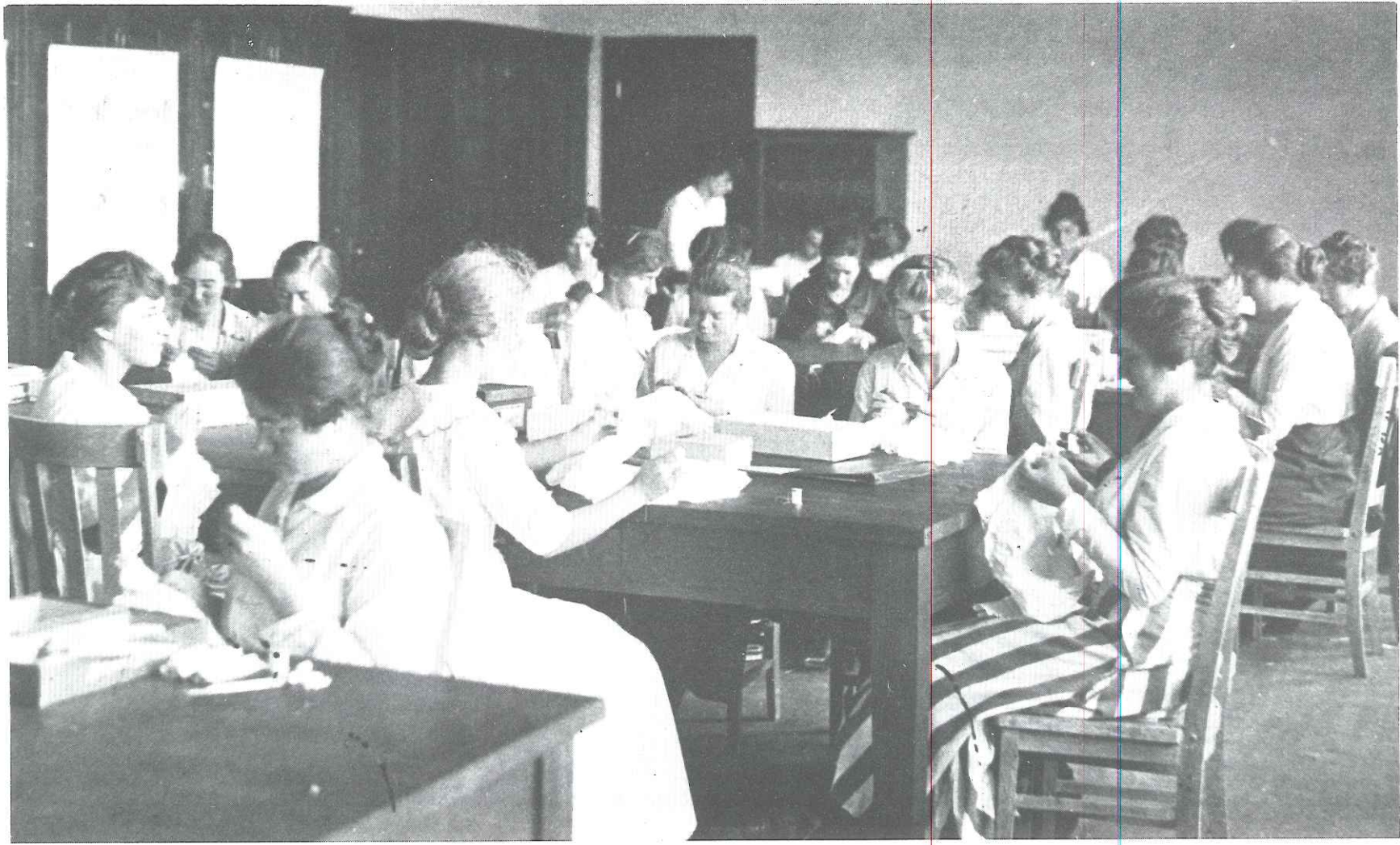
70. Interior Design and Housing (3)
Concurrent enrollment in IDH 71 recommended. Social, psychological, economic, and aesthetic aspects of interior design and housing. Integration of design principles; space planning; creative expression, and consumer information pertaining to living space. (Former H Ec 70)

71. Interior Design Laboratory (1)
Prerequisite: IDH 70 (or concurrently). Introductory experience in interior design processes. Studio work: floor plans, elevations, electrical plans, spatial arrangements, graphics and design presentations, two dimensional design techniques. (2 lab hours) (Former H Ec 71)

72. Interior Design Presentation (2; max total 4)
Prerequisite: IDH 70, 71. Introductory experiences in interior design presentation and architectural graphics, space analysis and three dimensional design problems, perspective, rendering and use of color media. (4 lab hours)



Early Home Economics students test a "cream of tomato" soup recipe. CSUF students today still test various recipes as well as the development of new uses for food. One example is the development of a "tomato chip" for use as a snack food.



In a pre-World War I era Home Economics students studied various fabrics, sewing techniques, and

107. Applied Color and Design (3)

Introduction to the application of color and design to all areas of Home Economics; properties of color, simple graphic methods, and three dimensional design. Studio work and discussions. (6 lab hours) (Former H Ec 7, 107)

170. Contemporary Interior Design (3)

Prerequisite: IDH 70, 71; and architectural drawing. Emergence and development of contemporary furniture and interior accessories. Major designers and their contributions to interior environments. Lab includes design of a critique of contemporary residential and non-residential interiors. (2 lecture, 2 lab hours) (Former H Ec 170)

171. Housing and Society (3)

Housing requirements of individuals, families, and special groups. Analysis of human factors related to the design of housing and neighborhoods. Examination of current social problems related to housing. (2 lecture, 2 lab hours) (Former H Ec 171)

172T. Topics in Housing and Interior Design (1–4; max total 12 if no topic repeated)

Prerequisite: IDH 70. Topics relating to housing and interior design. Some topics may have labs. (Former H Ec 172T)

173. Interior Design Tours (3)

A sampling of architecture and interior space. Tours include northern, central, and southern California architecture. Residential and contract showrooms visited. Expenses for required off-campus visits incurred by the student. Students may anticipate transportation charges up to $80. (6 lecture-lab hours) (Former H Ec 173)

174. Contemporary Architecture and Housing (3)

Emergence of contemporary architecture, forces and architects responsible; emphasis on human factors in designed space and recent housing alternatives. (Former H Ec 174)

175. History of Architecture and Furnishings (4)

Prior course in Art History recommended. Styles of architecture and furnishings from prehistoric times to the present; sociological, physical, economic and religious influences. (Former H Ec 175)

176. Interior Design Materials (3)

Prerequisite: FM 20. Interior design materials available for the residential and commercial market. Consumer and specifier considerations: production, distribution, installation, evaluation and use. Lecture, small group research and field trips. (2 lecture, 2 lab hours) (Former H Ec 176)

177. Professional Interior Design Practices (3)

Prerequisite: IDH 70, 176 (or concurrently) and Acct 3. Basic principles, procedures and office systems necessary to professionally organize and carry through a creative interior design project from the original client contact to final billing and collecting. (1 lecture, 4 lab hours) (Former H Ec 177)

178A. Residential Interior Design (3)

Prerequisite: IDH 70, 71, 107, 170, 175, Ind A 42 or concurrently. A series of advanced interior design solutions for residential environments. Design for new construction, remodeling and restoration for a variety of life styles, budgets and physical conditions. Working drawings, presentation techniques and specifications. (6 lab hours) (Former H Ec 178A)

178B. Commercial Interior Design (3)

Prerequisite: IDH 70, 71, 107, 170, 175, Ind A 42 or concurrently. A series of design solutions for a diversity of commercial spaces: public buildings, health care, food service, professional offices and merchandising facilities. Space planning, equipment, lighting, systems, codes, layout, presentation and specifications. (6 lab hours) (Former H Ec 178B)

179. Interior Design Exhibits (2–3; repeatable for max total 5)
Prerequisite: permission of instructor. Provides a structure for students to participate in a competitive design show. Course can be taken for 2 units (as an assistant) or 3 units (as a show participant). (Former H Ec 172T, H Ec 179)

180. Restoration and Preservation of Interior Architecture (3)
Prerequisite: IDH 174, 175, 176 and permission of instructor. Principles and methods of restoration, case studies of the restoration and preservation of historically significant structures in the United States. (Former H Ec 180)

181. Interior Design Practicum (3; max total 6)
Prerequisite: IDH 70 and 176. Supervised work experience in interior design related business or industry. (6 lab hours) (Former H Ec 181)

HOME ECONOMICS EDUCATION (H Ec)

148. Occupational Home Economics Program Planning (3)
Required for credential candidates. Individualized modules concerning the design, development, implementation and evaluation of home economics related occupational programs.

149T. Topics in Home Economics Education (1–3; max total 15 if no topic repeated; max 3 in one area)
One course in each area required for credential candidates. Topics include Consumer Science Resources; Organization and Management of Food and Nutrition; Clothing and Textiles; Housing and Interior Design; and Child Development and Family Relations. Some topics may have labs.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

200. Research Methods in Home Economics (3)
Prerequisite: A statistics course, such as Math 11 or Soc 25 or equivalent. Methods, techniques of research; locating and formulating problems; collection and interpretation of data; preparation of research reports; analysis of professional literature.

210T. Seminar in Consumer Science and Family Management (3; max total 12 if no topic repeated)
Prerequisite: Permission of instructor. Analytical study of problems pertaining to identifiable segments of the populace; intercultural, socio-economic, age level and ethnic and community groups. Topics such as: Aspects of Aging, Cultural Aspects of Management, Home and Community Relationships, Ergonomics—Aspects of Work Simplification. (Former H Ec 260T section)

220T. Seminar in Clothing, Textiles and Fashion Merchandising (3; max total 6 if no topic repeated)
Prerequisite: H Ec 200. Research and analysis of historical material and contemporary developments in clothing, textiles and fashion merchandising. Topics may include aspects of historical costume and textiles, technological developments in textiles, and trends in purveying fashion. Some topics may have labs. (Former H Ec 281T section)

230T. Seminar in Child Development, Family Relations (3; max total 12 if no topic repeated)
Prerequisite: Permission of instructor. Research, methodology, and issues in family relationships and child development. Course considers seminars in the following: Fatherhood: The Parent Role; Family in Transition, Relational Patterns in Marriage and Family; The Family: Middle and Later Years. Some topics may have labs. (Former H Ec 281T section)

240. Seminar in Trends and Issues in Home Economics Education (3)
Prerequisite: permission of instructor. Background of home economics, its present status, its impact on the future. Individual research in analysis of trends and issues having impact on the family, the individual, and the quality of life. (Former 281T section)

250T. Seminar in Food, Nutrition and Dietetics (3; max total 6 if no topic repeated)
Prerequisite: H Ec 200. Recent developments in the area of food, nutrition and dietetics. Topics include: history of nutrition, current research in food and/or nutrition, the nutritionally disadvantaged family, health foods and herbs, nutrition-related health problems and international nutrition. Some topics may have labs. (Former H Ec 280T section)

270T. Seminar: Housing and Interior Design (3; max total 12 if no topic repeated)
Prerequisite: permission of instructor. Research, methodology and issues in the areas of design and the near environment will be explored each term. Seminar topics may include the following: The Near Environment, Design for Human Affairs, Future Shelter, Life Styles and Design. Some topics may have labs. (Former H Ec 281T section)

281T. Seminar in Home Economics Education (3; max total 6 if no topic repeated)
Prerequisite: H Ec 200. Applied research; current and future trends of vocational, career, and consumer Home Economics Education. Topics include: Administration, Evaluation, and Supervision in Home Economics; and Home Economics in Higher Education. Some topics may have labs.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

292. Readings in Home Economics (2–3; max total 6 if no topic repeated)
Prerequisite: H Ec 200, and permission of instructor. Individually directed readings in a field of special concern to students in the graduate program; appropriate reports and evaluations required; individual conferences, no formal class meetings.

299. Thesis (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

IN-SERVICE COURSES

See *Course Numbering System*

380. Topics in Home Economics (1–3; max total 9 if no area repeated)

INDUSTRIAL ARTS AND TECHNOLOGY

FACULTY

Gary E. Grannis, Department Chairman

Merle S. Adrian, Leslie L. Aldrich, Ronald L. Blanton, Glen H. Blomgren, Chester E. Christison, Clift C. Cullen, Arthur L. Foston, Edward A. Gaiser, Manuel R. Garcia, Frank H. Goishi, Norman A. Gullickson, Randolph L. Gysler, Patricia L. Hennings, Richard S. Jenne, William H. Livingston, Wayne L. McComas, Kenneth D. Moshier, Richard F. Newcomb, Gary B. Paglierani, James H. Rockwell, Frank E. Schroeter, Lawrence E. Smith, Wesley M. Williams, Gary H. Winegar

DEGREES OFFERED: BA (Industrial Arts), BS (Industrial Technology), MA

Minor (Industrial Arts)

Options:
Manufacturing Industries
Construction

DEPARTMENTAL PROGRAMS

The Industrial Arts and Technology Department offers a major and minor in industrial arts for the bachelor of arts degree, a major in industrial technology for the bachelor of science degree, and a program for the master of arts degree. The department also advises majors for the bachelor of vocational education degree. Individual programs are planned to provide for professional careers in teaching and in business and industry. The industrial technology major emphasizes physical science and industrial management as well as the subject fields within the industrial arts for students seeking technical and managerial positions in industry.

CREDENTIAL PROGRAM

The single subject waiver program in Industrial Arts consists of a core of 18 units: selected from Ind A 12, 41, 52, 60, 70 or 74, 80, and at least two areas of concentration, with a minimum of 12 units in each area. Choose from:

Automotive. Ind A 71, 74, 104, 120, 122, 124, 129

Construction. Ind A 42, 105, 110, 111, 115, 118

Design. Ind A 139, 141, 142, 145, 146, 147

Drafting. Ind A 31, 42, 44, 136, 140, 143, 144, 145

Electricity/Electronics. Ind A 53, 153, 154, 155, 156, 157, 158, 159

General Metal. Ind A 71, 74, 170, 171, 172, 173, 178

Graphic Arts. Ind A 160, 161, 162, 165

Industrial Crafts. Ind A 30, 133, 146, 162, 178

Machine Tool Metal. Ind A 74, 171, 174, 175, 176

Power Mechanics. Ind A 101, 104, 120, 156, 158

Woodworking. Ind A 82, 182, 184, 185

BACHELOR OF ARTS DEGREE IN INDUSTRIAL ARTS REQUIREMENTS

The bachelor of arts degree in industrial arts consists of 124 units. Students majoring in industrial arts must complete a minimum of 40 units of industrial arts courses, 16 of which must be upper division, excluding Ind A 198, 199. Students must complete at least nine units (excluding required courses) in any two of the following specific areas of concentration: Automotive, construction, design, drafting, electricity/electronics, general metal, graphic arts, industrial crafts, machine tool metal, power mechanics, and woodworking.

In addition to the requirements of the major (40 units), outlined below, the student is responsible for the completion of the general education requirement, special course requirements, and electives, which may include a minor (84 units) totaling 124 units for the bachelor of arts degree.

INDUSTRIAL ARTS MAJOR

	Units
Ind A 12, 41, 52, 60, 70 or 74, 80, 91, 92	22
Ind A electives (9 units in each of two areas of concentration; include at least 16 units of upper division)	18
	40

INDUSTRIAL ARTS MINOR

A minor in Industrial Arts is available to students majoring in other departments. The minor consists of 20 units, of which 9 units must be upper division. Of the total units of the minor, at least 12 units must be taken in one specific area of concentration. Areas of concentration include Automotive, Construction, Design, Drafting, Electricity/Electronics, General Metal, Graphic Arts, Industrial Crafts, Machine Tool Metal, Power Mechanics and Woodworking. Each student is expected to consult with an Industrial Arts and Technology adviser for planning a minor program.

BACHELOR OF SCIENCE DEGREE IN INDUSTRIAL TECHNOLOGY

The bachelor of science degree with a major in industrial technology is granted upon completion of a curriculum consisting of 128 units. An option consisting of a core program of industrial arts and technology courses, courses in related areas, and a technical emphasis approved by the department (81 units) must be completed for the degree. In addition to these requirements, the industrial technology major must complete the General Education requirement, special course requirements, and electives (47 units) totaling 128 units. Each student majoring in Industrial Technology must complete the required General Education courses specified for the option.

INDUSTRIAL TECHNOLOGY MAJOR

MANUFACTURING INDUSTRIES OPTION

Required General Education Courses	Units
Econ 1A–B; Physics 2A–B or Chem 2A–B; one additional course from Physics 2A–B, Chem 2A–B, Biology, or Geology; or other science; and a minimum of 4 units from Math 71, 72, 75	21

Required Core Program	
Ind A 41, 52, 74, 91, 92, 101, 103, 105, 106, 107, 146, 166, 198, 199	38
Acct 3, Mgt 110A–B	9
	47

Technical Emphasis Approved by Department 34

Technical emphases for Manufacturing Industries Option include:

- Digital Systems
- Drafting/Design
- Electricity/Electronics
- Graphic Communications
- Metals
- Transportation
- Wood Products

CONSTRUCTION OPTION

Required General Education Courses	Units
Econ 1A–B; Physics 2A; two additional courses from Physics 2B, Chem 2A–B, Biology, or Geology or other science; and a minimum of 4 units from Math 71, 72, 75..	21

Required Core Program
Ind A 15, 42, 52, 91, 92, 101, 105, 107, 110, 111, 115A, 116, 117, 118, 119 43
Acct 3, Mgt 110A–B 9
52

Technical Emphasis Approved by Department 29
Technical emphases for the Construction Option include:
Architectural
Building Materials Industries
Heavy Building Construction
Light Building Construction
Real Estate

GRADUATE PROGRAM

The master of arts degree program in industrial arts is designed to offer opportunities for graduate study in both professional and technical fields. It is intended to improve the competence of persons engaged in teaching the industrial arts and to prepare them for positions of leadership. This program also provides the first graduate degree for students anticipating advanced graduate study in industrial arts.

The master of arts degree program in industrial arts assumes preparation equivalent to a CSUF undergraduate major in industrial arts.

MASTER OF ARTS DEGREE REQUIREMENTS

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
Courses in industrial arts in 200-series. (See *specific requirements*)	20
Courses in other subject fields	4
Electives in industrial arts or related fields	6
Total	30

Specific Requirements: IndA 280, 281, 299. Other courses will be specified after examination of the student's record and the performance on the departmental qualifying examination.

COURSES

INDUSTRIAL ARTS AND TECHNOLOGY (Ind A)

Note: Students may be expected to purchase supplementary materials for use in laboratory and activity classes.

100. Computer-Aided Production (3)
Prerequisite: a computer programming language. Computer aided design (CAD) and manufacturing (CAM) systems; applications operation, and evaluation.

101. Energy Conversion and Utilization (3)
Fundamental sources of energy, including the following energy conversion systems: direct mechanical, external combustion, internal combustion, solar power, wind power, electrical and atomic systems. Experiments and demonstrations. (field trips)

102. Industrial Process Control and Instrumentation (3)
Prerequisite: Ind A 52. Industrial process control system principles and components; computers, controllers, transducers, and actuators; mechanical and electrical instrumentation.

103. Industrial Materials and Processes (3)

Chemical and physical properties of metals, plastics, wood, ceramics, fuels, lubricants, and other industrial materials. Structural properties, wear, corrosion, destructive and nondestructive testing; fabrication applications and potentials, cutting, fusion, casting, forming, and other industrial processes.

104. Fluid Power (3)

Prerequisite: Ind A 52. Selective study of fluid power principles and applications; hydraulics, pneumatics and vacuum; includes pumps, controls, transmission systems, actuators and fluidics. In-depth study of air conditioning-heating theory and applications. (field trips)

105. General Building Construction (3)

Principles of general building construction including classes and requirements of occupancy; fire zone; type of construction; properties and uses of masonry, wood, concrete and steel; contracts and specifications.

106. Production Operations (3)

Prerequisite: Senior standing. A survey of production manufacturing operations: quality assurance, work sampling, testing, time and motion study; routing, scheduling and inventory control; flow processes, material handling, and automation. (field trips)

107. Industrial Computer Concepts and Applications (3)

Not open to students with credit in Ind A 151B. Flowcharting and programming techniques; industrial and technical programming systems and support components; data base organization and systems management; and industrial and technical management. (field trips)

108T. Technical Topics in Industrial Technology (1–3; max total 6)

Prerequisite: Permission of instructor. Investigation and analysis of selected subjects in Industrial Technology.

CONSTRUCTION AREA

15. Construction Materials (3)

Not open to students with credit in Ind A 115. Introduction to basic construction materials: concrete, masonry, metals, woods, thermal materials, openings, finishes, equipment and specialties. (field trips)

110. Estimating and Bidding (3)

Prerequisite: Ind A 15, 42. Basic methods used to evaluate, fix cost, calculate worth, make accurate quantity take-offs and labor time estimates; preparing bids for prospective buyers.

111. Light Building Construction (3)

Principles of light frame construction including foundations, framing, exterior finish and related areas of layout; estimating and ordering materials; conventional and modular component systems. (field trips)

112. Heavy Building Construction (3)

Problems and methods of solution in the construction of heavy buildings; site, excavations, foundations, framework, heavy timber, reinforced concrete, structural steel, masonry construction, and related elements. (field trips)

113. Mechanical Systems in Construction (3)

Heating, ventilating and air conditioning systems in buildings and plants; basic functions, specifications; construction installation and testing procedures. Lectures, demonstrations, guest speakers from industry. (field trips)

114. Construction Management (3)

Prerequisite: Senior standing in Construction. The construction manager's relation to internal organization, owner, architect, engineer, public, press, legal aid, unions, trades, equipment, utilities, insurance, finances, government and others.

115A. Advanced Construction Materials (3)
Prerequisite: Ind A 15; Phys 2A, Math 5 (recommended). Properties, strength and functional applications of basic construction materials: woods, metals and concrete. Recent developments in new materials and applications. (field trips)

116. Scheduling and Control (3)
Prerequisite: Ind A 107 recommended, senior standing. Critical path method; planning, scheduling, and control of construction projects including logic, time assignment and computation, analysis, replanning, diagramming practices, monitoring and updating, computer utilization; role of management.

117. Construction Detailing (3)
Prerequisite: Ind A 42. Standard structural details for buildings constructed of wood, concrete, masonry, and steel. Graphic communication among architects, engineers, contractors. (field trips)

118. Construction Contracts and Specifications (3)
Prerequisite: Ind A 42. Principles and methods for developing and applying construction contracts and specifications.

119. Construction Laws (3)
Laws, acts, orders, bulletins, rules and regulations affecting the contracting business.

178 AUTOMOTIVE AREA

12. Basic Automotive Systems (3)
Design, construction and mechanical functions of automotive engines, fuel systems, electrical systems, power transmission, brakes, and wheel suspension; proper use and safety of tools and equipment.

120. Automotive Engine Systems (3)
Prerequisite: Ind A 12, 52. Advanced study of automotive engines and support systems. Includes piston and rotary engine theory, fuel systems and fuel technology, electrical systems, small engines, diesel, gas turbine, emission control and diagnostic center power analysis. (field trips)

121. Automotive Engine Machining (3)
Prerequisite: Ind A 12, 74. Advanced study of automotive engine machining including precision measurements, principles of engine operation, machining of engine components, crack detection, assembly procedures, lubricating and cooling systems. (field trips)

122. Automotive Chassis Analysis (3)
Prerequisite: Ind A 12. Advanced study of automotive chassis components including power transmission, brake systems, wheel suspension, air conditioning, lubricants theory and testing, body repair and refinishing. (field trips)

124. Automotive Engine Diagnosis and Repair Procedures (3)
Prerequisite: Ind A 12. Laboratory work with emphasis on engine trouble shooting, use of dynamometer and diagnostic equipment together with mechanical repair techniques. (technical reports)

129. Automotive Chassis Diagnosis and Repair Procedures (3)
Prerequisite: Ind A 12. Laboratory work with emphasis on chassis diagnosis and mechanical repair procedures. (technical reports)

CRAFTS AREA

30. Plastics Technology (3)
Introduction to the plastics field. Technical information on composition, characteristics and uses of plastics; equipment design principles and manufacturing processes. (field trips)

34. Theatre Craft (3) (See Drama 34)

133. Industrial Crafts (2; max total 4)

Creative and recreational experiences in craft media including plastics, leather, wood, metal, enamels; historical, cultural, technological information.

134A-B. Advanced Theatre Craft (3–3) (See Drama 134A-B)

DRAFTING/DESIGN AREA

31. Architectural Graphics (3) (Former Ind A 143)

Introduction to basic techniques and media used in architectural graphic communication including: perspective techniques, sciagraphy, models, and photography; emphasis on various ways of making drawn representations of architectural design proposals.

32. Architectural Design (3) (Former Ind A 43)

Introduction to architectural design theory; analysis of architectural design problems, assessment of human needs, establishment of architectural design criteria, and development of architectural design concept.

41. Industrial Design Graphics (3)

Application of the fundamentals of industrial design graphics. Sketching, lettering, orthographic projection, working drawings, auxiliary views, dimensioning, developments, pictorial drawings, duplication; interrelationship to the design process.

42. Architectural Drawing (3)

Architectural drafting techniques and standards; progress from fundamentals to completing light construction working drawings, floor plans, elevations, details; application of city and county codes.

44. Descriptive Geometry (3)

Prerequisite: Ind A 41. Descriptive geometry as related to design processes. A nonmathematical approach to geometric magnitudes and the relationship between points, lines and planes in space. Application of these principles in solving a variety of technological design problems.

131. Advanced Architectural Graphics (3)

Prerequisite: Ind A 31. Architectural graphic techniques as tools of three dimensional analysis and representation in the design process.

132. Advanced Architectural Design (3)

Prerequisite: Ind A 32. Development of understanding of the forces affecting the manmade environment through function identification, systems analysis, and development of architectural design solutions to problems at an intermediate level of complexity.

136. Manufacturing Illustration (3)

Prerequisite: Ind A 41. Practical application of the fundamentals of developing perspectives, isometric drawings, isometric projections, dimetric drawings, trimetric drawings, and the rotation of views in the preparation of detailed pictoral assembly drawings of machines and machine parts from a set of working drawings.

138. Advanced Rendering (3; max total 6)

Prerequisite: Ind A 147. Advanced rendering for industrial design, architecture, interior commercial art and illustration. Includes limited and full color problems with emphasis on professional presentation. Individual exploration encouraged.

139. Advertising Design (3; max total 6)

Advertising and illustration problems from rough sketches to finished art work. Emphasis on good design and professional techniques. Preparation of art work for reproduction including overlays, art type, photo mechanical procedures and advertising production methods.

140. Machine Design Graphics (3)

Prerequisite: Ind A 41. Advanced technical drawing and design. Use of dimensioning/tolerancing, fabrication and materials standards, handbooks and industrial catalogs. Application of various machining and forming operations, including computer-aided design, in the investigation and completion of design problems. (field trips)

141. Design for Industry (3)

History and appreciation of design related to industrial design concepts; vocabulary of design terminology. Procedures to facilitate the development, selection, and organization of space, form and color.

142. Advanced Design for Industry (3)

Prerequisite: Ind A 141. Design principles; analysis of the design structure of forms, their variations, and derivations; color and three-dimensional projects.

144. Tool Design Graphics (3)

Prerequisite: Ind A 41. Application of graphics to industrial work holding devices; their application, drawing and design. Construction of working drawings aided by standards, company catalogs, and handbooks. Final designs subjected to student presentation and evaluation. (field trips)

145. Technical Illustration (3)

Principles and practice of drawing and laws of light and shade; subject matter ranges from the simplest basic shapes to more complex real forms including renderings in pencil and opaque color of industrial products, interior, architectural, and automotive projects.

146. Materials of Product Design (3)

Prerequisite: Ind A 41. Origins, kinds, properties, and uses of materials of product design and development in modern industry; mechanical and nonmechanical functions of materials; experimentation with industrial materials of significance in the design of industrial products.

147. Rendering (3)

Prerequisite: Ind A 145. Theory and practice of rendering techniques for all phases of industrial and advertising design; from pencil sketches to composition stressing appeal and quick reading; in black and white, full color chalk, water color, and tempera.

149. Perspective for Industrial Design (3)

Theory of one, two- and three-point perspective, followed by extensive application involving industrial design objects. Laws of perspective and light and shade as applied to increasingly complex subject matter.

ELECTRICITY/ELECTRONICS AREA

52. Basic Electricity (3)

Not open to students with credit in Ind A 51. Introduction to electricity including fundamentals of electrostatics, alternating and direct current electrical circuits, electrical calculations, magnetics, circuit applications, electrical measuring and test equipment.

53. Fundamentals of Electronics (3) (Former Ind A 152)

Prerequisite: Ind A 52. Basic electronic components and circuits including inductors, capacitors, alternating current circuits; resonance and filters; vacuum tabes and transistors; power supplies, measuring devices, oscillators, amplifiers.

151. Elements of Digital Computers (3)

Not open to students with credit in Ind A 151A. Electrical-electronics fundamentals and types of computers; elements and functional units of digital computers; digital computer systems, design techniques and installations. (field trips)

151L. Elements of Digital Computers Laboratory (1)

Prerequisite: Ind A 151 or concurrent enrollment. Demonstrations and experiments with digital devices and circuits. (3 lab hours)

153. Fundamentals of Electronic Communication Systems (3)
Prerequisite: Ind A 53. Electronic systems and applications including basic transmitters, amplitude and frequency modulation transmitters and receivers; transistor applications; antennas; television. (field trips)

154. Industrial Electronics (3)
Prerequisite: Ind A 102, 153; 156, 158 recommended. Industrial electronics systems analysis; applications of analog and digital electronic circuits, devices, and systems to industrial process and machine control. (field trips)

155. Integrated Circuits (3)
Prerequisite: Ind A 151. Theory and practice in the development and manufacturing of integrated circuits. Applications of integrated circuits in linear and digital systems.

156. Fundamentals of Electric Motors (3)
Prerequisite: Ind A 52; 158 recommended. Application, operation and control of alternating and direct current motors. (field trips)

157. Fundamentals of Electromagnetic Waves and Antenna Systems (3)
Prerequisite: Ind A 153. Electromagnetic wave theory, propagation, and spectrum; antennas, transmission lines, wave-guides, and coupling circuits; and antenna constructions and measurements. (field trips)

158. Fundamentals of Electrical Power Generation, Transmission (3)
Prerequisite: Ind A 52; 101 recommended. Equipment and systems for electrical power generation, transmission and distribution. (field trips)

159. Building Electrical Systems (3)
Prerequisite: Ind A 52. Electrical systems for power, light, heat, signals, and communications in commercial, industrial and residential buildings. (field trips)

GRAPHIC ARTS AREA

60. Basic Graphic Arts (3)
Introduction to the graphic arts: letterpress, photo offset lithography, screen printing; layout, composition, imposition, presswork, bindery. (field trips)

160. Advanced Graphic Arts (3)
Prerequisite: Ind A 60. Advanced techniques in letterpress and offset printing. Completion of printed booklet, involving copyfitting, composition, layout, printing and bookbinding. Bookbinding projects, including hand-sewn case-bound books will be completed. (field trips)

161. Photo Offset Lithography (3)
Prerequisite: Ind A 60. Photo offset lithography techniques and processes: design, layout, cold type composition, and paste-up, line, and half-tone copy, imposition, multicolor printing. (field trips)

162. Graphic Arts Crafts (3)
Various processes and media used in graphic arts; creative and recreational aspects for the student; silk screen, linoleum block, intaglio, papermaking, thermographs, marbling, bookbinding, student projects. (field trips)

165. Typographical Layout (3)
Theory and practice utilized by the printing industry in designing, producing, and selling printed matter. Typographical principles, properties, elements, techniques, processes, and media, with aesthetic and psychological implications. (field trips)

166. Reproduction Techniques (3)
Prerequisite: upper division student. Survey of all reproduction methods found in business and graphic reproduction industries. Methods discussed are: microfilm, C.R.T., holography, xographs, photographic, electrostatic, thermographic, xerographic and up-to-the-minute advancements. Technical publishing and yearbook production. (field trips)

METALS AREA

General Metalworking

70. Basic Metalworking (3)
Introduction to and exploration in various metal areas including sheet metal, bench metal, art metal, wrought iron, foundry and forging.

170. Advanced Principles of Metalworking (3)
Prerequisite: Ind A 70. Study and experience in the technological, scientific, and historical aspects of nonferrous metal casting, core-making; forging; principles of metal spinning.

Welding

71. Metallurgical Processes (3)
Fundamentals of metallurgy; properties and characteristics of metals; survey of metal welding processes, equipment, and procedures; theory-discussion and laboratory experience in oxygen-fuel welding, cutting, brazing, and shielded metallic arc welding.

171. Advanced Metallurgical Processes (3)
Prerequisite: Ind A 71. Lecture-discussion and laboratory experiences in advanced shielded metallic arc welding, gas tungsten arc welding, gas metal arc welding, plasma arc cutting, air arc cutting, and automated oxygen-fuel cutting; weld specimen preparation, testing (destructive/non-destructive), and welding metallurgy.

Sheet Metalworking

172. Fluid Metal Processes (3)
Prerequisite: Ind A 170. Theory and practice in processes of industrial casting, casting design considerations, pattern making, core making, sand mold casting, permanent mold casting, die casting, centrifical casting, and related processes.

173. Metal Fabrication Processes (3)
Sheet metal pattern drafting and layout applicable to parallel, radial, and triangulation methods using light gauge metals; individual problems in planning, using, and maintaining hand and machine tools.

Machine Tool Metalworking

74. Basic Machine Tool Metalworking (3)
Basic methods of machining metals, including drilling, turning, boring, milling, grinding, and shaping; hand tools, precision measuring instruments, and layout; speeds and feeds; steel and its heat treatment.

174. Advanced Machine Tool Metalworking (3)
Prerequisite: Ind A 74. Advanced machining and tooling, special machine tools, and precision measuring instruments; laboratory experiences in use of ferrous and nonferrous metals, cast iron and semisteel castings; coolants related to modern manufacturing process.

175. Machine Tool Technical Problems (3)
Prerequisite: Ind A 74. Technical problems in design, layout fabrication and machinability of metals, tooling and gearing principles; maintenance, adjustment and repair of machine tools; introduction to numerical control.

176. Advanced Machine Tool Problems (3)
Prerequisite: Ind A 174. Advanced technical work in metals area; introduction to tool and die work; jig and fixture principles and practices; heat treatment, specifications of materials and equipment; experimental work and technical reports.

Metal Craft

178. Jewelry and Metalsmithing (3; max total 6)
Design, fabrication techniques, and properties of materials as related to jewelry, gemology, and metalsmithing. Historical, contemporary, and creative emphasis. Designing and constructing articles of jewelry and hollow ware by hand and machine processes.

WOODWORKING AREA

80. Basic Woodworking (3)
Not open to students with credit in Ind A 81. Basic woodworking and finishing process and materials; use and care of hand tools, portable electric tools, light woodworking machinery, basic units in wood technology.

82. Wood Machining (3)
Prerequisite: Ind A 80. Development of proficiency in the operation and maintenance of modern woodworking machinery and spray finishing equipment; safety education, cutting principles and techniques, machine design and capabilities.

182. Advanced Wood Machining (3)
Prerequisite: Ind A 82. Design, construction, and finishing of furniture, cabinet work, millwork. Production methods, analysis of cutting processes.

184. Woodworking Specialties (3-3; max total 6)
Prerequisite: Ind A 82. Specialized activities related to the field of woodworking; upholstering, inlaying and veneering, advanced wood turning, plastic laminate fabrication bending and laminating, molded plastic parts, paneling, caning, glass and mirrors, picture framing, furniture restoration, wood finishing.

185. Wood Technology (3)
Prerequisite: Ind A 82. Wood structure, identification, physical testing; study of wood products and processing industries. (field trips)

PROFESSIONAL COURSES

91. Foundations of Industry and Technology (2)
The development of industry and technology; past, present and future effects upon mankind; types, functions, and trends in education for industry and technology.

92. Safety for Industrial Education (2)
Principles of industrial education safety as applied to industrial, occupational, and school settings; principles of safety, safety legislation, first aid; machine, electrical, eye, noise, and fire prevention safety.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

193. Supervised Work Experience (3–6; max total 6)
Open only to Industrial Arts and Industrial Technology majors. Prerequisite: junior standing and permission of instructor. Supervised work experience in all technological fields relating to the various industries. Periodic consultations with instructor.

195. Modern Industrial Facilities (1–2; max total 4)
Observation, analysis, and critique of production methods and facilities of selected industries of interest to Industrial Technology and/or Industrial Arts majors within options, emphases, or unit areas of study. (field trips; students may anticipate charges relative to transportation, lodging and meals)

198. Technical Report Writing (2)
Prerequisite: senior standing in industrial technology. Technical writing for the industrial technologist; preliminary organization and development of the senior problem.

199. Senior Problem in Industrial Technology (2)
Prerequisite: Ind A 198 and permission of instructor. Approved problem or research project in the area of the student's option and emphasis.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

223. History and Philosophy of Industrial Education (3)
Not open to students with credit in Ind A 225 or 227. Development of industrial education in the United States, philosophical foundations, European influences, objective, issues, leaders, movements, and trends.

224T. Professional Topics in Industrial Education (2–3; max total 6 on master's degree with no area repeated)
Advanced study in professional industrial education; administration, supervision, vocational guidance, economic, and sociological implications.

228. Evaluation in Industrial Education (3)
Techniques and philosophy of evaluation in industrial education; types of test items, item analysis, and interpretation of test results; evaluation of research, facilities, textbooks, and evaluative criteria.

270. Technical Problems (2-3; max total 6 if no area repeated)
Technical work in selected areas; research under supervision of instructor.

280. Problems in Industrial Arts Research (2)
Seminar in research procedures in the industrial arts; basic bibliography, research form and method.

281. Research Design in Industrial Education (3)
Research formats and applied experimentation techniques; critical path analysis and program evaluation review techniques.

284T. Topics in Industrial Technology (2-3; max total 9 on master's degree if no area repeated)
Advanced study in technical areas; current industrial practices, developments, and trends related to design, materials, and processes.

286. Safety and Related Problems in Industrial Education (3)
Safety principles in occupational, industrial and school settings, safety legislation, inspections, equipment, workman's compensation, first aid, fire, noise and general safety.

287. Planning and Organizing Industrial Education Curriculum (3)
Prerequisite: T Ed 161, or T Ed 153. Study of the planning, organizing, and control functions utilized in the development and management of industrial education programs and curriculum.

288. Seminar in Industrial Arts and Technology (2-3; max total 6 on master's degree)
Advanced individual and group study of selected problems: organizational relationships, effective communication of ideas, technological trends and developments, economic and social considerations.

290. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis or Project (2-4; max total 4)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSE

(See *Course Numbering System.*)

341. Problems in Industrial Arts (2-3; max total 6 if no area repeated)

INTERIOR DESIGN AND HOUSING (IDH)

70. Interior Design and Housing (3)
Concurrent enrollment in H Ec 71 recommended. Social, psychological, economic, and aesthetic aspects of interior design and housing. Integration of design principles; space planning creative expression, and consumer information pertaining to living space.

71. Interior Design Laboratory (1)
Prerequisite: H Ec 70 or (concurrently). Introductory experience in interior design processes. Studio work: floor plans, elevations, electrical plans, spatial arrangements, graphics and design presentations, two dimensional design techniques. (2 lab hours)

72. Interior Design Presentation (2; max total 4)
Prerequisite: H Ec 70, 71. Introductory experiences in interior design presentation and architectural graphics, space analysis and three dimensional design problems, perspective, rendering and use of color media. (4 lab hours)

107. Applied Color and Design (3)
Introduction to the application of color and design to all areas of Home Economics; properties of color, simple graphic methods, and three dimensional design. Studio work and discussions. (6 lab hours) (Former H Ec 7)

170. Contemporary Interior Design (3)
Prerequisite: H Ec 70, 71; and architectural drawing. Emergence and development of contemporary furniture and interior accessories. Major designers and their contributions to interior environments. Lab includes design of a critique of contemporary residential and non-residential interiors. (2 lecture, 2 lab hours)

171. Housing and Society (3)
Housing requirements of individuals, families, and special groups. Analysis of human factors related to the design of housing and neighborhoods. Examination of current social problems related to housing. (2 lecture, 2 lab hours)

172T. Topics in Housing and Interior Design (1–4; max total 12 if no topic repeated)
Prerequisite: H Ec 70. Topics relating to housing and interior design. Some topics may have labs.

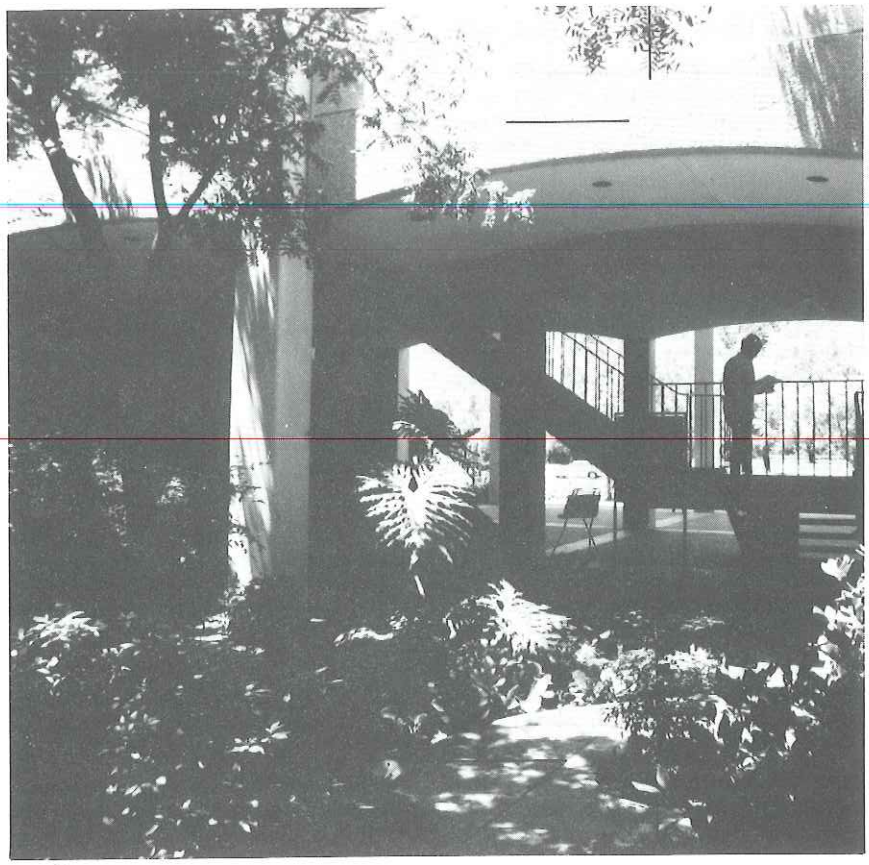
173. Interior Design Tours (3)
A sampling of architecture and interior space. Tours include northern, central, and southern California architecture. Residential and contract showrooms visited. Expenses for required off-campus visits incurred by the student. Students may anticipate transportation charges up to $80. (6 lecture-lab hours)

174. Contemporary Architecture and Housing (3)
Emergence of contemporary architecture, forces and architects responsible; emphasis on human factors in designed space and recent housing alternatives.

175. History of Architecture and Furnishings (4)
Prior course in Art History recommended. Styles of architecture and furnishings from prehistoric times to the present; sociological, physical, economic and religious influences.

176. Interior Design Materials (3)
Prerequisite: H Ec 20. Interior design materials available for the residential and commercial market. Consumer and specifier considerations: production, distribution, installation, evaluation and use. Lecture, small group research and field trips. (2 lecture, 2 lab hours)

177. Professional Interior Design Practices (3)
Prerequisite: H Ec 70, 176 (or concurrently) and Acct 3. Basic principles, procedures and office systems necessary to professionally organize and carry through a creative interior design project from the original client contact to final billing and collecting. (1 lecture, 4 lab hours)



178A. Residential Interior Design (3)

Prerequisite: H Ec 70, 71, 107, 170, 175, Ind A 42 (or concurrently). A series of advanced interior design solutions for residential environments. Design for new construction, remodeling and restoration for a variety of life styles, budgets and physical conditions. Working drawings, presentation techniques and specifications. (6 lab hours)

178B. Commercial Interior Design (3)

Prerequisite: H Ec 70, 71, 107, 170, 175, Ind A 42 (or concurrently). A series of design solutions for a diversity of commercial spaces: public buildings, health care, food service, professional offices and merchandising facilities. Space planning, equipment, lighting, systems, codes, layout, presentation and specifications. (6 lab hours)

179. Interior Design Exhibits (2–3; repeatable for max total 5)

Prerequisite: permission of instructor. Provides a structure for students to participate in a competitive design show. Course can be taken for 2 units (as an assistant) or 3 units (as a show participant). (Former H Ec 172T)

180. Restoration and Preservation of Interior Architecture (3)

Prerequisite: H Ec 174, 175, 176 and permission of instructor. Principles and methods of restoration, case studies of the restoration and preservation of historically significant structures in the United States.

181. Interior Design Practicum (3; max total 6)

Prerequisite: H Ec 70 and 176. Supervised work experience in interior design related business or industry. (6 lab hours)

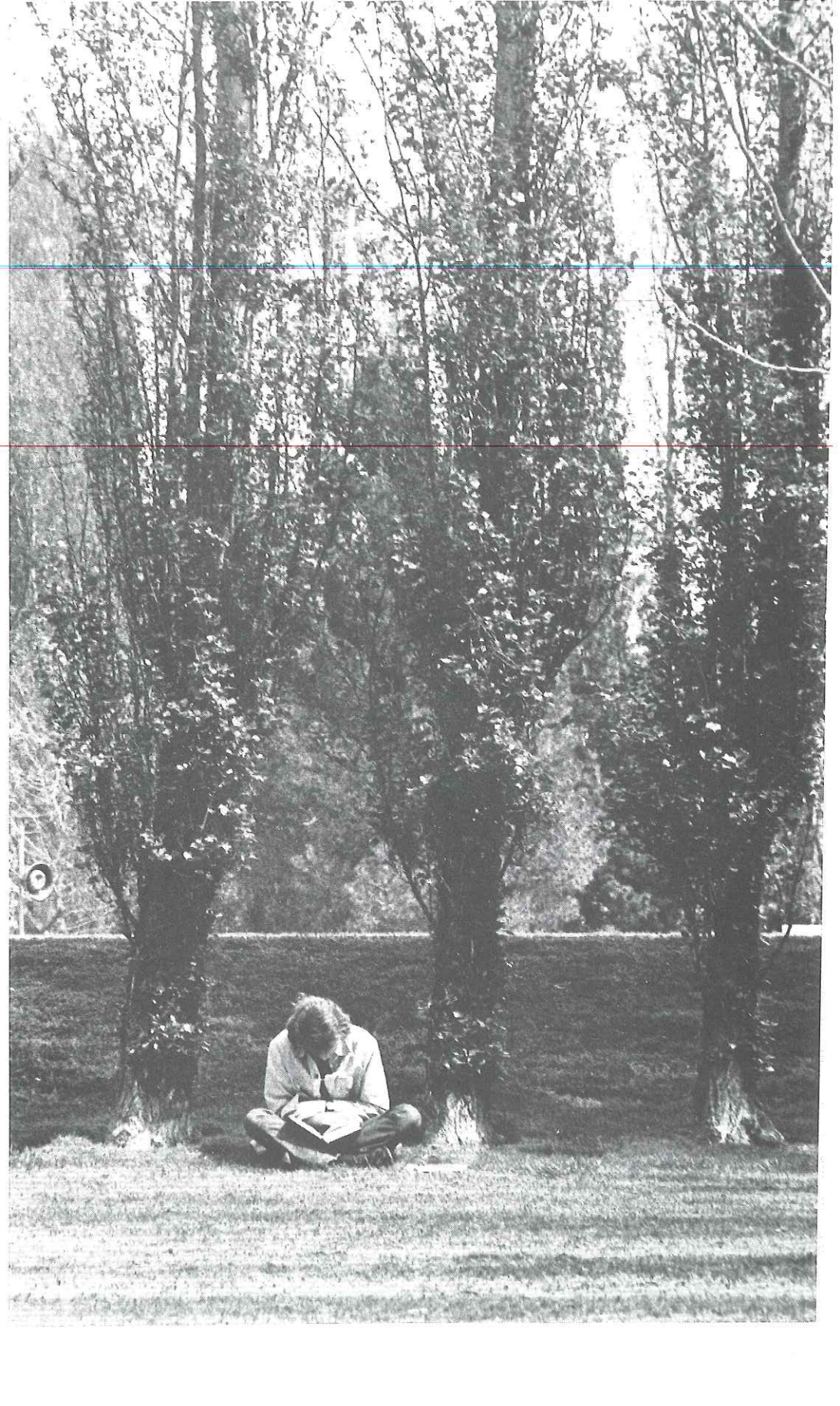
Styles of dress and menus have changed in the University cafeteria, but studying still makes students hungry. In the early days of Fresno State, students had only one or two choices to select from. Today's selection ranges from the all-American hamburger to a variety of dishes in the Vintage Room buffet.





SCHOOL OF ARTS AND HUMANITIES

Photo: *Mrs. W. P. Miller—Teacher, Literature*
Fresno State Normal School, circa 1917



SCHOOL OF ARTS AND HUMANITIES

Joseph Satin, Dean

Department or Program	*Chairman or Coordinator*
Art	Joyce B. Aiken
Communication Arts and Sciences	Ronald D. Johnson
Radio-Television Program	(Coordinator) Philip J. Lane
Speech Communication Program	(Coordinator) Hal W. Bochin
Theatre Arts Program	(Coordinator) Ronald D. Johnson
English	Robert S. Billings
Foreign Language	Jose A. Elgorriaga
Journalism	James B. Tucker
Linguistics	Raymond S. Weitzman
Music	John R. Heard
Philosophy	James M. Smith
Women's Studies Program *	(Coordinator) Gail M. Wasser

SCHOOL PROGRAMS

Opportunities in the School of Arts and Humanities exist for students who wish to major or minor in any of the departments, or who desire to take courses in any of the disciplines to meet general education requirements. The courses designed for general education treat their subject matter from a substantive point of view so that an understanding of the course content contributes to the understanding of the problems of an individual as well as the modern world.

The curriculum for each of the departments consists of introductory and developmental courses on the lower division level and a series of upper division courses for each area of study. Upper division work is designed primarily to meet the needs of students with a major or minor in one of the departments of the school and graduate students. Each department except Philosophy offers a master of arts degree program. The Linguistics Department offers both bachelor of arts and master of arts degree programs in bilingual studies. The Philosophy Department offers an option in religious studies under its major for the bachelor of arts degree. For specific information concerning courses that meet requirements for general education, teaching credentials, and degree programs, consult the chairman of the department of the area of interest.

INTERDISCIPLINARY HUMANITIES (HUM)

The school also offers the following interdisciplinary Humanities courses as general electives open to all students:

10. Introduction to the Humanities, I (3)

Interrelationships among art, literature, music, and philosophy, from Greece and Rome through the Renaissance.

11. Introduction to the Humanities, II (3)

Interrelationships among art, literature, music, and philosophy, from the Seventeenth Century Age of Reason to the present.

100. African Humanities (3)

To explore interrelationships among the visual arts, music, literature, and religion-philosophy throughout key periods of African civilization from the earliest times to the present.

IN-SERVICE COURSES

(See *Course Numbering System*)

300T. Topics in Humanities (1–3; max total 12 if no topic repeated)

NEXA courses:

See *Special Programs*

* See *Special and Interdisciplinary Programs*

ART

FACULTY

Joyce B. Aiken, Department Chairman

Terrence L. Allen, Lawrence L. Anderson, Roger H. Bolomey, Richard W. Delaney, Ara H. Dolarian, Charles F. Gaines, Heinz N. Kusel, Frank B. Laury, Norman H. Lockwood, Edward O. Lund, Mary L. Maughelli, Thomas McDougall, William E. Minschew, Jr., S. Michael Opper, Ernest Palomino, Raphael X. Reichert, R. Gayle Smalley, Gina Strumwasser

DEGREES OFFERED: BA, MA

DEPARTMENTAL PROGRAMS

The Art Department offers a major in art which leads to a bachelor's degree and a program leading to a master's degree. The major in art is designed to provide a liberal education.

The department cooperates with other departments to provide a variety of curriculum choices within the art major. Students are advised to consult regularly with an appropriate faculty member on such choices for information and guidance.

Students producing exceptional work may be asked to leave their work with the department for three years for exhibition purposes.

CREDENTIAL PROGRAM

The single subject waiver program in Art consists of Art 21, 30 or 80, 40, 50 or 60, 70, 101 or 127 or 130, 109T, 117, 120, 140, 150 or 160 or 161, 170 or 171 or 174; Art H 10, 20, 130, 134; 12 units of upper division electives. Consult the departmental coordinator for teacher education.

BACHELOR OF ARTS DEGREE REQUIREMENTS

	Units
Lower division courses	21
Upper division courses	33
	54

Specific requirements: Art 101 or 102 (3 units); Upper division courses in Art History (12 units); Upper division electives (18 units) of which 9 units must be in one of the following areas: ceramics, crafts, design, drawing, painting, photography, or sculpture.

To complete the requirements for the BA degree in art, a student must complete 54 units required by the major, meet the General Education requirement, special course requirements, and electives, which may include a minor, totaling at least 124 units.

Students with a demonstrated interest in art history may, with the approval of the chairman, take up to 24 upper division units of art history toward the major. The remaining units must include Art 101 or 102 and courses taken from the department's studio offerings.

Students wishing to apply art related offering from other departments as substitutes to the general requirements of the major may petition to do so, and with the approval of the department chairman, they may substitute up to 9 upper division units.

GRADUATE PROGRAM

The graduate program for the master of arts degree in art is based upon the equivalent of the undergraduate major in art at CSU, Fresno. The program provides specifically for certain nonvocational areas of interest; photography, crafts, design, drawing, painting, ceramics, sculpture, art history, and theory. With prior approval, programs with multiple concentrations may be arranged. For specific requirements consult the departmental graduate program director; for general requirements see Division of Graduate Studies and Research.

The master of arts degree program in art assumes preparation equivalent to the undergraduate major in art at CSUF. Applicants must first complete university requirements for admission to the Division of Graduate Studies and Research, including the Graduate Record Examination Aptitude Test. Applicants must also pass the Department of Art Classified Standing Screening Review.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, and Thesis and Thesis Alternatives.*)

Graduate courses in art are open to holders of the BA degree in art who have been conditionally classified by the Department of Art.

Second-semester seniors in the undergraduate art program may also enroll in 200 series coursework in art subject to the approval of the instructor.

MASTER OF ARTS DEGREE REQUIREMENTS

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
Approved courses in art in the 200 series (See *specific requirements*)	18–30
Approved courses in art or related fields in the 100- or 200-series	0–12
Total	30

Specific Requirements: Students concentrating in Studio Art: 3 units in either Art 230 or 260; at least 3 units in Art 220T or 240; 2–6 units in Art 298 or (299). Students concentrating in Art History: a least 3 units in each of the following: Art 230, 240, 260; 2–6 units in Art 299.

Classified Standing: Concurrent with the departmental review and evaluation for classified standing, the student will submit a tentative program outline for approval by the screening committee.

Advancement to Candidacy: Prior to the completion of 20 units of the proposed program, the student will review the program of courses with an adviser from the selected area of concentration.

COURSES

ART HISTORY (Art H)

Art History Surveys

10. The Ancient and Primitive World (3)
An introductory survey to the arts of the prehistoric and primitive realms, including Western traditions (Egyptian, Greek, Roman, Medieval) through the 14th century. (Former Art 5)

20. The Modern World (3)
An introductory survey of Western art from the Renaissance through the Twentieth Century, including Mannerism, Baroque, Rococo, Neoclassicism, Romanticism and Impressionism. (Former Art 6)

109T. Topics in Art History (1–3; max 3 per area)
Specific areas in art history not normally covered in the regular course offering. Possible topical areas include African, Pre-Columbian, Primitive, Early Migrations, American Indians, Buddhism, Chinese Painting, Happenings, History of Modern Art through Film, Museums and Monuments of Europe, Fountains of Baroque Rome, Popes and Patrons of Renaissance Europe, 17th century Holland and the Rise of the Secular in Art. (Former Art 105T)

Western Art Surveys*

120. Italian Renaissance (3)
Artistic revival of classical antiquity in Italy between 1300–1550. (Former Art 105T)

122. Northern Renaissance (3)
Painting and sculpture from the Netherlands, France and Germany between 1300–1550. (Former Art 171)

124. Italian Baroque (3)
Baroque art from its conception in Rome to its dispersal throughout Italy. (Former Art 105T)

126. Northern Baroque (3)
Diffusion of Italian Baroque art to the Netherlands, France, Spain, Germany and Austria between 1600–1700. (Former Art 105T)

* See *Art Department Course Description* available at the Art Department.

128. Rococo to Neoclassicism (3)
European art during the eighteenth century. (Former Art 105T)

130. Modern Art (3)
Evolution of painting and sculpture in the nineteenth and twentieth centuries. (Former Art 105T, Art H 130W)

134. America (3)
Art from colonial times to 1945. (Former Art 176, Art H 134W).

136. Art Since 1945 (3)
Prerequisite: Art H 130. The moving forces in the changing modes of art today. (Former Art 175)

Asian Art Surveys*

140. India and South East Asia (3)
The art of India and its influence on surrounding territories from the Himalayan (Tibet) to Cambodia. (Former Art 177, Art H 140W).

142. China and Japan (3)
Art of the Far East from prehistoric times to the present. (Former Art 144, 178, 179, Art H 142W).

Primitive Art Surveys*

160. Africa (3)
Sculpture, painting, architecture, festivals and personal adornment of sub-Saharan Africa. Field trips may be required. (Former Art 105T)

162. Hawaii and the South Seas (2)
Traditional arts of the Pacific Basin, especially Hawaii, New Guinea, and Austria. Field trips may be required.

Art of the Americas Surveys*

170. North American Indian and Eskimo (3)
Arts of the indigenous North American cultures from the Arctic to the American Southwest. Field trips may be required. (Former Art 105T)

173. Pre-Columbian Mexico (3)
Art of the Olmec through the Aztec cultures. Field trips may be required. (Former Art 105T)

175. Pre-Columbian Andes (3)
Art of the Chavin through the Inca cultures. Field trips may be required. (Former Art 105T)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

STUDIO (Art)

1. Art Forms (3)
Slide lecture-discussion. An introduction to art/seeing and appreciating the visual world around us.

2. Visual Perception (3)
Seeing and interpretation of artistic conceptualization. (Former Art 110T section)

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* See *Art Department Course Description* available at the Art Department.

20. Drawing (3)
Introductory course in drawing concepts, materials and techniques. (6 lecture-lab hours) (Former Art 15)

21. Figure Drawing (3)
Introductory course in the basic concepts of figure drawing problems and techniques. (6 lecture-lab hours) (Former Art 16)

25. Lithography (3)
Studio class offering work in stone, metal plate, and color lithography. $6 fee. (6 lecture-lab hours) (Former Art 57)

26. Intaglio Processes (3)
Studio class offering work in basic intaglio processes such as etching, engraving, drypoint, aquatint, color etching. $6 fee. (6 lecture-lab hours) (Former Art 58)

27. Silk Screening (3)
Investigation into techniques of silk screening. (6 lecture-lab hours)

30. Photography (3)
Introductory course in black and white photography. Basic theoretical and practical aspects of the photographic process relevant to the medium as an art form. (2 lecture, 3 lab hours) (Former Art 70)

40. Painting (3)
Introduction to painting processes through studio problems and critiques. (6 lecture-lab hours) (Former Art 25)

45. Watercolor (3)
Introduction to techniques in watercolor painting with emphasis on transparencies. (6 lecture-lab hours) (Former Art 20T section)

50. Sculpture (3)
Introductory course in materials and concepts. (6 lecture-lab hours) (Former Art 51)

60. Beginning Ceramics (3)
A survey of ceramic materials and their functions in the arts. Basic studio practices in the handbuilding processes, glazing, and throwing on the potter's wheel. $10 fee. (6 lecture-lab hours) (Former Art 12)

70. Crafts (3)
Fundamental exploration of several media (fiber, wood, leather) with emphasis on understanding the potential of the various materials. (6 lecture-lab hours) (Former Art 65)

80. Photographics: Introduction to the 35 mm Camera (3)
The theoretical, practical and creative aspects of 35 mm black and white photography in the fine arts. Emphasis in 35 mm single lens reflex camera work as well as black and white printing techniques. $10 fee. (2 lecture, 3 lab hours) (Former Art 120T section, Art 180)

93. Design (3)
Exploration of basic art concepts through two- and three-dimensional design problems. (6 lecture-lab hours) (Former Art 46)

101. Content and Form (3)
Prerequisite: Art 1 or 2, 93. The concept of form in art and its effects upon content, style, materials, and techniques through studio problems and critiques. (6 lecture-lab hours) (Former Art 46)

102. Philosophies of the Visual Arts (3)
Prerequisites: Art 1 or 2, 93. Visual representation of past and present art movements. (Former Art 30)

105. Interaction of Color (3)

Prerequisites: Art 1 or 2, 20, 40, 93. Interaction of color as developed by Joseph Albers; basic design principles in connection with color work. (6 lecture-lab hours) (Former Art 41)

109T. Topics in Studio Art (1–3; max total 3 per area)

Prerequisite: permission of instructor. Specific advanced studio processes not normally covered in regular course offerings. Areas offered may be drawing, painting, ceramics, sculpture, photography, printmaking, design, crafts, motion-picture, art education. ($10 fee in some sections. (6 lecture-lab hours) (Former Art 120T)

110. Art Tours (3; max total see below)

Prerequisite: permission of instructor. May be repeated for credit; no more than 6 units may be applied on the art major. Directed trips to galleries, museums and other places of interest to the student of art; half of the semester devoted to studio projects, half to out-of-town tours; assigned papers, studio projects, discussion. Chartered travel costs approximately $75. (6 lecture-lab hours) (Former Art 160)

111. Guest Artists (3; max total 9)

Seminar with experienced guest artists. (6 lecture-lab hours) (Former Art 120T section)

112. Gallery Techniques (3; max total 9)

Prerequisite: Art 1 or 2, 93. Introduction to museum practices related to exhibition selection, design, and installation techniques. Field trips, lectures, projects and critiques. (6 lecture-lab hours) (Former Art 122)

114. Feminist Art (3; max total 6) (Same as W S 124)

Prerequisite: permission of instructor. Multimedia art in varied forms creating images based on women's unique experiences and feelings. Exposure to art and lives of women artists; development of awareness of female heritage in arts. (6 lecture-lab hours) (Former Art 124)

115. Calligraphy (3; max total 9)

The art of written forms with emphasis upon the cursive and calligraphic modes of formal italic handwriting associated with contemporary Western cultures. Introduction to the use, care and construction of calligraphic tools. Development of composition, color and aesthetic interpretation. (6 lecture-lab hours) (Former Art 109T section)

117. Development of Artistic Expression (3)

Art materials and techniques, as they apply to the elementary school curriculum; introduction to current philosophies in art education, theories of the development phases of artistic expression in children. (6 lecture-lab hours) (Former Art 164)

119T. Topics in Art (1–3; max total 3 per area)

Specific lecture area not normally covered in regular course offerings or in art history. Topics may include but are not limited to: Black art, Chicano art, cinema art, urban aesthetics, formalism in art, economics of art, careers in art, portfolio preparation. (Former Art 110T)

120. Drawing (3; max total 9)

Prerequisite: Art 1 or 2, 20, 93. Investigation of advanced concepts through the techniques of the drawing medium. (6 lecture-lab hours) (Former Art 125)

121. Figure Drawing (3; max total 9)

Prerequisite: Art 1 or 2, 21, 93. The human figure and its relevancy to advanced drawing concepts and techniques, emphasis on individual exploration in studio problems. (6 lecture-lab hours) (Former Art 117)

125. Lithography (3; max total 9)

Prerequisite: Art 20, 21, and 25. Permission of instructor required for investigation of wood block or serigraphy. Studio class designed for advanced work in stone, metal plate, and color lithography; transfer methods. $6 fee. (6 lecture-lab hours) (Former Art 157)

126. Intaglio Processes (3; max total 9)

Prerequisite: Art 20, 21, and 25. Permission of instructor required for investigation of wood block or serigraphy. Designed to offer advanced work in intaglio processes such as etching, engraving, drypoint, aquatint, mezzotint, color, photoengraving, inkless intaglio, viscosity printing. $6 fee. (6 lecture-lab hours) (Former Art 158)

127. Silk Screening (3; max total 9)

Prerequisite: Art 20, 21, 27, permission of instructor. Investigation into techniques of silk screening, including paper, glue, tusche, film, photo, and pencil stencils. (6 lecture-lab hours) (Former Art 120T section)

130. Photography (3; max total 9)

Prerequisite: Art 30. Advanced photography. Possible emphasis: black and white, color, history and appreciation, and individual production. (6 lecture-lab hours) (Former Art 146 ABCD)

133. Photographic Image Making Systems (3; max total 9)

Prerequisite: Art 30. Exploration of photographic processes which may be used to evolve personal imagery. May include high contrast, pigment printing and obsolete printing processes in current use. (6 lecture-lab hours)

140. Painting I (3)

Prerequisite: Art 1 or 2, 20 or 21, 40, 93, 105. Individual investigation of advanced aesthetic concepts; continued search into personal direction. (6 lecture-lab hours) (Former Art 127)

141. Painting II (3; max total 9)

Prerequisite: Art 140. Designed primarily for students with two or more semesters of experience in painting. Emphasis on individual involvement in the painting process aiming toward advanced formal and technical expression. (6 lecture-lab hours) (Former Art 128)

142. Mixed Media (3; max total 9)

Prerequisite: Art 1 or 2, 20 or 21, 93, 105, permission of instructor. Collage, transfer, assemblage, experimental techniques. (6 lecture-lab hours) (Former Art 120T section)

145. Watercolor (3; max total 9)

Prerequisite: Art 1 or 2, 20 or 21, 93, 105, permission of instructor. Painting with emphasis on transparencies. (6 lecture-lab hours) (Former Art 120T section)

150. Sculpture: I (3; max total 9)

Prerequisite: Art 1 or 2, 20, 50, 93. Individual investigation in use of materials (such as clay, plaster, metal and wood) and techniques as applied to aesthetic concepts. (6 lecture-lab hours) (Former Art 151)

151. Sculpture: II (3; max total 9)

Prerequisite: Art 150. Continued investigation of concepts in sculpture with an emphasis on casting. (6 lecture-lab hours) (Former Art 155)

160. Intermediate Ceramics (3; max total 9)

Prerequisite: Art 20, 93, permission of instructor. Emphasis will be on promoting a greater awareness of form as developed on the potter's wheel. A concentrated study of surface treatments and their integration with clay forms. $10 fee. (6 lecture-lab hours) (Former Art 183)

161. Advanced Ceramics (3; max total 9)

Prerequisite: Art 160, permission of instructor. Advanced study in ceramic art. Individual projects in selected ceramic areas with emphasis on showing and portfolio presentation of work. $10 fee. (6 lecture-lab hours) (Former Art 184)

162. Ceramic Construction (3; max total 9)

Prerequisite: Art 161, permission of instructor. A course with an emphasis on structural techniques in constructing ceramic sculpture; with particular concentration on form, surface treatments, and their relation to environment. $10 fee. (6 lecture-lab hours) (Former Art 185)

165. Ceramic Glazes (3; max total 9)
Prerequisite: Art 160, permission of instructor. Concentrated study in glazes through the empirical methods with some discussion on historical and technical integration of glazes with clay forms. $10 fee. (6 lecture-lab hours) (Former Art 120T section)

166. Glass Blowing Studio (3; max total 9)
Prerequisite: Art 20, 93, permission of instructor. A basic course in studio glass blowing techniques with technical information on glass compositions, furnace design and construction. (6 lecture-lab hours) (Former Art 120T section)

170. Crafts (3; max total 9)
Prerequisite: Art 2, 70, 93. Advanced design in a variety of materials. Study of contemporary designer craftsmen. (6 lecture-lab hours) (Former Art 136)

171. Textile Design: Dyeing and Printing (3; max total 9) (Former Art 137)
Prerequisite: Art 2, 93, 105. Design relating to fabrics, tie dye, batik, and silk screen. (6 lecture-lab hours) (Former Art 137)

174. Weaving (3; max total 9)
Prerequisite: Art 2, 70, 93. Exploration of fiber as a creative medium. Loom building and experimentation with emphasis on technique, form, design, and sensitivity. (6 lecture-lab hours) (Former Art 139)

175. Silversmithing (3; max total 12)
Exploration of non-ferrous metals (copper, brass and silver) as a creative medium. Emphasis is placed on mastering basic metal techniques and concentrating on executing a variety of design concepts. All tools and materials are provided. Silver is optional. (6 lecture-lab hours) (Former Art 140)

181. Photographics: Function and Form (3; max total 6)
Prerequisite: Art 80, 180, permission of instructor. Advanced work with medium format camera, introduction to aspects of visual perception theory relevant to formation and interpretation of photographic imagery, its function and form. Course includes field and lab experiences, photographic projects and the production of a photographic folio. (2 lecture, 3 lab hours) (Former Art 120T section)

182. Photographics: Large Format Techniques (3; max total 9)
Prerequisite: Art 181, permission of instructor. Introduction to large format camera technique and applications. Assignments exploit the precision and versatility of this machine in both creative and applied photographic assignments. This course includes field work and the production of a photographic folio. (2 lecture, 3 lab hours) (Former Art 120T section)

183. Photographics: Field and Studio (3; max total 9)
Prerequisite: Art 182, permission of instructor. Advanced applications of photographic methods in contrasting environments of field and studio. Course may include extended field assignments at remote locations. Coordinated group projects in creative and applied photography. (2 lecture, 3 lab hours)

184. Photographics: Art-Architecture-Artifact (3; max total 9)
Prerequisite: Art 182, permission of instructor. Advanced assignments in photographing art, architecture and artifacts for the artist and scholar. Experience includes supervised collaborative projects in studio and field environments. Course includes the production of a professional quality folio of photographic prints. (2 lecture, 3 lab hours)

188. Internship in Art (1-6; max total 6)
Prerequisite: permission of instructor and sponsoring agency. Experience in art related professions with agency under Art Department supervision. Maximum credit toward an art major, 3 units. (minimum of 3 field hours per unit)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

193. Design (3; max total 9)
Prerequisite: Art 2, 93. Continuation of the exploration of two- and three-dimensional design problems. (6 lecture-lab hours) (Former Art 109)

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility)*

220T. Topics in Studio Processes (3; max total 9)
Prerequisite: permission of instructor. Investigation of advanced studio topics selected by the department. Course work includes studio productions, their critiques and evaluations.

225. Seminar in Art Education (3; max total 9)
Prerequisite: permission of instructor. Curriculum development; implications of recent research and philosophic inquiry on the subjective dimensions of art education.

230. Seminar in Art Theory (3; max total 9)
Prerequisite: permission of instructor. Theories of the visual arts as developed by artists, critics, and philosophers, and their application to art criticism in our time. Oral presentation and defense of critical papers required.

240. Seminar in Art Studio (3; max total 15, max 9 in one area)
Prerequisite: permission of instructor. Work individually with selected staff in chosen area of concentration. Concurrent obligation to meet regularly scheduled seminars for group progress reports and critiques.

260W. Seminar in Art History (3; max total 9)
Prerequisite: six units of upper division art history and permission of instructor. Research problems applicable to art history students or studio artists. Meets graduate writing skills requirement.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

298. Exhibition (2–6; max total 6)
Prerequisite: permission of Art Department Graduate Committee chairman. Preparation, production, design, and installation of original works produced while engaged in the graduate program. An exhibit committee must approve of the work, location, and quality of installation. Students must pass an oral examination based on the work exhibited. $10 lab fee required in some areas.

299. Thesis (2–6; max total 6)
Prerequisite: permission of chairman of Art Department Graduate Committee; see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

IN-SERVICE COURSES

(See *Course Numbering Systems.*)

343. Contemporary Approaches in Art (1–3; repeatable for credit)

COMMUNICATION ARTS AND SCIENCES

FACULTY

Ronald D. Johnson, Department Chairman

Radio-Television Program

Philip J. Lane, Coordinator

Robert C. Adams, H. Lee Alden, Merlyn D. Burriss, John P. Highlander, William N. Monson

Speech Communication Program

Hal W. Bochin, Coordinator

R. Gene Anderson, Vincent L. Bloom, John A. Cagle, George E. Diestel, L. Ralph Hennings, David T. Natharius, David F. Quadro, W. Richard Ullmann

Theatre Arts Program

Ronald D. Johnson, Coordinator

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DEGREES OFFERED: BA (Radio-Television), BA (Speech Communication), BA (Theatre Arts) MA (Speech)

Undergraduate Option: Dance (Theatre Arts Major)

Graduate Options: Speech Communication
Theatre Arts

MA (Mass Communication—See *Special and Interdisciplinary Programs—Graduate Studies)*
Minor (Radio-Television, Speech Communication, and Theatre Arts Programs)

DEPARTMENTAL PROGRAMS

The Communication Arts and Sciences Department offers majors and minors leading to a Bachelor of Arts degree in Radio-Television, Speech Communication, and Theatre Arts: Dance Option. Graduate programs leading toward the Master of Arts degree are available in Mass Communications, Speech (Speech Communication option), and Speech (Theatre Arts option). Students planning to pursue graduate work should consult the appropriate program advisor regarding requirements for admission and program planning.

For those who intend to make teaching their profession, the department offers approved waiver programs in Speech Communication and Theatre Arts.

In addition to departmental programs many courses are offered which fulfill general education requirements and which provide the knowledge and background necessary to enjoy and contribute to a free society.

The Radio-Television program offers courses of study for those who seek professional careers in the media or in teaching. Career potentials in media include commercial as well as educational broadcasting. The program is based on the study of the cultural, social, educational, and economic significance of the media and provides for professional preparation in a variety of specialized areas.

The Speech Communication program is designed to provide courses appropriate to prepare students for careers in teaching, law, communication professions, public service and administration, and industrial communication management. The program major and minor requirements include courses relating to rhetorical and communication theories. The program affords the student majoring in fields other than speech many courses which focus upon communication factors as they apply to any field of study.

The Theatre Arts program offers majors leading to the bachelor of arts degree for those who seek professional qualifications in one or more of the theatre arts and dance. It provides training for actors, dancers, directors, designers, administrators, teachers, technicians, playwrights, and historians. Students may choose, with guidance, areas of experience to satisfy special needs.

BACHELOR OF ARTS DEGREE (Radio-Television) REQUIREMENTS

RADIO-TELEVISION MAJOR

The radio-television broadcasting major combines the study of media theory and practice with laboratory experience. A core of required courses provides a foundation upon which a student, in consultation with his faculty adviser, builds a program of study in areas of special interest. Such areas include criticism, performance, production, management, and script writing as well as the application of media in education. The student is encouraged to include courses of study in other fields relevant to this major interest.

Radio-Television Broadcasting	*Units*
R-TV 25, 40, 41, 44, 115, 140, 141, 160	23
Approved electives (Minimum 12 units upper division)	17
	40

In addition to the major (40 units), the student is responsible for the completion of the General Education requirement, special course requirements, and electives, which may include a minor (84 units), totaling 124 units for the BA degree.

RADIO-TELEVISION MINOR

Radio-Television Broadcasting	
R-TV 40 or 140, 41 or 44, 141	9
Approved electives (Minimum 6 units upper division)	11
	20

BACHELOR OF ARTS DEGREE (Speech Communication) REQUIREMENTS

SPEECH COMMUNICATION MAJOR

	Units
Elect from Spch 5, 7, 8, 15–115, 106	12*
Spch 140, 142, 160, 162, 166	15
Elect from Spch 108, 163, 167	3
Elect from Spch 146, 148	3
Approved Electives (See Note below)	15
	48

* No more than 3 units of Spch 15–115 can count toward fulfillment of these 12 units.

Note: In consultation with your program adviser, you may use these electives to fit your particular interests and professional aspirations. The following directions are examples of uses that the department recommends and in which our students have shown interest.

Public Administration: Pl Si 1, 181, and one upper division political science course from each of the following areas: Political Theory, American Government, Local Government (see Political Science Department course offerings). Free electives should be used to gain additional work in communication and public administration or work in personnel management and public relations. See your adviser.

Prelegal. In consultation with your program adviser, courses from the choices listed above in the Major should be carefully selected, as should appropriate electives. Speech 105 is strongly recommended as an elective course. See also the catalog's general *Prelegal* description under *Preprofessional Preparation.*

In addition to the major (48 units, the student is responsible for the completion of the General Education requirement, special course requirements, and electives, which may include a minor, (76 units), totaling 124 units for the BA degree.

SPEECH COMMUNICATION MINOR

	Units
Spch 5, 7, 8, 140, 160	15
Elect from Spch 108, 162, 163, 167	3
Elect from Spch 142, 146, 148	3
	21

CREDENTIAL PROGRAM

The single subject waiver program for English—Speech consists of Spch 5, 7, 8, 15/115, 142, 160, 162; 6 units from Spch 108, 140, 146 or 148, 164; 6 units from Drama 22, 163; R-TV 41, 44, 140; Engl 102 (or 146, 147, 150, 151, or 152); Engl 103 (or 153, 154, or 155); Engl 163 or 164; Ling 134 or 135. Consult the department chairman for teacher education.

SPEECH TEST

For credential candidates. See *General Information—Entrance Examinations* and *School of Education and Human Development—Admission to Credential Program.*

BACHELOR OF ARTS DEGREE (Theatre Arts) REQUIREMENTS

THEATRE ARTS MAJOR AND MINOR

The theatre arts major and minor are designed to provide competencies in the theatre arts for students who intend to pursue study beyond the bachelor of arts degree, who are preparing for careers in teaching or for the professional theatre. With the assistance of their advisers and with departmental approval, students may, by proper selection of electives, prepare themselves for service in one or more of the following specializations: acting/directing, arts administration, dramatic literature and theatre history, child drama, oral interpretation, technical/design, elementary or secondary teaching credential. These patterns of development should be determined in consultation with advisers.

THEATRE ARTS MAJOR

	Units
Drama 22, 31, 32 or 33, 34, Dance 116, Drama 134A-B, 135, 139, 163, 185, 186	34
Drama 136, 137, or 138 (Select one)	2–3
Drama 15–115	8
Approved Electives	5–6
	50

Special Requirements: (Students majoring in theatre arts are advised to enroll in no more than two production courses per semester.)

1. Audition for each departmental production and accept any role or production responsibility assigned. (May be waived only by written consent of a majority of the theatre arts faculty.)
2. Obtain specific approval from the program coordinator for participation in nondepartmental production activities, extra-curricular, or noncollege responsibilities. Majors are expected to be available for full participation in departmental production activities.

In addition to the major (50 units), the student is responsible for the completion of the General Education requirement, special course requirements, and electives, which may include a minor (74 units), totaling 124 units for the BA degree.

THEATRE ARTS MAJOR (Dance Option)

The Dance option within the Theatre Arts major provides specialized studies in Dance. Through a proper selection of electives within the Dance curriculum, students may orient their dance training towards specific areas of interest or professional goals such as performance, choreography, education, or therapy. See dance adviser for assistance in selection and coordination of appropriate courses.

	Units
Drama 32 or 33, 34, 134B	9
Drama 15–115	4
Dance 116	1
Dance 117A, B, C, or D (must enroll in one section each semester)	6
Dance 158A, B, C, or D (must enroll in one section each semester)	6
Dance 164T	6
Dance 166	6
Dance 159, 167, 170, 171, 175A	15
	53

THEATRE ARTS MINOR

	Units
Drama 31, 32 or 33, 34, 133	12
Drama 15–115	2
Approved electives (upper division)	6
	20

CREDENTIAL PROGRAM

The single subject waiver program in English—Drama consist of Drama 15 or 115, 22, 31, 32 or 33, 134A or 134B, 135, 139, 163, 185 or 186; Engl 102 (or 146, 147, 150, 151, or 152); Engl 103 (or 153, 154, or 155); Engl 183T (or 169T, 189, or 193T); Spch 142 (or Engl 161, 163, or 164); Ling 134 or 135. Consult the department chairman for teacher education.

SPEECH TEST

For credential candidates. See *General Information—Entrance Examinations.*

GRADUATE PROGRAM

The master of arts degree program in speech is designed to extend the competency of persons engaged in theatre, speech communication, or the teaching of speech arts. The courses are designed to provide opportunity for comprehensive study at the advanced level in the various areas.

MASTER OF ARTS DEGREE (in Speech) REQUIREMENTS

The master of arts degree program in speech assumes undergraduate preparation equivalent to a CSUF major or minor in theatre arts or speech communication with adequate emphasis in the area selected for the graduate major.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
Courses in speech communication or drama, 200-series (see *specific requirements*)	15–24
Electives in speech communication, drama, or related fields	6–15
Total	30

Specific Requirements:

Option in Theatre Arts—Drama 200, 221, 231, 232, 233, 240, 298 or 299.

Option in Speech Communication—Spch 200, 240-series (6 units), 260-series (6 units), 299 (2–6 units) or comprehensive examination.

COURSES

RADIO-TELEVISION (R-TV)

25. Fundamentals of Broadcast Performance (3)

Primarily for students with a major or minor in Radio-TV. Basic theories and techniques of broadcast-cinema performance. Study of vocal and visual aspects of performance, analysis, and preparation of program material for performance. (2 lecture, 2 lab hours)

40. Foundations of Broadcasting (3)

Basic theories of mass communication as the framework for the study of radio, television, and cinema. Historical development, regulation, social influences, and contemporary standards of evaluation in the contexts of theory and practice.

41. Radio Production (3)

Prerequisite: R-TV 40. Lecture and laboratory experiences in program development and production techniques as they apply in radio broadcasting and other sound media. (2 lecture, 2 lab hours)

44. Television Production (3)
Prerequisite: R-TV 40. Lecture and laboratory experiences in program development and production techniques as they apply in television. (2 lecture, 2 lab hours)

70. Introduction to Film (4)
Not open to students with credit in R-TV 129. The basic principles and theories of filmmaking; an overview of film as an art and an industry and its importance in contemporary life. (4 hours lecture, discussion, demonstration; outside projects required.)

115. Advanced Broadcasting Laboratory (1; max total 4)
Prerequisite: R-TV 41 or 44. Individual and group laboratory experience in major productions for closed-circuit or broadcast distribution. (1 lab, 2–4 arranged hours)

127. Broadcast Program Appreciation (3)
A study of the development and forms of broadcast programming; the contributions and effects of radio-television on society; critical analysis of recordings and scripts of significant broadcasts. A consideration of the media as popular cultural arts.

128. Motion Picture Appreciation (3)
History and development of motion pictures; criteria for motion picture selection; use of reviews and judgment by critics and organizations; critical observation; evaluation.equipment. Group and individual film projects. (2 lecture, 2 lab, and arranged hours)

140. Broadcasting and the Public (3)
Critical study of both the real and potential cultural, economic, and political impact of broadcasting; factors which shape the structure, standards, and procedures of broadcasting.

141. Broadcast and Film Writing (3)
Prerequisite: R-TV 41 or 44. Continuity types; theory, writing, and evaluation of announcements, commentaries, and program formats; adapting the spoken word to the media.

142. Radio and Television News Broadcasting (3) (Same as Jour 142)
Prerequisite: R-TV 41 or 44. Characteristics of electronic news media; local and national broadcast news operations; news sources and resources; social influence; policy and control; planning and producing news and public affairs programs. (2 lecture, 2 lab, and arranged hours)

143. Broadcasting in Education (3)
Uses of radio and television in education; classroom utilization practices and purposes; advantages and limitations of media; criteria for use and evaluation of media in the context of extant philosophies of education and theories of learning. Term paper or project required.

144. Advanced Television Production (3)
Prerequisite: R-TV 44. Development of creative and critical skills; study of production theory and practice; participation in organization, planning, and production activities. (1 lecture, 4 lab hours)

147. Directing the Broadcast Program (3; max total 6)
Prerequisite: R-TV 41 or 44, permission of instructor. Theories and practices in producing and directing radio and television programs; planning and production for the directorial function. Laboratory goal to create airworthy products for closed-circuit or broadcast distribution. (1 lecture, 4 lab and arranged hours)

149. Advanced Broadcast Performance (3)
Prerequisite: R-TV 25, 41 or 44. Theories of performance in cinema and broadcasting; refinement of professional skills and standards; laboratory, closed-circuit or broadcast performance. (2 lecture, 2 lab and 2 arranged hours)

160. Broadcast Regulation (3)
Prerequisite: R-TV 40. Theories of mass communication control and their application to the electronic media. Development of regulatory patterns in U. S. broadcasting; social responsibility of the broadcaster.

170. Cinematography (3)
Prerequisite: R-TV 70. Advanced study of problems of camera and sound; production organization and equipment; laboratory projects in film production. (2 lecture, 2 lab and arranged hours)

185. Proseminar in Station Management (3)
Prerequisite: R-TV 160, permission of instructor. Organization, programming, and operation of radio and television stations; correlation of department functions.

186. Internship in Broadcasting and Film (1–6; max total 6)
Prerequisite: permission of instructor. Applied practice in area broadcasting and film operations and allied agencies. On-the-job and department supervision. Reports and conferences required.

187T. Topics in Film Studies (3; max total 9)
Selected subjects of study to include: Techniques of Film Editing, the Documentary Film, Aesthetics, Criticism, Film History, Educational and Industrial Films, Directors and their works, and Experimental Films.

188T. Topics in Broadcasting (3; max total 9)
Selected timely and relevant topics of study including broadcast measurement and evaluation, media criticism, economics, broadcasting in politics, film editing, international broadcasting, documentary programming.

189. Projects in Production (3; max total 6)
Prerequisite: senior standing, permission of instructor. Creative group projects in broadcasting or film; public showing or distribution of product required. (6–8 hours arranged)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

200 series.
Graduate courses are listed under *Special and Interdisciplinary Programs—Mass Communication.*

IN-SERVICE COURSES
(See *Course Numbering System*)

305T. Topics in Radio-TV-Cinema (1–3; repeatable with different topics)

SPEECH COMMUNICATION (Spch)

3. Fundamentals of Public Communication (3)
Theories of human communication and their function in contemporary public settings; experiences designed to enhance fundamental communication skills—research, organization, reasoning, listening, and problem solving—through a series of oral presentations.

4. Introduction to Interpersonal Communication (3)
Introduction to various theories of interpersonal communication; participation in experiences designed to enhance competence in interpersonal relationships.

5. Argumentation (3)
Logical analysis, evidence, reasoning, and proof used in arriving at rational decisions as demonstrated through presentation of public speeches and debates.

7. Persuasion (3)
Analysis and practice of the use of persuasion as a social tool for resolving controversy and forming opinions from the perspectives of both the persuader and the persuaded.

8. Group Discussion (3)
Communication in group thinking and problem solving through preparation and presentation of panels and symposia on public issues.

10T. Topics in Speech (1–3; max total 9)
Contemporary problems and issues in speech communication; sections include such topics as freedom of speech, parliamentary procedure, special communication skills, rhetoric of protest and response, and communication processes.

15. Forensics Laboratory (1–2; max total 4)
Experience in the presentation of debates, oral interpretation programs, persuasive and expository speaking. Intramural and intercollegiate competition in forensics.

103. Advanced Public Speaking (3)
Advanced principles of expository and persuasive speaking; development of skills through analysis, preparation, organization, and delivery of various types of speech.

105. Argumentation Theory (3)
Analysis of the theories and techniques of argumentation, including models of argument, relationships between persuasion and argumentation, and the effects of argumentative discourse.

106. Statistical Applications in Communication (3)
Introduction to elementary statistical concepts, correlation analysis, parametric and nonparametric tests; emphasis on the application of statistical procedures to communication research.

108. Communication and the Small Group (3)
Analysis of group communication theories and their application to small group behavior in specific variables such as leadership, power, conflict-resolution, conformity, cohesiveness, and related group processes.

114. Communication and Learning (3) (Same as T Ed 158)
Study of the nature of communication and its relationship to learning and instruction; management of oral communication strategies in the educational setting.

115. Advanced Forensics Laboratory (1–2; max total 6)
Experience in the presentation of debates, oral interpretation programs, persuasive and expository speaking. Intramural and intercollegiate competition in forensics.

140. Rhetorical Theory (3)
Examination and analysis of classical, renaissance, and modern rhetorical theory for the purpose of identifying the theories of speech.

142. Rhetorical Criticism (3)
Examination of methods of the classical critics through the contemporary theorists in rhetorical criticism for the purpose of establishing standards for rhetorical analysis.

146. British Political Communication (3)
A history and criticism of British political communication from Pitt to modern times. Special emphasis is given to the social and political forces of the period.

148. American Public Address (3)
Selections from speeches of great American speakers analyzed in a cultural, psychological, social, and historical context; historical-rhetorical method of speech criticism.

160. General Semantics (3)
Study of the attempt to organize the findings of the sciences of men and to develop procedures for self-management of man as a symbol user; internalizing the procedures.

162. Interpersonal Communication (3)
Nature of the communication process; factors affecting the process and the individuals involved.

163. Social Influence and Attitude Change (3)
Discussion of research on the nature and effects of social influence, with special emphasis on attitude formation and change, conformity, behavior, "brainwashing", prejudice, and propaganda as functions of communication.

164. Intercultural Communication (3)
Analysis of cultural variables and factors in the communication process and strategies for the resolution of intercultural problems; consideration of implications for education and programs necessarily involving intercultural communication.

165. Computer Applications in Communication (3)
Study and use of various computer systems available in the study of human communication: Fortran IV, coursewriter III, LISP, SNOBOL, *General Enquirer;* emphasis on processing verbal data.

166. Communication Research Methods (3)
Application of behavioral research principles to problems in quantification, design, and analysis of data in communication research.

167. Leadership in Groups and Organizations (3)
Theory and practice of selected leadership variables in groups and organizations; functions of leadership in formal and informal structures, understanding and analysis of role-playing techniques.

168. Communication in Organizations (3)
Application of communication principles to the improvement of organizational efficiency.

188T. Topics in Speech (1–3; max total 9)
Selected topics in speech communication.

189. Projects in Speech (1–3; max total 6)
Prerequisite: permission of instructor. Projects in speech communication. (4 hours activity)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility)*

200. Introduction to Graduate Study (3)
Seminar in research procedures and materials. Required of all majors during the first semester of graduate work.

215. Seminar in Speech Arts (3; max total 9)
Research and individually directed work within one area of specialization.

241. Seminar in Rhetorical Theory (3)
A seminar which deals with the development of specific principles by selected theorists.

242. Seminar in Contemporary Criticism (3)
The role of rhetorical criticism in contemporary society.

243. Seminar in the History of American Public Address (3)
A detailed study of selected men who have influenced political, religious, and social problems in American History.

244. Seminar in Contemporary Public Address (3)
The study of contemporary figures in public address who have influenced political, religious, economic, and social problems in the 20th century.

262. Seminar in Communication Theory and Research (3)
An examination and evaluation of mathematical, philosophical, sociological, psychological, and rhetorical theories of human communication. Emphasis upon the assumptions and implications of various theories, models, and constructs.

263. Seminar in Group Communication (3)
A critical examination of the scientific research and theories in group communication including research variables and methodologies. Implications of research findings for contemporary communication problems.

264. Seminar in Communication Research Methods (3)
The nature, implications and assumptions of methodologies in human communication research. Discussion of quantification, design, and statistical inference as they relate to experimental, quasi-experimental, descriptive, survey, and case study methodologies.

290. Independent Study (1–3; max see reference)
See *Academic Placement-Independent Study.*

299. Thesis or Project (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES

(See *Course Numbering System*)

303. Topics in Speech (1–3; repeatable with different topics)

THEATRE ARTS (Drama)

1. Theatre Appreciation (1; max total 4)
Open to non-majors. Understanding elements of theatre production through observation of a wide variety of staged productions. Discussion will stem directly from productions observed during the semester.

15. Dramatic Arts Laboratory (1–2; max total 6) (Same as Drama 115)
Group laboratory experience in presentation of major productions for public performance.

22. Fundamentals of Interpretation (3)
Discovering and communicating intellectual and emotional meaning of the printed page through preparation and presentation of selected readings from prose, poetry, and drama.

31. Fundamentals of Voice and Articulation (3)
Primarily for students with majors and minors in the speech arts. Principles of voice and articulation with demonstration in various aspects of oral communication.

32. Stage Techniques (3)
Coordination, gesture, and stage business training for student actors, singers, and directors; development and improvement of creativity, awareness, and body control.

33. Fundamentals of Acting (3)
Prerequisite: Drama 31. Fundamental techniques and theories of acting; development of individual insight, skill, and discipline in the presentation of dramatic materials.

34. Theatre Crafts (3) (Same as Ind A 34)
Introduction to the crafts in technical theatre; scene construction, scene painting, property selection, stage lighting, sound production; costume construction and make-up; laboratory experience in preparing major plays for public performance.

44. Fundamentals of Motion Picture Acting (3)
Introduction to the basic creative and mechanical principles of motion picture acting through preparation and presentation of scenes on tape for analysis and discussion.

62. Theatre Today (3)
Not open to theatre arts majors. Perspectives on contemporary theatre forms and productions.

83. Touring Theatre (1–3; max total 6) (Same as Drama 183)
Prerequisite: permission of instructor. Experience in touring major productions for public performance.

89. Projects in Production (1–3; max total 9) (Same as Drama 189)
Prerequisite: permisson of instructor. Group projects in all phases of production in laboratory theatre.

101. Theatre Appreciation (1; max total 4)
Open to non-majors only. Understanding elements of theatre production through observation of a wide variety of stage productions. Discussion will stem directly from productions observed during the semester.

115. Dramatic Arts Laboratory (1–2; max total 9) (See Drama 15)

131. Fundamentals of Playwriting (3; max total 9)
Exercises in plotting, characterization, exposition, and stage business, critical analysis and revision of manuscripts.

133. Advanced Acting (3; max total 6)
Prerequisite: Drama 33. Advanced techniques of emotion, timing, characterization, and style, developed by study and evolution of characters from the classic plays through the body of contemporary literature.

134A-B. Advanced Theatre Craft (3–3) (Same as Ind A 134A-B)
Prerequisite: Drama 34. (A) Advanced training in scenic techniques and allied technology. Laboratory application to major public productions. (B) Advanced training in costumes crafts; fabrics, patterns, costume construction, armor, etc. Laboratory application to major public performances.

135. Make-up for Theatre (3; max total 6)
Theory and practice of make-up for theatre; techniques for characterization, style, and technical processes; aesthetics, analysis of characters for make-up. Preparing plays for major public performances.

136. Puppetry (3)
Introduction to the art of puppetry: history, construction of various types of puppets and theatre, practice in manipulation, script writing, use of puppets in education and recreation.

137. Creative Dramatics (2; max total 6) (Same as T Ed 137)
Basic techniques for the use of dramatization in elementary education; socio-drama, dramatization of school subjects, creative dramatic play; simplified staging techniques.

138. Children's Theatre (3; max total 6)
Theories of children's theatre and application to problems in production; preparing plays for major public performance.

139. Fundamentals of Play Direction (3)
Prerequisite: Drama 33. Fundamental techniques and theories of stage direction; function, responsibility, movement, analysis, style; practice in directing scenes.

140. Advanced Play Direction (3)
Prerequisite: Drama 139. Advanced techniques of play direction: prerehearsal problems and procedures; structural analysis of plays, composition, picturization, pantomimic dramatization, movement, rhythm.

145. Women in the Theatre (3) (Same as W S 145)
Historical and contemporary perspectives and attitudes applied to women in the theatre arts including study of female artists, actresses, dancers, theatrical designers and technicians, directors and teachers.

150. Theatre Management and Promotion (3)
Principles of organization, operation, and administration of educational, community, and professional theatre; box office operation, accounting procedures, ticket manipulation, house management, fund raising, promotional media. Supervised practical experience in dramatic art area production.

155. Sound in the Theatre (3)
Theory, techniques, and procedure necessary to develop and integrate sound, music, and effects in theatre production; hearing, acoustics, environment, sources, transducers, control, systems, equipment; organization and planning. Laboratory experience in preparing plays for a major public performance.

157. Theatre Graphics (3; max total 6)
Development of rendering technique and other graphic skills essential to design for the theatre.

160. Field Studies in Theatre and Dance (1–6; max total 8)
Prerequisite: permission of instructor. Supervised off-campus study of the theatre arts and dance. Submission of project or term paper required.

163. Dramatic Literature (3)
Critical analysis of various types and styles of plays with respect to their form, meaning and theatricality.

178. Oral Studies of Shakespeare (3)
Prerequisite: Drama 22. Appreciation and communication of representative histories, comedies, and tragedies; problems of content and structure from the point of view of the oral interpreter.

179. Playwrights' Theatre (1–2; max total 6)
Prerequisite: permission of instructor. Presentation and readings of original and classical plays.

180A–B. Scene Design for Theatre (3–3; 180B max total 6)
Prerequisite: permission of instructor. (A) Styles, techniques and methods of scene design; history. Laboratory application, material for major public performance. (B) Scenery design; design problems of a complicated play; experimental ideas; new materials. Laboratory application, material for major public performance.

181A–B. Costume Design for Theatre (3–3; max total 6 for each course)
Prerequisite: permission of instructor. (A) History of costume design; design project using historical sources. Costume construction for major public performance. (B) Emphasis on design process using works of major playwrights. Laboratory application for major public performance.

182A–B. Stage and Television Lighting (3–3)
Prerequisite: Drama 34 or 134A–B. (A) Instruments, control, color, electro-mechanical factors and simplified design and planning lighting leading to and resulting in a major public performance. (B) Lighting as an art, design concepts; lighting plots, projections, sequential cue relationships. Laboratory application, material for major public performance.

183. Touring Theatre (1–3; max total 6) (See Drama 83)

184. Readings in Dramatic Literature (3; max total 6)
Open to upper division students of all departments. Prerequisite: permission of instructor. Reading and discussion of great plays of history.

185. History of the Theatre and Drama I (3)
Prerequisite: Drama 163. History of European theatre and component arts from ancient Greece through the mid-nineteenth century; analysis of representative examples.

186. History of the Theatre and Drama II (3)
Prerequisite: Drama 163. From Ibsen to the present; analysis of representative examples.

188T. Topics in Theatre Arts (1–6; max total 9)
Prerequisite: permission of instructor. Selected topics may include: acting, children's theatre, creative dramatics, play direction, technical theatre, theatre history, dramatic literature and theatre administration.

189. Projects in Production (1–3; max total 9) (See Drama 89)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

194. Shakespeare (4) (See Engl 189)

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

200. Introduction to Graduate Study (3)
Seminar in research procedures and materials. Required of all majors during the first semester of graduate work.

220T. Seminar in Theatre Arts (3; max total 9 if no area repeated)
Prerequisite: graduate standing and permission of instructor. Principal theories and research in the phases of the theatre arts: directing, history, criticism, aesthetics, playwriting, scene design, costume design, sound, lighting, architecture, theatre administration, oral interpretation.

221. Seminar in Dramaturgy (3)
Prerequisite: Drama 185 and 186. A study of aesthetics and criticism in relation to dramatic literature.

231. Applied Studies in Acting and Directing (3)
Prerequisite: Drama 32 or 33, Drama 139. Theoretical and practical study of selected acting and directing styles.

232. Applied Studies in Design (3)
Prerequisite: Drama 134A, 134B. Study and analysis of performance as the product of design, in script, direction, environment, technology and management.

233. Seminar in Theatre Administration and Production Management (3)
Prerequisite: Drama 200, 201, 221, 231, 232. Development of problem-solving, decision-making, and management skills required in theatre administration and production management.

240. Practicum in Dramatic Production (3)
Prerequisite: Drama 200, 221, 231, 232, 233. Advanced creative projects with emphasis on theatre as a synthesis of performing arts, designed to enhance individual depth and proficiency in each student's selected area of concentration.

290. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

298. Directed Study (3)
Prerequisite: Advancement to candidacy for the MA degree and permission of the Graduate Committee Chairman. Individual production project: periodic conferences.

299. Thesis or Project (3)
Prerequisite: See *Master's Degrees—Thesis Requirements.* Preparation, completion, and submission of an acceptable thesis or project for the Master's degree.

IN-SERVICE COURSES

See (*Course Numbering System.*)

303. Topics in Theatre Arts (1–3)

DANCE COURSES (Dance)

116. Introduction to Modern Dance (1)

Basic technique, improvisation, and composition. Moving through space, energy, and time with focus on varying internal and external stimuli as impetus for movement. (Former C16)

117A. Modern Dance Technique (1; max total 2)

Prerequisite: permission of instructor. Basic aspect of modern dance technique. Emphasis on importance of breath, body alignment and rhythmic coordination; total movement awareness. (Former C17A)

117B. Modern Dance Technique (1; max total 2)

Prerequisite: permission of instructor. Beginning-intermediate level study of movement fundamentals, locomotor activities, and expressive qualities; development of balance, strength, breath coordination and technical ability. (Former C17B)

117C. Modern Dance Technique (2; max total 6)

Prerequisite: permission of instructor. Intermediate level of modern dance technique; center practice and locomotor movement, stress on increased movement awareness through individual technical development and personal expression. (Former C17C)

117D. Modern Dance Technique (2; max total 12)

Prerequisite: permission of instructor. Advanced level in modern dance technique; elements of alignment, flexibility, strength, rhythm, and energy flow. Exposure to techniques of Limon, Nikolais, Humphrey, Graham, and others. (Former C17D)

155A. Modern Jazz Dance (1)

Rhythmic and stylistic devices of jazz and rock movement using modern dance technique as a movement foundation. (Former C55, C55A)

155B. Modern Jazz Technique (1)

Prerequisite: permission of instructor. An in-depth study of jazz dance techniques and different jazz idioms; emphasis on individual style, freedom of expression. (Former C55B, C56)

158A. Ballet Technique (1; max total 2)

Beginning level of ballet technique. Basic principles of tournout, plier, etentre, relever, sauter, tomber, tourner, muscular control, and balance. Partial barre work, port de bras, adagio, centre barre, petit allegro, and grand allegro. (Former C58A, C58)

158B. Ballet Technique (1; max total 2)

Prerequisite: permission of instructor. Beginning-intermediate level of ballet technique. Introduction to important theories of French, Russian, Italian, and Danish techniques. Extended practice of complete class: barre, port de bras, adagio, centre barre, and allegro. (Former C58B, C59)

158C. Ballet Technique (2; max total 12)

Prerequisite: permission of instructor. Intermediate-advanced level of ballet technique. Concentrated study and practice of French, Russian, Italian, and Danish concepts and theories of technique.

158D. Ballet Technique (2; max total 12)

Prerequisite: permission of instructor. Advanced level of ballet technique. Advanced practice and study of French, Russian, Italian, and Danish concepts and theories of technique.

159. Music as Dance Accompaniment (3)
Experimentation with different musical media, ie., rhythm, sound, speech, music accompaniment as it relates to dance movement. Musical form, composers, improvisation, selection and preparation of methods. (Former PE 59)

160. Creative Movement for Children (3)
Prerequisite: PE 147. The exploration of rhythmic coordination for children to enhance their imagination through the expressive use of the body, development and growth through self activity, exploration of space, movement to music and self-created sounds. (2 hours lecture, 2 hours lab)

163. Dance Performance (2; max total 8)
Group laboratory experience in the learning and presentation of finished choreographed works. Practical experience in the requirements of rehearsing, understudying and performing roles. (Former PE 63/163)

164T. History of Dance (3; max total 12)
Evolvement of dance as an art form; cultural implications; changing concepts in dance style and form. Topics may include the following periods: Primitive to Renaissance, Baroque to 20th Century, 20th Century. (Former PE 164T)

166. Dance Choreography (2; max total 16)
Prerequisite: working knowledge of movement observation and dance aesthetics. Exploring through studio problems the nature of experimentation in movement and self-paced progression from expression to communication.

167. Dance in Education (3)
Prerequisite: permission of instructor. Unique potential found in movement for the development of creativity through the teaching of dance. (Former PE 167)

170. Centering and Alignment (3)
Prerequisite: Phy 33. A course designed to introduce a spectrum of models and concepts used in somatic analysis and movement facilitation. Emphasized is the use of images and thought to acquire efficient and safe alignment for ease of expression through dance.

171. Philosophical Bases and Trends in Dance (3)
The elements and principles common to all arts and their relationship to dance. (Former PE 171)

173. Theories of Improvisational Movement (3; max total 9)
Philosophical and physiological ideas in the possibilities of spontaneity as they relate to the actual process of human movement.

174T. Topics in Dance (1-3; max total 12)
Selected topics may include: philosophy, psychology, art, theatre, and music as related to dance.

175A. Effort/Shape (3)
Prerequisite: permission of instructor. An introduction to the Laban system of movement analysis. Designed to include movement and observation, effort/shape analysis and the application of this work in the fields of education, performance and therapy.

175B. Delsarte System of Expression (3)
Prerequisite: permission of instructor. An introduction to the science and art of Francois Delsarte. Designed to include movement observation, Delsarte Analysis, and the application of this work in the fields of choreography, stage movement, and therapy.

176A–B. Expressive Movement Core Seminar (3)
Prerequisite: Dance 175A–B. A two-semester course. Seminar II is a sequel to Seminar I. The course is theoretical and experiential exploration of the therapeutic process as it relates to the creative process in dance.

ENGLISH

FACULTY

Robert S. Billings, Department Chairman

Gene Bluestein, Roger D. Chittick, William H. Cowling, Peter P. Everwine, Lillian Faderman, James E. Frey, Everett Frost, Charles G. Hanzlicek, Francis A. Hart, Harold S. Karr, Philip Levine, George M. Lewis, Barry L. Logan, John J. McDermott, H. Ray McKnight, Robert M. O'Neil, Martin T. Paul, Jean E. Pickering, Stanley H. Poss, Joachim S. Ries, Judy A. Rosenthal, Joseph Satin, Kenneth A. Seib, Andrew M. Simmons, Walter H. Stuart, Michael G. Tate, Eugene E. Zumwalt

DEGREES OFFERED: BA, MA

Options (Graduate)

Creative Writing

Composition

DEPARTMENTAL PROGRAMS

The English Department offers a major in literature, language, and writing leading to the bachelor of arts and master of arts degrees. For students majoring in other departments it provides courses of general interest in reading, composition of various kinds, and literature. A daily tutorial program is available to all students.

The major in English for the bachelor of arts degree provides for the study of English, American, and world literature, language studies, and creative writing. It will prepare students for postgraduate training in English and in business, law, medicine, theology, civil service, teaching, and in the other fields that recommend a grounding in the liberal arts as preparation for occupational training.

The English curriculum has basically five sorts of courses in the upper division: ***The Masterpiece Courses*** (101, 102W, 103). These are broad, largely reading courses which, as their titles indicate, introduce students to the major works in English, American, and World Literature. ***The Literary History Courses*** (112, 113W, 114W, 146, 147 150, 151W, 152, 153, 154, 155W, 156W). These are introductory courses covering in depth the literature and background of a period in American, English, or World Literature. ***The Literary Genre Courses*** (167, 168T, 169T). These courses are comparable in level and difficulty to the Literary History courses, except that rather than dealing with a specific period they deal with a type of literature (novel, drama, poetry, epic, comedy, etc.) broadly conceived. ***The Literary Seminars*** (183T, 189, 193T). These courses offer an in-depth study of a single author or work or of a limited literary movement (symbolism) or type (20th Century Drama). ***The Writing Courses.*** These courses are of three sorts: (a) the writing of fiction; (b) the writing of poetry; (c) the writing of nonfiction prose. Students interested in creative writing may take as many as 16 units of their major in the writing of poetry and fiction, and up to 8 lower-division units in these areas.

BACHELOR OF ARTS DEGREE REQUIREMENTS

English 20 or its equivalent is a requirement for the English major.

	Units
Upper division (including 8 units from English 189 and 193T or 8 units from English 193T; English 193T should ordinarily not be taken until 3 upper division courses have been completed.)	28

In addition to the requirements of the major (28 units), the student is responsible for completion of the General Education requirement, special course requirements, and electives, which may include a minor.

Courses taken as CR-NC may not apply to the major, with the exception of 4 units of 175T and 176T.

Not more than 6 units by extension and correspondence courses may be applied toward the English major; correspondence courses may be applied only if they are acceptable for the major at the college where the course is offered.

Students majoring in English are advised to select a course in English history as one of their upper division electives.

The student will propose a program in consultation with his adviser, selecting courses in

appropriate proportions from among the following general categories: Literary History, Advanced Writing, Forms of Literature, Seminar in Literary Studies, Major Writers, and Linguistics.

MINOR

Students in many vocational fields often realize that special skill in writing may be of great use to them in their future work—and such skill can best be obtained through an English minor. The English minor requires 20 units above English 1, at least 12 of which must be upper division, and 4 of these units must be from 189 or 193T. Courses taken as CR-NC may not apply to the minor, with the exception of 4 units of 175T and 176T.

English 189 or 193T.	4 units
Other Upper Division English	8 units
Other English courses (not including English 1)	8 units
	20

CREDENTIAL PROGRAM

The single subject waiver program in English consists of Engl 182 (1-4 units), 189, Ling 134 (or equivalent); an upper division writing course (excluding Engl 160); and 16 units in upper division literature courses for a total of 28–32 units. Credential candidates are advised to take Engl 182 concurrent with student teaching, and it is recommended that they take at least one unit before beginning student teaching. Students preparing for the teaching credential are also strongly advised to select a course in speech in fulfilling their general education requirements for graduation. Consult the departmental coordinator for teacher education for program planning. The Coordinator of English Education can also assist students majoring in Speech, Drama, Linguistics and Journalism who wish to earn teaching credentials.

GRADUATE PROGRAM

The master of arts program in English language and literature is designed to intensify and extend the knowledge of students desiring a year of study beyond the baccalaureate, students desiring their first graduate degree in anticipation of advanced graduate study, and teachers in secondary schools and colleges. For those students wishing to specialize in creative writing, an option in this field is available.

Admission to the master of arts program in English language and literature assumes preparation equivalent to a baccalaureate degree major in English or a related field in the liberal arts. To achieve classified standing as a graduate student in English, both English and non-English majors must have maintained a GPA of 3.0 or better in their major fields and passed the verbal section of the GRE with a score of 450 or better.

In addition, candidates for the creative writing and composition options must submit a manuscript to the writing staff, whose approval is necessary for admission to the program.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, Foreign Language Requirements,* and *Thesis and Thesis Alternatives.*)

MASTER OF ARTS DEGREE REQUIREMENTS

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
Courses in English (See *specific requirements*)	18
Approved electives in English or other fields	12
Total	30

Specific Requirements: (All students except those in the writing options.) Engl 250T (8 units); 299 (2–6 units) or 12 units of 250T for students electing the non-thesis program. The following areas must be covered by graduate or undergraduate courses (may be satisfied in the undergraduate preparation): English literature (2 courses); American literature, world literature, Shakespeare, and Chaucer (1 course each). Students not writing a thesis must submit to the graduate adviser seminar papers, with grades no lower than B, from three 250T courses taken from at least two different instructors.

In addition to the general Graduate Division requirements, advancement to candidacy requires a reading knowledge of one foreign language, to be demonstrated by examination; the

completion of at least one graduate seminar (250T) with a grade of B or above, and submission of one seminar paper to the graduate committee of the English department; a score of 590 or better on the advanced section of the GRE, and a review by the graduate adviser of the work already completed.

An interdisciplinary English major may be constructed in consultation with the graduate adviser in which up to 12 units may be taken in departments other than English when such a program demonstrates a coherent program of study.

Creative Writing Option. Engl. 250T (8 units); 261 and/or 263 (8 units); 299 (2 units); approved electives (12 units).

In addition to the general Graduate Division requirements, advancement to candidacy requires a reading knowledge of one foreign language, which may be demonstrated either by passing an examination or by submitting to the creative writing staff acceptable translations of foreign poetry and/or prose, and a review by the graduate committee of the work already completed.

Composition Option

The degree consists of 30 upper division and graduate units distributed in the following way:

English 164 or 265	4 units
English 265	8 units
English 299	3 units
English 291T	3-4 units
English 250T	8 units
Linguistics	3-4 units
	30

In addition to the general Graduate Division requirements, advancement to candidacy requires a reading knowledge of one foreign language, which may be demonstrated by passing an examination, and a review by the graduate committee of the work already completed.

COURSES

English (Engl)

A. Fundamental Writing Skills (1–3; max total 3)

All students enrolling in English A must have taken the CSUC English Placement Test.

Instruction and supervised practice in fundamental problems of writing. Intended primarily for students who need more elementary composition work before attempting English 1 or more advanced courses. Must be taken for CR–NC grade only and is not applicable to the requirements for the baccalaureate degree.

AL. Fundamental Writing Skills Lab (1–2; max total 2)

Laboratory for students who need individualized writing assignments and exercises. May be taken concurrently with English 1. Must be taken for CR–NC grade only and is not applicable to the major requirements for the baccalaureate degree.

1. Composition (3-4)

Prerequisite: Any one of the following test scores or successful performance in English A; CSUC English Placement Test, 151 or above; SAT-Verbal, 510 or above; CSUC English Equivalency Examination, satisfactory score; English Composition Examination of College Board Advanced Placement Program, 3, 4, or 5; ACT English Usage Test, 23 or above; College Board Achievement Test in English Composition with essay, 600 or above.

Theory and practice of composition for students with college-level competence in written English. Themes, chiefly expository or analytical. (English 1 is a graduation requirement of the university.)

2. Writing Workshop (1–4; max total 4)

Practical assignments and individual coaching on specific writing problems. For selected students this workshop may be required to be taken concurrently with, or as prerequisite to, other courses. (Former Engl 60)

20. Literature and Composition (4)
Prerequisite: English I. Reading and analysis of short stories, novels, drama, and poetry. Development of critical thinking and expression through individual projects and extensive writing under close supervision.

30. Masterpieces (4)
Discussion and written analyses of widely influential poetic, dramatic, and fictional works by British, American, and world authors.

41. Poetry Writing (4)
Prerequisite: Engl 20. Beginning workshop in the writing of poetry; appropriate reading and analyses.

43. Fiction Writing (4)
Prerequisite: Engl 20. Beginning workshop in the writing of fiction; appropriate reading and analyses.

44. Nonfiction Prose Writing (4)
Prerequisite: Engl 20. Beginning workshop in nonfiction prose writing; appropriate reading and analyses.

50T. Studies in Literature (1-4; max total 8 if no topic repeated) (Same as W S 50T)
Sections designated as emphasizing certain writers, types, or themes, (for example, Shakespeare, The Poem, Literature of Protest, Women in Novels). Appropriate readings and analyses.

76. Programs in Film Genres (2–3; max total 3)
Not open to students with credit in English 176T. Film as literary form; viewing and analyses of selected examples from comedy, musical, horror, science-fiction, and other genres.

100W. Writing Skills (1)
Upper division writing skills examination. CR/NC grading only.

101. Masterpieces of World Literature (4)
Discussion and written analyses of widely influential poetic, dramatic, and fictional works studied in translation.

102W. Masterpieces of English Literature (4)
Discussion and written analyses of widely influential poetic, dramatic, and fictional works by British authors. Meets upper division writing skills requirement for graduation.

103. Masterpieces of American Literature (4)
Discussion and written analyses of widely influential poetic, dramatic, and fictional works by American authors.

112. World Literature: Ancient (4)
Selected works in translation surveying from the beginnings of literature to early centuries A.D. Examination of relationships among myth, legend, ritual, folklore, belief and literature. Readings primarily from selected Greek, Roman, Norse, Indian, Anglo-Saxon and Biblical authors.

113W. World Literature: Medieval and Renaissance (4)
Authors and works (in translation) may include Dante, Rabelais, Cervantes, Murasaki, Boccaccio, the Petrarchan tradition, Tu Fu, Basho, troubadour poetry, epic, romance, fabliau, No morality plays, Lope de Vega, Erasmus, Montaigne, Castiglione. Meets upper division writing skills requirement for graduation. (Former Engl 113)

114W. World Literature: Modern (4)
Major movements in world literature from the Renaissance to the present. Writers such as Voltaire, Goethe, Dostoyevsky, Ibsen, Mann, Kafka, and Camus will be read in translation. Writers outside the Western tradition like Ts' ao Hsüeh-Ch'in, Mishima, and Achebe may also be studied. Meets upper division writing skills requirement for graduation. (Former Engl 114)

115W. Literature of the New Testament (3) (See Phil 133W)
Meets upper division writing skills requirement for graduation.

116W. Literature of the Old Testament (3) (See Phil 134W)
Meets upper division writing skills requirement for graduation.

146. Beowulf to Malory (4)
The literature of Medieval England, including Malory, Chaucer and other narrative poetry (*Beowulf, Piers Plowman, Sir Gawain and the Green Knight*), drama, and lyric poetry.

147. Renaissance (4)
Discussion and written analyses of works by selected playwrights (Webster, Dekker, Jonson) and poets (Spenser, Donne, Herbert, Marvell, Milton) from the 16th and 17th centuries.

150. The Age of Wit (4)
Major writers and topics include Dryden, Swift, Pope, Johnson, Restoration Comedy, and the rise of the novel; the literature will be read in the context of 18th century civilization, with attention to political and intellectual history, and the other arts.

151W. 19th Century Romantics (4)
Study of the conjunction of a literary period (19th Century) and a literary movement identified with it (Romanticism) by examining the works of figures who exemplify the conjunction such as Wordsworth, Coleridge, Blake, Byron, Keats, and Shelley. Meets upper division writing skills requirement for graduation. (Former Engl 151)

152. Dickens to Hardy (4)
The literature of Industrial England including the poetry from Tennyson to Yeats, the novel from Dickens to Hardy, and the essay from Carlyle to Huxley. May include such topics as the Pre-Raphaelites, the Decadents, Darwinism, and the New Woman.

153. American Literature to Whitman (4)
Discussion and close written analyses of major works and their backgrounds in American literature to the Civil War. Includes Puritanism, Emerson, Thoreau, Hawthorne, Melville, Poe, and Whitman.

154. American Literature 1865 to WWI (4)
Discussion and written analyses of major works and their cultural backgrounds within this period of change. Topics include the rise of realism and naturalism. Writers discussed include Whitman, Twain, Howells, James, Crane, Dickinson, and others.

155W. 20th Century American Literature (4)
Discussion and written analyses of selected poems, plays, and fiction from WWI to the present by such authors as Frost, Eliot, Anderson, Hemingway, O'Neill, Faulkner, Fitzgerald, Steinbeck, Stevens, Williams, and post-WWII writers. Meets upper division writing skills requirement for graduation.

156W. 20th Century British Literature (4)
Discussion and written analyses of selected poems, plays, and fiction from 1900 to the present by such authors as Forster, Yeats, Woolf, Lawrence, Joyce, Greene, Auden, Thomas, and post-WWII writers. Meets upper division writing skills requirement for graduation.

160W. Writing Workshop (1–4; max total 8)
Practical assignments in writing, directed according to each student's individual needs. May be elected as preparation for special composition requirements. Does not apply to the English major. Meets the upper division writing skills requirement for graduation.

161. Advanced Writing of Poetry (4; max total 8)
Prerequisite: Engl 41. Intensive workshop in the writing of poetry; appropriate readings and analyses.

163. Advanced Writing of Fiction (4; max total 8)
Prerequisite: Engl 43. Intensive workshop in the writing of fiction; appropriate readings and analyses.

164. Advanced Writing: Non-Fiction Prose (4; max total 8)
Intensive workshop in expository writings; appropriate readings and analyses.

167. Studies in Folklore and Folk Song (4)
Studies in aural and historical sources of folk tradition, including regional and ethnic styles gathered from primary and secondary materials.

168T. Women and Literature (4) (Same as W S 168T)
Prerequisite: Engl 20. Discussion and written analysis of literature by and about women. Special emphasis on 19th and 20th Century authors including the Brontes, George Eliot, Emily Dickinson, Edith Wharton, Virginia Woolf, and contemporary writers.

169T. Forms of Literature (1–4; repeatable with different topics)
No more than 12 units of Engl 168T-169T may be applied on the English major. Prerequisite: Engl 20. Sections designated as emphasizing poetry, drama, novel, short story, perhaps limited to a specific period or subclass; for example, 18th Century English Novel, 20th Century British and American Poetry, Modern Short Stories, 20th Century Drama, Tragedy, Folklore, Mythology. 169TW sections (Greek Mythology, Literature of the Supernatural, Mythology, and 20th Century American Fiction) meet the upper division writing skills requirement for graduation. Reading and close written analysis with particular attention to form.

175T. Lectures in Literature (1–4; max total 8, in 175T and 176T, if no topic repeated)
No more than 4 units of 175T and 176T may apply to the English major. Lectures in a selected topic in literature or related fields by the regular faculty and/or visiting lecturers.

176T. Genre Film: Form and Function (1–4; max total 8 in 175T and 176T, if no topic repeated) (Same as W S 176T)
Concurrent enrollment in English 76 not permitted. Discussion and close written analyses of selected topics, including such types as comedies, musicals, horror films, westerns, etc.

181. Research Methods (4)
Prerequisite: English major. Introduction to research methods, documentation, biographical research, questions of authorship, problems of establishing accurate texts, historical bibliography, editing of texts, and the academic profession of English. Research assignments, reports, written examination.

182. English Workshop (1–4; max total 8)
Seminar in composition and learning. Discussion and practical exercises concerning theory, evaluation, and improvement of language learning and composition. (Former 183T section, EXP 184)

183T. Seminar in Literature (1–4; max total 8)
Prerequisite: appropriate upper division literature course. Designed for students interested in in-depth study of a literary topic; recommended for liberal studies major. Seminar in an aspect of literary history, type, period, movement, individual author. 183TW sections (Shakespeare's Plays as Scripts, Literature of Death and Aging, Shakespeare on Film and Records, and Redskin and Paleface) meet the upper division writing skills requirement for graduation.

189. Shakespeare (4) (Same as Drama 194)
Reading and written analyses of the major works of Shakespeare.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

191T. Supervised Independent Reading (1–4; max total 4, if no topic repeated)
The student reads works from a literary period (for example, Beowulf to Marlowe, American Literature to Whitman, World Literature: Ancient and Medieval) and discusses them in individual conferences.

192. Projects in English (1–3; max total 3)
Not applicable to English major. Prerequisite: English major. Individual projects in problems related to teaching English composition and literature; for example, tutoring minority students, investigating the effectiveness of programs in English composition and literature, devising new approaches to teaching English.

193T. Seminar in Literary Studies (4; repeatable with different topics)
No more than 12 units of 193T–194T may be applied on the English major. Sections designated by topic. Individual projects. Reading, discussion, and writing of papers centered on individual writers (for example, Milton, D.H. Lawrence), short periods of literary history (for example, Romantic Poets, Modern Novel), literary themes and traditions (for example, Transcendental Vein in American Literature, Arthurian Tradition) literary criticism (for example, Problems in Modern Criticism, Archetype and Myth), and other special topics.

194T. Seminar in Women and Literature (4; repeatable with different topics). (Same as W S 194T)
May be substituted for Engl 193T in the English major; no more than 12 units of Engl 193T–194T applicable to the major. Sections designated by topic. Individual projects. Reading, discussion, and writing papers on individual women writers or some aspect of women in literature; for example, Doris Lessing, Myth and Archtypes of Women. (Former Engl 193T section)

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

250T. Seminar in Literature (4; repeatable with different topics)
Prerequisite: major or minor in English; permission of instructor. Seminar in an aspect of literary history, type, period, movement, or an individual author (for example, Fiction, Seventeenth Century Lyric Poetry, The Irish, Dickens).

261. Advanced Writing: Poetry (4; max total 12)
Prerequisite: permission of instructor. Advanced individual projects in the writing of poetry.

263. Advanced Writing: Fiction (4; max total 12)
Prerequisite: permission of instructor. Advanced individual projects in the writing of fiction.

265. Advanced Writing: Expository (4; max total 12)
Prerequisite: permission of instructor. Advanced individual projects in expository writing.

280T. Seminar in Critical Theory (4; max total 12 if no topic repeated)
Prerequisite: major or minor in English; permission of instructor. Seminar in literary criticism (for example, Literary Critics).

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

291T. Supervised Independent Reading (1–4; max total 4 if no topic repeated)
The student reads works from a literary period (for example, More to Milton, 20th Century American Literature, World Literature, Renaissance-Modern) and discusses them in individual conferences.

299. Thesis or Project (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES

(See *Course Numbering System*)

300. English Colloquium (2; max total 6)

FOREIGN LANGUAGE

FACULTY

Jose A. Elgorriaga, Department Chairman

John M. Barta, Frank Benitez, Wayne S. Bowen, Carmen P. Clough, Helen L. Dmitriew, G. Ronald Freeman, Maurice C. Gendron, June M. Gill, Cordelia Jasutis, Paul F. Kinzel, Leta J. Lewis, M. Margarita Lopez-Urrutia, Elemer J. Nagy, Ransom H. Poythress, Alexander Pronin, David A. Ross, Keith Sauer, Adriana N. Slaniceanu, Edith H. Stock

DEGREES OFFERED: BA—French, German, Russian, Spanish
MA—Spanish

Minor in Armenian, French, German, Latin, Russian and Spanish

DEPARTMENTAL PROGRAMS

The Foreign Language Department aims to teach students to understand, speak, read, and write the foreign languages offered, with varying degrees of emphasis upon those objectives according to their needs and interests; to promote an interest in and an understanding of foreign civilizations and of the problems of foreign nations as they arise day by day; to contribute to students' knowledge of English through comparative study of a foreign language; to prepare students to teach foreign languages in the elementary and secondary schools; and to give specialized professional training for positions such as interpreter, translator, consular representative, and foreign trade specialist. For students majoring or minoring in foreign language, the department recommends an overseas experience of academic and cultural studies. See *Special and Interdisciplinary Programs—International Programs.*

CREDIT ALLOWANCE IN FOREIGN LANGUAGE

Students who wish to continue in a language taken in high school should consult an adviser for placement. Students having two or more years of a given language should take courses beyond 1A. College credit may be earned in any class in which the student is placed, but a student may not receive credit by examination for any course work taken in high school. See also *Degrees and Credentials—Foreign Language Requirement.*

Credit will not be awarded for a lower division foreign language course if the student has received credit for an upper division course in that language.

GENERAL EDUCATION FOREIGN LANGUAGE CREDIT

Up to two semesters of basic course work from any one foreign language (not to exceed eight units) may be applied to Area IV of the General Education requirements. The following courses are applicable: Armenian 1A–B, 2A–B; French 1A–B, 2A, 2B; German 1A–B, 2A–B; Greek 1A–B, 2A–B; Italian 1A–B; Latin 1A–B, 2A–B; Portuguese 1A–B; Russian 1A–B, 2A–B and Spanish 1A–B, 2A–B. See also the Linguistics Department.

CREDENTIAL PROGRAM

For Bilingual/Cross-Cultural Credentials, see School of Education and Human Development—Teacher Education Department—Bilingual/Cross-Cultural Emphasis in Liberal Studies and Bilingual/Cross-Cultural Specialist Credential.

The single subject waiver program in French consists of Fren 101, 102, 109, 120T, 132, 150, and 9 units from Fren 110, 111, 112, 113, 148T, 160T, 190, and FL 131.

The single subject waiver program in German consists of Germ 50A–B, 101A–B, 103T, 150 and 12 units from Germ 112, 114, 116, 118A–B, 135, 137, 146T, 160T.

The single subject waiver program in Spanish consists of 3 units in Span 113, 118, or 120; Span. 122, 123, 125T, 130, 137; 3 units in Span 142 or 143; 9 units of electives.

BACHELOR OF ARTS DEGREE REQUIREMENTS

MAJORS AND MINORS

All majors, except Russian, require upper division units only.

MAJORS

French	*Units*
Fren 101, 102, 109	9
Elect from Fren 110, 111, 112, 113	9
Elect from Fren 120T, 132, 148T, 150, 160T	12
	30

German	
Germ 101A-B	6
German electives, upper division	21
	27

Russian	
Russ 2A-B	8
Russ 101 (9 units), 110, 118A-B, 148A-B	21
	29

Spanish	
Span 118 or 120, 122, 140, 170	12
Spanish electives, upper division (except 110T)	18
	30

Depending upon the specific major, the student is responsible for 27–30 units. In addition to these units, the General Education requirement, special course requirements, and electives, which may include a minor, complete the 94–97 units, totaling at least 124 units required for the BA degree.

MINORS

Armenian

A minor with strong language concentration is offered under Armenian Studies.

French	
Lower Division Courses	6–9
Upper Division Courses	12–15
	21

German	
Germ 2A-B	0–6
Germ 50A-B, 20 (any combination)	6
German electives, upper division	9–15
	21

Latin	
Elect from Latin 1A-B, 2A-B, 131T	15
Latin electives, upper division	6
	21

Russian	
Russ 1A-B, 2A-B	16
Russian electives, upper division	6
	22

Spanish

Span 2A-B or 4A-B, 5, 6, 110T	9
Elec from Span 113, 118 or 120, 122, 123	6
Electives, upper division	6
	21

Students interested in careers in translation are advised to take the following courses: Spanish 115, 116A–B, and 117. Those interested in interpreting should contact the Department.

GRADUATE PROGRAM

The master of arts degree is granted in Spanish. Students interested in graduate study in French and German see the options under the master of arts degree in Linguistics. The master of arts degree program in Spanish language and literature is designed to intensify and extend the knowledge of students desiring further study beyond the baccalaureate degree, students desiring their first graduate degree in anticipation of advanced graduate study, and teachers in secondary schools and colleges. For specific requirements consult the departmental graduate committee chairman; for general requirements, see *Division of Graduate Studies and Research.*

MASTER OF ARTS DEGREE (in Spanish) REQUIREMENTS

The master of arts degree program in Spanish assumes preparation equivalent to a CSUF undergraduate major in Spanish.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternative.*)

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
200-series courses in Spanish	18–30
Upper division electives in Hispanic Linguistics, Spanish Literature and Spanish American Literature	0–12
Approved electives in related fields	0– 3
Total	30

Specific Requirements: Plan A (Thesis Program), Span 299 (6 units). Plan B (Non-Thesis Program), Span 250 (6 units) and successful completion of a comprehensive examination.

Students who intend to go on to a Ph.D. program at another institution are strongly advised to study at least one other foreign language.

COURSES

ARMENIAN (Arm)

1A-B. Elementary Armenian (4-4)

Not open to students with previous training in Armenian. Beginning course of graded lessons acquainting the student with basic structure and pronunciation of Armenian through practice, reading, and writing.

2A-B. Intermediate Armenian (4-4)

Prerequisite: Arm 1A-B. Grammar review; selected readings; compositions and conversations on assigned topics; pronunciation drill.

111. Composition and Conversation (3)

Prerequisite: Arm 2B. Idioms, written translations in Armenian, compositions on assigned topics, oral exercises. Emphasis on grammar and syntax.

112. Advanced Composition and Conversation (3)

Prerequisite: Arm 111. Style in composition; written and oral reports on assigned topics.

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study*

GRADUATE COURSE (Arm)

290. Independent Study (1–3; max total 6)
See *Academic Placement—Independent Study.*

CHINESE (Chin)

See *Linguistics Department*

FOREIGN LANGUAGE (FL)

131. Trends in Foreign Language Teaching (3)
Current trends and issues in foreign language teaching. Evaluation of recent teaching materials. May include on-campus practice in teaching beginning languages.

135. Pronunciation and Phonetics (3)
Intensive practice in the pronunciation, enunciation, and intonation of French, German, Italian, Russian, and Spanish to meet the needs of students in other areas.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

FRENCH (Fren)

1A-B. Elementary French (4-4)
Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of French through practice in speaking, reading, and writing.

2A. Basic Grammar Review (3)
Prerequisite: French 1B. Opportunity to build upon previously acquired knowledge of fundamental structures of French. Course designed for students with one year of college French or high school equivalent.

2B. Reading (3)
Prerequisite: French 1B. Course designed specifically to increase reading skills. Selections from contemporary literary (poetry, prose, theatre) and journalistic expressions. May be taken concurrently with French 4 or French 50.

4. Writing (3)
Prerequisite: French 1B. Opportunity to increase writing skills in preparation for upper division course work in French. May be taken concurrently with French 2B or French 50.

20. Contemporary France: Its Heritage and Influence (3)
Special attention paid to students' interests in formulating topics for this course to include French theatre, music, art, politics, economics, cuisine, education and youth. Guest lecturers. Taught in English.

50. Conversation (3; max total 6)
Prerequisite: Fren 1B. May be taken concurrently with Fren 2A, 2B or 4. Development of listening and speaking skills. Exclusive use of French in an informal class atmosphere. Conversations on assigned topics, extemporaneous discussions.

AREA I. Language and Culture

101. Advanced Composition (3)
Prerequisite: Intermediate French. Written assignments in French on varied topics with emphasis on composition. Written exercises in French on specific points of grammar.

102. Translation (3)
Prerequisite: French 101. Problems and techniques of translation from English into French and French into English. Materials to be translated taken from the fields of science, literature, economics and politics.

120T. Topics in French Civilization (3; max total 6 if no topic repeated)
Prerequisite: Intermediate French. Possible topics: French contributions to Western Civilization (art, music, architecture, history, science). Special emphasis on contemporary France. The history of Anglo-French and Franco-American relations. Linguistic, cultural, intellectual, political, commercial and diplomatic similarities and differences explored. Taught in French.

132. French Phonology and Structural Analysis (3)
Prerequisite: Intermediate French. As a progression toward mastery, an investigation of the French language as a functioning code of verbal communication. Relationships of oral/written aspects and contrasts with American English. Intensive drill on individual pronunciation problems. (Former Fren 130, 137)

150. Advanced Conversation (3)
Prerequisite: Intermediate French. Intensive practice in oral expression in French. Emphasis on current affairs in France.

AREA II. Literature

109. Introduction to French Literature (3)
Prerequisite: Intermediate French. Intellectual background of major literary movements and representative authors from the earliest period to the present. Selected readings. Taught in French. (Former Fren 109A–B)

110. French Theater (3)
Prerequisite: French 109. Drama in France from the Renaissance to the present, with emphasis on the 17th and 20th centuries. Reading and discussion of representative works. (Former Fren 142, 144)

111. The French Novel (3)
Prerequisite: Fren 109. The novel as a reflection of French society. Analysis of major works from various periods. (Former Fren 143, 146)

112. French Prose: Essay and Short Story (3)
Prerequisite: Fren 109. Analysis of prose works by such authors as Montaigne, Voltaire, Maupassant, Camus, Sartre. (Former Fren 141)

113. Masterpieces of French Poetry (3)
Introductory course in poetry as a genre; principles of French versification. Students will be exposed to major contributions of the French in poetry. Thematic and/or chronological presentations (movements, "isms"). (Former Fren 145)

148T. Topics of French Literature in Translation (3; max total 9 if no topic repeated)
Three units credit may be applied to French major or minor upon request. Studies of literary movements, genres or major authors; selected readings, discussions, written analyses.

160T. Selected Topics in French Studies (1–3; max total 6 if no topic repeated)
Topics chosen from French literature (genre, themes, movements), from French linguistics (History of the Language; Contrastive Analysis: English/French), or French Culture and Civilization.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES (Fren)
(See *Course Numbering System—Definitions and Eligibility*)

211. Historical Linguistics (3)
Prerequisite: 24 upper division units in French. History of the phonological, morphological, syntactical, and lexical development of the French language from its origins to the present, through study of representative texts.

212. Comparative Synchronic Linguistics (3)
Prerequisite: undergraduate major. Language learning problems as seen through comparison of the structure of American English and French.

220T. Seminar in French Literature (3; max total 9 if no topic repeated)
Prerequisite: 24 upper division units in French.

250. Directed Reading (3; max total 6)
Prerequisite: 24 upper division units in French.

290. Independent Study (3; max total 6)
See *Academic Placement—Independent Study.*

299. Thesis or Project (2–6; max total 6)
Prerequisite: *See Master's Degrees-Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

GERMAN (Germ)

1A-B. Elementary German (4–4)
Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of German through practice in speaking, reading, and writing.

2A-B. Intermediate German (3–3)
Prerequisite: Germ 1B. (A) Grammar review; reading and conversation. (B) Reading and practice in conversation.

20. Germany: Heritage and Influence (3)
The contribution of Germany in education, music, art, and other aspects of German civilization. The uniqueness of its contribution and influence is emphasized. Lectures and short reports. Conducted in English.

50A-B. Oral German (3–3)
Prerequisite: Germ 1B. May be taken concurrently with Germ 2A or 2B. Conversation on assigned topics; brief talks by students; short scenes from plays.

101A-B. Composition (3–3)
Prerequisite: Germ 2B. Idioms; written translations in German; compositions on assigned topics; oral exercises. Emphasis on grammar and syntax.

103T. Topics in German Culture (3; max total 6 if no topic repeated)
Prerequisite: Germ 2B. Studies in principal aspects of German culture and civilization, history, thought, customs, institutions.

112. German Literature to 1750 (3)
Prerequisite: Germ 2B. Lectures and discussions; selected readings.

114. Classical Age of German Literature (3)
Prerequisite: Germ 2B. Reading and discussion of representative writings of Lessing, Goethe, and Schiller.

116. Nineteenth Century Literature (3)
Not open to students with credit in 116A-B. Prerequisite: Germ 2B. Reading and discussion of representative selections from major 19th Century German authors.

118A-B. Twentieth Century Literature (3–3)
Prerequisite: Germ 2B. Analytical and critical study of twentieth century literary production of Germany. Discussion and short reports.

135. History of the German Language (3)
Prerequisite: Germ 2B. Development of the German Language from earliest times to the present.

137. Applied Linguistics (3)
Prerequisite: Germ 2B. Analysis of the phonological, morphological, syntactical, and lexical structure of German; conflicts with English structure; linguistic problems.

146T. Germanic Literature in Translation (3; max total 12 if no topic repeated)
Major Germanic authors, movements, and genre. Selected readings, lectures and discussions in English. Only 3 units of credit may be applied to German major.

150. Advanced Conversation (3)
Prerequisite: Germ 2B. Intensive practice in oral expression in German. Emphasis on current affairs in Germany.

160T. Selected Literary Topics (1–3; max total 12 if no topic repeated)
Prerequisite: Germ 2B. Intensive study of significant topics through selected literary texts; analysis, discussion, and evaluation of specific genres, themes, movements, and literary problems.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES (Germ)
(See *Course Numbering System—Definitions and Eligibility*)

220T. Seminar in Literature (3; max total 12 if no topic repeated)
Prerequisite: completion of an undergraduate major in German. Study of an aspect of literary history: genre, period, movement, or individual author.

240T. Seminar in Germanic Languages (3; max total 12 if no topic repeated)
Study of older Germanic languages and special linguistic problems.

290. Independent Study (1–3)
See *Academic Placement—Independent Study.*

GREEK (Grk)

1A-B. Elementary Greek (3–3)
Fundamentals of Classical and New Testament Greek with practice in the reading and writing of the Greek language.

2A-B. Intermediate Greek (3–3)
Prerequisite: Grk 1B. Intensive study of grammar and syntax. Readings of intermediate difficulty with selections from Classical and New Testament writers.

148. Greek Literature in English Translation (3)
Analysis of selected works of major Greek poets, writers and thinkers from Homer to Lucian. Lectures, discussions, reports on readings.

HEBREW (Hebr)

See *Linguistics Department.*

ITALIAN (Ital)

1A-B. Elementary Italian (3–3)
Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of Italian through practice in speaking, reading, and writing.

2A-B. Intermediate Italian (3–3)
Prerequisite: Italian 1B or permission of instructur. Opportunity to build upon previously acquired knowledge of fundamental structures of Italian. Designed for students with one year of college Italian or high school equivalent.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

JAPANESE (Japn)

See *Linguistics Department.*

LATIN (Latin)

1A-B. Elementary Latin (3–3)
Elements of Latin grammar with its practical relation to Romance languages and English. Background study: Roman culture and its relevancy to the Western world.

2A-B. Intermediate Latin (3–3)
Prerequisite: Latin 1B. Intensive study of grammar and syntax; use of the subjunctive mood in clause construction. Selected readings from Latin authors.

31. Latin and Greek for English Vocabulary (3)
Previous knowledge of Latin and Greek unnecessary. Analysis of Latin and Greek elements in English words; emphasis on practical use.

131T. Classical, Medieval, Renaissance Latin (3; max total 9 if no topic repeated)
Prerequisite: Latin 2B. Readings in prose and poetry of representative writers in Classical, Medieval, and Renaissance Latin literature.

132. Classical Mythology (3)
Greco-Roman myths, emphasis on their impact on the fine arts and literatures of the Western World. Illustrated lectures. Taught in English.

148. Roman Literature in English Translation (3)
Analysis of selected works of major Roman authors from Plautus to St. Augustine. Lectures, discussions, readings.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

PORTUGUESE (Port)

1A-B. Elementary Portuguese (3–3)
Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of Portuguese through practice in speaking, reading, and writing.

RUSSIAN (Russ)

1A-B. Elementary Russian (4–4)
Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of Russian through practice in speaking, reading, and writing.

2A-B. Intermediate Russian (4–4)
Prerequisite: Russ 1B as determined by examination. (A) Review of grammar and syntax; composition; oral practice; reading of short stories. (B) Oral and written composition. Conducted in Russian.

50. Oral Russian (2)
Prerequisite: Russ 1B, 2A, or 2B. Oral drill for intonation and pronunciation; conversation on assigned topics, brief talks; extemporaneous discussions.

101. Composition and Conversation (3; max total 9)
Prerequisite: Russ 2B. Continuation of prose composition and oral-aural practice for mastery of the finer points in grammar and syntax.

103T. Topics in Russian Culture (3; max total 9 if no topic repeated)
Credit may not be applied to Russian major and minor requirements. Sections designated as emphasizing Russian-Soviet culture and Socialist realism, Russian folk arts and folklore. Lectures illustrated with films and other audio-visual media. Taught in English.

110. Landmarks in Russian Literature (3)
Chronicles, Byliny, Tales, Kievan Literature, Moscovite Literature, the Petrine Epoch, the Epoch of Catherine II, and the rise of the 19th century literary Giants.

118A-B. Twentieth Century Literature (3–3)
Prerequisite: Russ 2B. Analytical and critical study of the twentieth century literary production of Russia. Outside readings.

127T. Soviet Russian Topics (3; max total 9 if no topic repeated)
Sections designated as emphasizing landmarks in Russian literature. Russian underground, protest, and emigre works. Lectures illustrated with films and other audio-visual media. Taught in English.

148A-B. Russian Literature in Translation (3–3)
Prerequisite: upper division standing. Selective readings of major Russian literary works. Lecture, discussion. (A) Pushkin, Tolstoy, Dostoyevski. (B) Nobel prize winners: Solzhenitzyn, Pasternak, Sholokhov.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study*

SPANISH (Span)

1A-B. Elementary Spanish (4–4)
Beginning course to acquaint the student with the basic structures through practice in listening, speaking, reading, and writing.

2A-B. Reading and Speaking Spanish (3–3)
Not open to students with credit in Span 4A-B. Prerequisite: Span 1B or permission of instructor. Development of the student's ability to understand, speak, read, and write Spanish. (Former Span 20A–B)

4A-B. Spanish for the Bilingual Student (3–3)
Not open to students with credit in Span 2A-B. For students with a bilingual background. Emphasis on reading and conversation; some grammar review and writing. (Former Span 40A–B)

5. Spanish for Conversation (3)
Prerequisite: Span 1B. Emphasis on spoken Spanish; development of oral fluency through class discussion, conversation games and vocabulary exercises. (Former Span 50)

6. Intermediate Conversation and Reading (3)
Prerequisite: Span 2A. Development of oral fluency through panel discussions, individual presentations and group interaction. Readings on culture and current events.

8T. Fundamental Skills in Spanish (1–2; max total 4 if no topic repeated)
Instruction in fundamental problems in writing and word usage, such as accentuation, spelling and vocabulary. Intended primarily for students who need more work in specific areas of writing and speaking. Must be taken CR-NC grade only.

AREA I. Bilingual Studies

102. Spanish for the Bilingual Child (3)
Linguistic analysis of the child's language. Use of testing techniques to determine child's language competencies. Analysis of problems that occur in the teaching of reading in Spanish. Practical application of linguistic theory to classroom situations. (Former Span 132)

104. Spanish in Bilingual Schools (3)
Emphasis on Spanish language development for bilingual teachers at the elementary level. Presentation of specialized vocabulary in teaching elementary courses. Development and evaluation of bilingual teaching materials in Spanish. (Former Span 134)

106T. Children's Literature in Spanish (3)
Examination of children's stories, poems, rhymes and songs written, composed or available in Spanish. Practice in the techniques of story-telling. Dramatizations of children's stories in Spanish. Presentation of puppet plays. (Former Span 144 and 145)

AREA II. Language and Translation

110T. Practical Spanish for Professions (3; max total 12 if no topic repeated)
Applicable for minor. Preparation of professionals and paraprofessionals in California Spanish to work with the Spanish speaking in the following fields: health, education, social work, business, law, agriculture, and psychology. (Former Span 100T)

111T. Advanced Practical Spanish for Professions (3; max total 12 if no topic repeated)
Applicable for minor and major. The variety of structures and fluency to be acquired by interpreters in any specific field. Training in the simplification of technical language.

113. Patterns of Spanish (3)
Recommended for majors and minors. Verb synonyms. Quantitative and qualitative usage of verbs. Acquisition of the following skills: narration, description, argumentation and expression of feelings through syntactical variations and substitution of verbs. Attention is focused on the formation of a sentence not on the composition of a paragraph.

115. Basic Principles of Translation (3)
Specific problems of Spanish to English and English to Spanish translation, with emphasis on idiomatic expressions. Some attention to specialized vocabulary. Use of bilingual dictionaries. (Former Span 105)

116. The Art of Translation (3)
Not open to students with credit in Span 116A–B. Mini-projects dealing with the differences between oral and written styles, idioms, metaphors, slang, technical vocabulary, as well as structural and semantic factors. (Former Span 116A–B)

117. Problems in Translating from English into Spanish (3)
Open only to students with credit in Span 116. Advanced work in translating a variety of materials into Spanish. Analysis of the special problems encountered in different fields. Emphasis on the translation of public documents. (Former Span 185)

118. Spanish Composition for Bilinguals (3)
Not open to students with credit in Span 120. Refinement of writing skills through vocabulary development, spelling exercises and composition. Special emphasis on problems created by differences between the spoken and written language.

120. Composition and Reading (3)
Not open to students with credit in Span 118. Development and refinement of writing skills. Intensive practice in expository and imaginative composition. Analysis of original compositions with attention to common problems of accentuation, spelling and grammar.

122. Grammar and Composition (3)
Special emphasis on grammar review and development of writing skills. Analysis of grammatical constructions.

123. Advanced Conversation and Reading (3)
Reading and discussion of current periodicals, newspapers, and magazines that reflect the cultural patterns of the Spanish-speaking countries.

AREA III. Hispanic Culture

125T. Hispanic Culture (3)
Examination of the cultural patterns of Spain and Spanish America through readings, lectures, films and other media. Frequent written and oral reports by students. (Former Span 125, 126, 129)

AREA IV. Spanish Linguistics

130. Phonetics and Pronunciation (3)
Analysis of the Spanish sound system. Practice in pronunciation and discussion of problems encountered by English speakers. Development of techniques and materials in teaching Spanish pronunciation.

137. Applied Spanish Linguistics (3)
Analysis of the Spanish language with emphasis on areas which cause the greatest problems in learning and teaching of the language. Readings, discussion and practice in the development of instructional strategies and materials. (Former Span 133, 137A–B)

139. Spanish of the Southwest (3)
Research on dialect differences in California and the Southwest, including the linguistic, social, and cultural determinants. Emphasis on the Spanish of the San Joaquin Valley.

AREA V. Hispanic Literature

140. Hispanic Fiction and Poetry (3)
Readings and appreciation of Hispanic literature to familiarize the student with the fiction and poetry as art forms.

142. Introduction to Spanish Literature (3)
Selected readings from those literary works which have fundamentally affected the development of Spanish civilization, from El Cid to Lorca. Provides an historical framework for the study of Spanish literature.

143. Introduction to Spanish-American Literature (3)
Selected readings from those literary works which have fundamentally affected the development of Spanish American civilization, from Hernán Cortés to Octavio Paz. Provides an historical framework for the study of Spanish American literature.

145. Mexican Literature (3)
Study of the works of such major Mexican literary figures as Sor Juana, Gutiérrez Nájera, Azuela, and Fuentes. (Former Span 173)

147. Twentieth Century Spanish-American Literature (3)
Intensive study of selected Spanish-American works including writings of Azuela, Fuentes, Carpentier, Vargas Llosa; outstanding poets such as Neruda, Vallejo, and Paz. (Former Span 176T)

148T. Major Figures in Hispanic Literature (3; max total 6 if no topic repeated)
Reading and analysis of the works of one major Hispanic author such as Cervantes, Unamuno, Neruda.

149T. The Golden Age (3)
A study of Spanish Renaissance Man and his environment. His socio-politico, esthetic and literary ideas will be studied through readings in Garcilaso, San Juan de la Cruz and other authors. (Former Span 163T section, Span 182)

150T. Twentieth Century Spanish Literature (3)
A study of Spanish Existential Man. His socio-politico, esthetic and literary ideas will be studied through readings in Unamuno, Ortega y Gassett, Lorca, José Hierro and other authors. (Former Span 165, 166T section, Span 184)

170. Senior Seminar in Spanish Studies (3)
Prerequisite: Twenty upper division units of Spanish course work or graduate standing. Designed to meet the individual needs of students about to graduate. Diagnostic testing in language, linguistic, cultural and literary proficiency. Readings, research projects and assignments.

190. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES (Span)

(See *Course Numbering System—Definitions and Eligibility*)

217. Spanish Translation (3–6; max total 6)
Prerequisite: Span 116 or permission of instructor. Advanced work in the field of translation. Attention to the translation of public documents, particularly in the areas of government, business, and law, as well as translation of literary works.

220. Hispanic Linguistics (3; max total 9 if no topic repeated)
In-depth analysis of the Spanish language through the study of the following areas: diachronic linguistics, synchronic linguistics, and dialectology.

230. Spanish Literature (3; max total 9 if no topic repeated)
Seminar in critique and analytical study of selected topics, genres or specific literary figures in each of the following areas: Medieval Period, Renaissance Period, Golden Age, 18th-19th Century, and 20th Century.

240. Spanish-American Literature (3; max total 9 if no topic repeated)
Seminar in critique and analytical study of selected topics, genres or specific literary figures in each of the following areas: Colonial Period to 1810, 19th Century to 1910, 20th Century.

250. Directed Reading (3; max total 6)
Prerequisite: Approval of the MA student's graduate committee chairman. Reading from a selected reading list in preparation for comprehensive master's degree examination.

290. Independent Study (2-3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis or Project (3-6; max total 6)
Prerequisite: See *Master's Degrees-Thesis Requirement.* Preparation, completion and submission of an acceptable thesis or project for the completion of the Master's degree.

IN-SERVICE COURSES (Span)

(See *Course Numbering System.*)

301. Conversation and Composition Review (2; max total 8 if no language repeated)

304. Theory and Practice (2; max total 8)

JOURNALISM

FACULTY

James B. Tucker, Department Chairman

E. S. Lorimor, Arthur H. Margosian, Dayle H. Molen, B. Schyler Rehart, Jr., H. Roger Tatarian

DEGREES OFFERED: BA

Minor

Options

Advertising
News—Editorial
Public Relations
Radio-TV News Communication
Photocommunication

DEPARTMENTAL PROGRAMS

The program leading to a bachelor of arts degree in journalism prepares students for communications and editorial employment with newspapers, magazines, radio and television stations, and for related types of work in public relations, industrial journalism, technical journalism, general publishing, advertising, and teaching. A broad general education is required in addition to special study in journalism. Majors are advised to take electives in various areas and keep journalism units near the minimum required for a major. An interdisciplinary graduate program for the master of arts degree in Mass Communication is jointly offered by the journalism and radio-television faculties. See *Special and Interdisciplinary Programs—Graduate Studies.*

The news-editorial sequence is accredited by the American Council on Education for Journalism. The department is a member of the American Association of Schools and Departments of Journalism and the American Society of Journalism School Administrators.

BACHELOR OF ARTS DEGREE REQUIREMENTS

In preparation for the field of journalistic communication, students may follow a program in one of several sequences. The department offers study in news-editorial, advertising, public relations, radio-television news communication, and photocommunication. All of the sequences are related by fundamental skills, and each major requires a basic core program. The sequences, however, vary in their individual requirements, and students who wish to specialize in these areas must complete those courses listed under the specified headings.

The journalism major consists of 33 units, 24 of which must be in upper division courses. In addition to the specific journalism courses, each sequence has requirements which must be courses other than those in general education. All sequences also require passing the department's language qualification test. The test is given during advising week and the first week of classes each semester. Passing the test is required for admission into most of the department's writing and editing courses. Journalism 5, a remedial course, is offered for students whose language skills need improvement.

The student is responsible for the completion of the core requirement (9 units), the selected option (24 units) as outlined below, additional requirements as noted, along with the completion of the General Education requirement, special course requirements, and electives (91 units) totaling at least 124 units required for the BA degree.

JOURNALISM CORE

	Units
Jour 1, 8, 114	9

Options

News-Editorial

Jour 100, 110, 181, 184, 188	15
Additional journalism courses approved by department	9
	24

Additional Requirements (excluding journalism and courses used for general education requirements); Ind A 60, 12 units approved by department.

Advertising

	Units
Jour 113, 145, 146 (2 semesters), 155, 175	18
Additional journalism courses approved by department	6
	24

Additional Requirements (excluding journalism and courses used for general education requirements); Ind A 60, Mktg 100, 9 units approved by the department.

Public Relations

	Units
Jour 100, 110, 113, 145, 173	15
Additional journalism courses approved by department	9
	24

Additional Requirements (excluding journalism and courses used for general education requirements); Ind A 60, 12 units approved by department, including 6 units in a specific area.

Radio and Television News Communication

	Units
Jour 100, 110, 128, 129, 130	15
Additional journalism courses approved by department	9
	24

Additional Requirements (excluding journalism and courses used for general education requirements); 12 units approved by department, including R-TV 40 plus at least two additional radio-television courses.

Photocommunication

	Units
Jour 17, 100, 116, 117, 187	15
Additional journalism courses approved by department	9
	24

Additional Requirements (excluding journalism and courses used for general education requirements): Ind A 60, R-TV 70, 170; 6 units from Art 21, 30, 130, 181, 182, 183, 184, Ind A 145, 161, Drama 180A, 182A, 182B

JOURNALISM MINOR

A minor in journalism consists of 20 units including a required core of 6 units and 14 units in one of the areas of concentration.

CORE

	Units
Jour 8, 114	6

Options

News-Editorial

	Units
Jour 100, 110, 188	9
Journalism electives	5
	14

Advertising

Jour 145, 146, 155	9
Journalism electives	5
	14

Photocommunication

Jour 17, 100, 117	9
Journalism electives	5
	14

Public Relations

Jour 100, 113, 173	9
Journalism electives	5
	14

Radio and Television News Communication

Jour 100, 128, 130	9
Journalism electives	5
	14

MASTER OF ARTS DEGREE IN MASS COMMUNICATION

The graduate program leading to the master of arts degree in Mass Communication with emphasis in the print media is based upon undergraduate work in journalism. For requirements, consult the department chairman; for courses see *Division of Graduate Studies and Research—Interdisciplinary Courses.* Detailed information about the graduate program may be obtained from the Office of the Division of Graduate Studies and Research.

COURSES

JOURNALISM (Jour)

1. Mass Communications (3)

Survey of the mass media of communication, including newspapers, magazines, radio and television; related agencies and fields of communicative enterprise, such as press associations, feature syndicates, advertising, and public relations.

2. Interpreting Current Events (3)

Analysis and discussion of major world news events as they occur with readings from periodicals reflecting various shades of opinion; analysis of various media for objectivity, emphasis and political or nationalistic coloration.

5. Basic Editing (3)

Open only to Journalism majors. Recommended for all journalism majors who fail to pass the language qualification test. Review of basic language skills and editing practice.

8. News Writing (3)

Prerequisite: Pass language qualification test, at least second-semester freshman standing. Preparation of varied news stories with speed and accuracy; introduction to basic news sources; techniques of interviewing; problems encountered by reporters; ethical and legal considerations. (2 lecture, 2 lab hours)

17. Introductory and Publications Photography (3)

Survey and instruction in beginning publications photography; use of camera equipment for black-and-white; photographs; laboratory experience in basic processing and printing. (2 lecture, 3 lab hours)

100W. Reporting (3)

Prerequisite: Pass language qualification test, Jour 8. Analysis of news sources; techniques of interviewing applied to specific reporting situations; coverage of campus and community functions in the preparation of articles for publication. (2 lecture, 2 lab hours) Meets the upper division writing skills requirement for graduation.

106. Specialized Publications (3)

Survey, design and editing of specialized publications for advertising, public relations, and technical use. Includes magazines, brochures, fliers and other publications.

110. Advanced Reporting (3)

Prerequisite: Pass language qualification test, Jour 100. Practice in handling advanced news writing and reporting assignments in a newsroom environment; preparation of interpretative and investigative articles for publication. Department newspaper used for laboratory purposes. (8 lab hours, 4 hours arranged)

113. Public Relations (3)

Development of public relations practice; principles and methods; application in business, education, and other fields.

114. Editing of Publications (3)

Prerequisite: Pass language qualification test, Jour 8. Editing copy; writing headlines; using type effectively; handling telegraph copy; making up newspapers, lab use of department newspaper. (2 lecture, 2 lab hours)

116. Photo Editing (3)

Study of the use and potential use of photographs in various types of publications. Instruction in how to identify and to obtain quality photographs for publication.

117. Advanced Press Photography (3)

Prerequisite: Jour 17. Use of news cameras for photographic reporting; evaluation and preparation of pictures for publication; field and laboratory experience in flash and extension lighting, filters; advanced uses and processing of high speed films, efficient processing methods. (2 lecture, 3 lab hours)

120. Newspaper Workshop (3; max total 6)

Prerequisite: Jour 110. Practice in comprehensive, depth reporting and executive news work; use of Journalism Department newspaper for laboratory purposes. (1 lab hour, 10 hours arranged)

124W. Magazine Feature Writing (3)

Prerequisite: Pass language qualification test. Writing and marketing varied kinds of feature material used by magazines, Sunday newspaper supplements, and syndicates. Meets the upper division writing skills requirement for graduation.

126. Critical Writing (3)

Prerequisite: Pass language qualification test, Jour 110, 188. Critical analysis of structure and content of editorials, other opinion pieces, and interpretative articles. Practice in writing editorials and critical essays. (2 lecture, 2 lab hours)

127. Multimedia Journalism (3)

Not open to students with credit in Jour 139T, Multimedia Journalism. Prerequisite: permission of instructor. Survey and practice in multimedia field for communications, especially as public relations or advertising tool. Examination of multi-image forms, including production and uses. Emphasis placed on slide-tape and its production. (Former Jour 139T section)

128. Radio and Television News Writing (3)

Prerequisite: Pass language qualification test, Jour 8. Gathering, writing, editing news for radio and television. (2 lecture, 2 lab hours)

129. Field Work in Broadcast News (3)

Prerequisite: Pass language qualification test, Jour 8, 128, and permission of instructor. Gathering, writing, and editing broadcast news in live studio situations.

130. Problems of Broadcast Journalism (3)

Prerequisite: upper division standing. Sociological and journalistic study, including evaluation of historical development, legal problems, and traditional and contemporary criticism of broadcast journalism.

139T. Topics in Journalism (1–3; max total 6)

Analysis and investigation of selected areas in mass communications including current developments in advertising, public relations, broadcast news, print media, photocommunications, and journalism education.

142. Radio and Television News Broadcasting (3) (See R-TV 142)

145. Advertising Procedures (3)

Overview of all aspects of the field of advertising. Study of history, agent-client relationships, all media, relationship to the behavioral sciences, production of copy and layouts, and advertising legislation and responsibility.

146. Newspaper Advertising Staff (3; max total 6)

Prerequisite: Jour 145. Newspaper advertising staff designed to give students practice in selling and servicing accounts, creating and producing advertisements: department paper used as a laboratory.

155. Print Advertising Copy Writing (3)

Prerequisite: Jour 145. Print media advertising copy writing and design. Print media in relationship to advertising and society.

160. Advertising Media (3)

Prerequisite: Jour 145. Analysis of strengths and weaknesses of all media and their relationship to advertising. Market research, media research and the effect of the medium on the message.

165. Broadcast Copy Writing (3)

Prerequisite: Jour 145. Broadcast media in relationship to advertising and society. Writing and production of commercials for radio and television.

173. Public Relations: Programs and Problems (3)

Prerequisite: Jour 8, 113. Development, assessment, and evaluation of public relations in business, education, philanthropy, and other field practice.

175. Advertising Campaigns (3)

Prerequisite: Jour 145, 155, or 160. Background, planning, and preparation of advertising campaigns. Term campaign, in advertising agency groups, with client-agency setup; analysis of campaigns and their effectiveness.

181. Laws of Communication (3)

Libel, right of privacy, right of confidence, contempt by publications, property rights in manuscripts, infringement, copyright, postal laws.

182. The Press and World Affairs (3)
The role of the world press, radio and television in national and international affairs.

183. Public Opinion and Propaganda (3)
Not open to students with credit in Jour 185 or 189. Examination of the theories of social control as they are utilized in the mass media. The nature, effects and measurement of U.S. public opinion, including various theories on relationships between voter attitudes and public opinion polls.

184. History of Journalism (3)
Historical backgrounds of American press; development from colonial to modern times; newspapers and allied media as political and social forces.

186. Media of Communication (3)
Impact of mass media on society. Includes problems, contributions, criticisms and contemporary issues of the mass media.

187. Photocommunication Projects (3; max total 6)
Prerequisite: Jour 17, 117. Designed to allow students to pursue in-depth and individualized study and practice in advanced photographic skills related to the field of photocommunication; to include special lighting effects, posing, advanced darkroom skills, action photography, candid photography and color.

188. Reporting of Public Affairs (3)
Prerequisite: Pass language qualification test, Jour 100. Methods and field work in reporting courts and municipal, county, state and federal governments. (2 lecture, 2 lab hours)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

193. Field Work in Public Relations (3)
Prerequisite: Jour 8, 113 and permission of instructor. Supervised work experience in public relations; analyses in periodic meetings and reports.

196. Public Relations Practice (1–3; max total 3)
Prerequisite: permission of instructor. Internship in public relations with agencies, institutional offices, organizations or other media. Reports made regularly to instructor.

197. Photocommunication Practice (1–3; max total 3)
Prerequisite: permission of instructor. Internship on regional newspapers, television stations, advertising agencies, or other media which use photocommunication. Reports made regularly to instructor.

198. Newspaper Practice (1–3; max total 3)
Prerequisite: permission of instructor. Internship on regional newspapers and radio and television stations. Reports made regularly to instructor.

199. Advertising Practice (1–3; max total 3)
Prerequisite: permission of instructor. Internship in advertising departments of regional mass media and with advertising and public relations agencies. Reports made regularly to instructor.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

See *Mass Communication, Division of Graduate Studies and Research—Interdisciplinary Courses.*

IN-SERVICE COURSE

(See *Course Numbering System.*)

353. Topics in Journalism (1–3; max total 9 if no topic repeated)

LINGUISTICS

FACULTY

Raymond S. Weitzman, Department Chairman

Frederick H. Brengelman, Edward R. Gammon, P. J. Mistry, George W. Raney, Milton Wohl, Jack B. Zeldis

DEGREES OFFERED: BA, MA

Minor
Option (Graduate)
Bilingual-Bicultural Studies

DEPARTMENTAL PROGRAMS

Linguistics is a branch of humanistic science concerned with understanding the nature of human language as a system of communication, its functions in human society, its historical development, its diverse manifestations in the form of individual languages and dialects, and its role in human thought.

In explaining how people *talk,* linguistics offers basic language theories and provides a framework for the description and analysis of any of the world's 4,000–5,000 different languages, including, but not limited to, modern English.

The Linguistics Department offers programs leading to a bachelor of arts degree, a master of arts degree, and a minor in linguistics. Courses in General Linguistics, English Linguistics, and Applied Linguistics are offered. Specific areas covered include analysis of the structure of human language; linguistic history; structure, history and varieties of the English language; principles and strategies for teaching English as a second language; linguistic approaches to spelling and reading, etc. Courses in several non-Western languages are also offered.

BACHELOR OF ARTS DEGREE REQUIREMENTS

To complete the major for the BA degree, students must complete 30 units in one of the patterns outlined below, the General Education requirement, special course requirements, and electives, (94 units) totaling at least 124 units required for the BA degree.

The BA program in linguistics is diversified but integrated. It prepares the student for a variety of careers in such fields as bilingual-bicultural education and the teaching of English as a Second Language.

At present, three options are available to linguistics majors: 1) English as a Second Language, 2) Spanish-English Bilingualism, and 3) Black Dialectology. In each of these options the student receives a basic grounding in the nature and structure of human language.

English as a Second Language

	Units
Ling 10 or 135, 134, 141	9
Elect from Ling 132, 136, 138, 171	6
Approved electives	15
	30

Spanish-English Bilingualism

Ling 10 or 135, 134, 141	9
Elect from Ling 132, 136, 147, 148	6–9
Electives from La Raza, Spanish, Linguistics	12–15
	30

Black Dialectology

Ling 10 or 135, 134, 141	9
Elect from Ling 132, 136, 147, 148	6–9
Electives from Ethnic Studies and Linguistics	12–15
	30

LINGUISTICS MINOR

A minor in linguistics consists of at least 20 units.

	Units
Ling 135, 137	6
Elect from Ling 138, 140T, 142, 143, 144	8–9
Approved electives in related fields	6
	20–21

GENERAL EDUCATION FOREIGN LANGUAGE CREDIT

Up to two semesters of basic course work from any one foreign language (not to exceed eight units) may be applied to Area IV of the General Education requirements. The following courses are applicable: Chinese 1A–B, 2A–B; Hebrew 1A–B; and Japanese 1A–B, 2A–B; Sanskrit 10A–B. See also the Foreign Language Department.

BILINGUAL/CROSS-CULTURAL CREDENTIALS

See School of Education and Human Development—Teacher Education Department—Bilingual/Cross-Cultural Emphasis in Liberal Studies and Bilingual/Cross-Cultural Specialist Credential.

GRADUATE PROGRAM

The master of arts degree in linguistics focuses on the nature and structure of language and the methodology for the scientific study of language. It is designed to prepare for advanced graduate study in linguistics, to increase the competence of teachers of English as a foreign language, and for numerous other language-related occupations. The master of arts degree is open to students with undergraduate majors in anthropology, communicative disorders, English, foreign language, mathematics, philosophy, psychology, and other related fields. An option in bilingual-bicultural studies is available for students wishing to emphasize Spanish-English bilingualism or black dialectology. For specific requirements consult the departmental adviser; for general requirements see *Division of Graduate Studies and Research.* Students who are interested in the linguistics aspects of the French or German languages may select one of the formal emphases which are offered in cooperation with the Department of Foreign Languages.

The master of arts degree program in linguistics assumes a baccalaureate degree major in an appropriate field and at least two upper division courses in linguistics. Graduate students are required to take a minimum of 12 units of graduate level courses (excluding Ling 290 and 299), a comprehensive examination, and to write a thesis.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, and Thesis.*)

One of the requirements for advancement to candidacy for the master of arts degree in linguistics is the passing of an examination demonstrating a reading knowledge of one foreign language. Students whose native language is not English may use the English language to meet the foreign language requirements.

MASTER OF ARTS DEGREE REQUIREMENTS

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
Courses in linguistics (See *specific requirements*)	16
Approved upper division or graduate courses in linguistics or related fields	14
Total (at least 15 units in 200-series courses)	30

Specific Requirements: Ling 135 (if not taken as undergraduate preparation); 142 and 143 (or equivalent); 299. Upon examination of the student's record other courses will be specified to produce a coherent program.

FRENCH AND GERMAN EMPHASES

Students wishing master's degrees with concentrations in French or German may select the French or German emphases in the master's degree in linguistics. (See *Linguistics.)* Graduate courses in French and German are available for use in these options. All have prerequisites of 24

upper division units in the language or permission of the instructor.

Emphasis in French. Two courses from Fren 211, 212, 220T. Thesis topic should be in French linguistics. The GRE Advanced Test in French should be taken prior to advancement to candidacy.

Emphasis in German. Germ 220T, 240T. Thesis topic should be in German linguistics. The GRE Advanced Test in German should be taken prior to advancement to candidacy.

COURSES

LINGUISTICS (Ling)

10. Introduction to Language (3)
The nature and study of language. Human and animal language, languages of the world, sound and writing systems, systems of grammar, linguistic change, child language acquisition, role of language in society.

132. Linguistics and Reading (3)
Relations between written and spoken language, the English spelling system; regional and social dialects of English; language development and language learning. Analysis of published materials. (Former Ling 140T section)

134. Structure of English (3)
An introductory survey of the structure of English: sounds, spelling, word formation, and grammar. Applications to language arts teaching and to the development of language skills.

135. General Linguistics (3)
Human language and its characteristics. The nature and description of phonological, grammatical and semantic systems. Procedures for establishing language relationships and investigation of linguistic changes. Relationship between linguistics and allied areas.

136. Varieties of English (3)
The regional, social, and stylistic varieties of modern English. Emphasis on Black dialect and on the English of Mexican-Americans. (Former Ling 131)

137. American English (3)
Prerequisite: Ling 134 or 135. Studies in the linguistic structure of modern English.

138. History of the English Language (3)
Study of the development of the sound system, grammar, vocabulary, and writing system of English.

139. General Phonetics (3)
Introduction to the phonetic properties of human languages, descriptive analysis of the speech sounds in a wide variety of languages; articulatory and acoustic aspects of speech; practice in production, perception and transcription of speech sounds, introduction to experimental techniques. (Former Ling 140T section)

140T. Topics in Linguistics (1-4; max total 12 if no topic repeated)
Topics to be offered at the discretion of the department: historical, contrastive, mathematical, and other areas of linguistics.

141. English as a Foreign Language (3)
Theories, techniques, and procedures in TESOL (Teaching English to Speakers of Other Languages); contrastive analysis of target and native language; the audio-lingual method; ESL (English as a Second Language) as a strand in bilingual education; cognitive vs. behavioristic view of language learning.

142. Phonology (3)
Prerequisite: Ling 135. The sound patterns of human language. Phonemic theory and analytical techniques. Distinctive feature theory and analysis. Major phonological processes and their description.

143. Syntax (3)

Prerequisite: Ling 135. Theory and practice in the description of grammatical systems. Comparison of approaches. Practical experience with data.

144. Field Methods in Linguistics (3)

Prerequisite: Ling 135. First-hand experience in eliciting linguistic data from informants; practice in analyzing and describing a language.

145. Historical Linguistics (3)

Prerequisite: Ling 135. Explanation of similarities among languages; methods of reconstructing past languages and investigating relationship and grouping among languages. Inquiry about the nature and types of linguistic change and their correlation with changes in culture.

147. Bilingualism (3)

An examination of psychological and sociological factors affecting individuals who attempt to function simultaneously in two different cultural environments, employing two separate linguistic codes. Review and comparison of past experience as well as current experimental programs in bilingual education.

148. Sociolinguistics (3)

Methods of investigation and major findings in the study of the relationship between languages of the world and social class, race, age, sex and other social subcategories. Political and educational implications. Interaction between linguistic and social factors in linguistic variation.

171. Practicum in TESL (3)

Prerequisite: Ling 141 or concurrent enrollment in Ling 141. Provides practice in teaching English as a second language; includes class visitations and classroom demonstrations; working with non-native speakers; lesson planning, material preparation, language lab work and evaluation of current ESL texts.

190. Independent Study (1-3; max see reference)

See Academic Placement Independent Study.

FOREIGN LANGUAGE COURSES

CHINESE (Chin)

1A-B. Elementary Chinese (4–4)

Not open to students with previous training. Basic structure and pronunciation of Mandarin Chinese; practice in speaking, reading, and writing.

2A-B. Intermediate Chinese (4–4)

Prerequisite: Chin 1B. Review grammar and syntax; techniques of brush use; speaking and reading.

HEBREW (Hebr)

1A-B. Basic Hebrew (3–3)

Basic structure and pronunciation of Hebrew; practice in reading, writing, speaking, and grammar; suitable introduction to both Biblical and modern Hebrew.

JAPANESE (Japn)

1A-B. Elementary Japanese (4–4)

Beginning course in modern spoken and written Japanese. Covers learning comprehension and oral practice, basic grammar and sentence patterns. Introduction to reading and writing in Kana and Kanji characters.

2A-B. Intermediate Japanese (4–4)

Prerequisite: Japn 1B. Intermediate spoken and written Japanese; reading modern Japanese with emphasis on expository writings; translation and oral and written composition.

SANSKRIT (Skt)

10A-B. Sanskrit (3–3)

Introduction to the Sanskrit language and the Devanagari script. Core grammatical structure and vocabulary. Reading of Sanskrit texts. Literary tradition and life style of the speakers of the language, and relationship with Greek, Latin, and Germanic languages. (Former Exp 161, 168)

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

231T. Seminar in Linguistics (3; max total 12 if no topic repeated)

Prerequisite: Ling 135 and permission of instructor. Topics to be offered at the discretion of the department: philosophy of language, psycholinguistics, dialectology, and other subjects in general linguistics. (Former Ling 231)

232T. Seminar in English Linguistics (3; max total 12 if no topic repeated)

Prerequisite: Ling 135 and permission of instructor. Topics to be offered at the discretion of the department: structure of Old, Middle, or Early Modern English; topics in English phonology, grammar, and lexicon. (Former Ling 232)

241. Seminar in Teaching English as a Second/Foreign Language (3)

Prerequisite: Linguistics 141. Overview of research in the field of ESL/EFL teaching as reflected in current journal articles. Discussion and feedback dealing with points raised in assigned articles. Written reports summarizing ideas propounded in articles and expanded in class discussion. (Former Ling 232)

242. Phonological Analysis (3)

Prerequisite: Ling 142. The nature of phonological analysis, trends and issues in phonological theories, and phonological analysis of data from a variety of languages.

243. Syntactic Analysis (3)

Prerequisite: Ling 143. The nature of syntactic analysis, trends and issues of syntactic theories, and syntactic analysis of data from a variety of languages.

245. Seminar in Historical Linguistics (3)

Prerequisite: Ling 145. Contributions of recent work on general linguistics, sociolinguistics, and language acquisition studies to our understanding of diachronic grammar and its reconstruction. Other topics include the insights provided by language variation, language universals and typology, and discourse analysis. The nature, genesis, and directionality of linguistic change. (Former Ling 231T section)

290. Independent Study (1–3; max see reference)

See Academic Placement—Independent Study.

299. Thesis or Project (2–5, max total 5)

Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

MUSIC

FACULTY

John R. Heard, Chairman

Bob L. Bennett, W. Ritchie Clendenin, Fred E. Dempster, Jack R. Fortner, Steven E. Gilbert, Albert Gillis, Shelley J. Hanson, Arthur E. Huff, Rolland W. Hurst, Phyllis A. Irwin, Philip M. Lorenz, John H. Martin, Dorothy Renzi, Allen B. Skei, Lawrence R. Sutherland, James H. Winter

DEGREES OFFERED: BA, MA

Minor

Options

Option I
Option II

DEPARTMENTAL PROGRAMS

The Music Department provides (a) undergraduate instruction in music for those planning professional careers as performers and composers as well as those preparing for advanced degrees in performance, composition, and musicology; (b) preparation for the teaching credential programs in or involving music; (c) graduate training for students planning professional and academic careers or seeking professional growth as teachers in junior colleges or other school systems; (d) broad acquaintance with musical art for the layman and nonmusic major. Two degree programs are offered: the bachelor of arts and the master of arts, each with concentrations in performance, composition, musicology, or music education.

The department is a fully accredited member of the National Association of Schools of Music.

BACHELOR OF ARTS DEGREE REQUIREMENTS

Each student seeking a bachelor of arts degree with a major or minor in music must fulfill all the requirements listed under *General Degree Regulations, General Education,* and *Other Departmental Requirements.*

Option I. Preparation for performance, composition, musicology, and careers in music other than public school teaching.

Under Option I the student is responsible for the completion of the 32-unit core, in addition to the concentration a, b, or c (14–21 units) and the completion of the General Education requirement, special course requirements, and electives, which may include a minor (70–80 units), totaling at least 124 units for the BA degree.

	Units
Music 1A-B, 40, 41, 42, 43, 61, 141, 144A-B, 161A-B-C	32
Complete concentrations a, b, or c below	14–21
Demonstrate piano proficiency (see Other Departmental Requirements #3)	
	46–53

a. Performance:

4 semesters with advanced standing in Music 31-131 through 39-139 (instrument or voice)	8
5 units in Music 140T, 142, 148, 150A-B, 160T, 171	5
Music 198	1–2
	14–15

b. Composition:

9 units in Music 48	9
6 units in Music 148 with advanced standing in composition	6
1 unit in Music 199	1
2 semesters in piano (Music 36-136) after passing Piano Jury Examination, Level 1	4
	20

c. Musicology:

	Units
Music 142	3
6 units in Music 160T	6
Music 171	2
Music 190	2–3
Music 198, 199	1–2
	14–16

Option II. ***Waiver program for Single Subject Credential. Consult departmental advisers and the School of Education and Human Development for specific credential requirements.***

Under Option II, the student is responsible for the completion of the option (47–56 units), in addition to the credential requirement (8 units), the completion of the General Education requirement, special course requirements, and electives, which may include a minor (59–72 units), totaling at least 124 units for the BA degree.

	Units
Music 1A-B, 40, 41, 42, 43, 58, 61A,B, 144A-B, 158, 161A,B,C, 171	35
Elect from Music 182, 183, 184	3
4 semesters in Music 31–131 through 39–139 including 2 semesters with advanced standing	8
Music 198 or 199	1–2
Demonstrate piano proficiency (see Other Department Requirements, #3).	
Pedagogy (Music 119T) or a demonstrated proficiency in appropriate areas (Consult departmental advisers)	0–8
	47–56

Additional Requirements for the Credential:

Music 155, 159, 169, 179 8

Proficiency examinations in woodwinds, brass, percussion, strings, voice, theory and appreciation. Examination areas may be satisfied by completion of the appropriate sections of Music 119T.

OTHER DEPARTMENTAL REQUIREMENTS

1. Each student majoring in music must declare an area of concentration (i.e., an instrument, voice, composition, musicology, or music education).
2. At the close of his first semester, each student must pass the preliminary jury examination in his area of concentration before being permitted to continue his major. A further examination must be passed for advanced standing.
3. Each student majoring in music must enroll in a piano class until the departmental piano proficiency examination is passed.
4. Every semester each music major must participate in a major performing organization appropriate to his or her instrument or voice: Orchestra, Concert or Marching Band, Concert Choir. With the written approval of the directors concerned, another performing organization may be substituted. Piano majors may substitute two semesters of keyboard ensemble, accompanying or chamber music. IN ADDITION: Applicants for the public school credential, before qualifying for the credential, must participate in at least one semester of Marching Band and one of Concert Choir. Applicants who are wind and percussion specialists must participate in at least two semesters of Marching Band and one of Concert Choir.
5. Participation in all rehearsals and performances of the performing organizations (Music 2–102 through 18–118, 20–120 through 25–125) for which the student registers must take precedence over any conflicting activity.
6. Students in Music 31–131 through 39–139 will appear in student recitals when assigned.
7. Each student majoring in music must attend a designated number of recitals or concerts.
8. A senior project is required of each student during his final year. For those whose area of concentration is voice or an instrument the project will be a public recital; for details, consult

the Music Department Office.

MUSIC MINOR

The minor in music requires completion of at least 20 units of music courses, 6 units of which must be upper division. The program must be approved by the department adviser and the department chairman. Required units usually include: Music 9 (or 40 and 41); 6 units of Music 31–131 through 39–139; 6 to 9 units in music literature. In addition, students minoring in music must enroll in a major performing organization (see #4 above) each semester of the junior and senior years.

GRADUATE PROGRAM

The master of arts degree program in music is designed to increase the candidate's professional competence, to increase the ability for continued self-directed study, and to provide opportunity for greater depth in the chosen area of concentration within the field of music.

The master of arts degree program in music assumes preparation equivalent to a CSUF undergraduate major in music.

MASTER OF ARTS DEGREE REQUIREMENTS

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.)*

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
Courses in music, including at least 15 units in 200-series (See *specific requirements)*	21
Courses in other subject fields	3
Electives in music or related fields	6
Total	30

Specific Requirements: Music 220; 3 units from Music 237, 247, 257, 267, 277; Music 210 and one satisfactory graduate recital (one hour) for performance majors; Music 299 for all other majors; 10- to 14-unit concentration in music education, history and literature, theory and composition, or performance. Vocal performance and musicology candidates must demonstrate proficiency in one foreign language prior to advancement to candidacy. Other courses may be specified after examination of the student's record.

COURSES

MUSIC (Music)

PERFORMING ORGANIZATIONS

All performing organization courses may be repeated for credit and are open to both lower and upper division students.

The courses below include the technical, stylistic, and aesthetic elements of musical literature; rehearsal and public performance.

2-102. Community Chorus (1)

3-103. Concert Choir (2)

4-104. Chamber Singers (1–2)

5-105. Musical Theatre Workshop (1–2)

6-106. Pop Singers (1)

8-108. Soprano, Alto Voices Chorus (1)

11-111. Brass Ensemble (1)

12-112. Percussion Ensemble (1)

13-113. String Ensemble (1)

15-115. Woodwind Ensemble (1)

16-116. Keyboard Ensemble (1)

18-118. Orchestra (1–2)

20-120. Band Workshop (1–2)

21-121. Concert Band (1–2)

22-122. Jazz Workshop (1–2)

25-125. Marching Band (1–3)

130T. Topics in Performance (1–2; repeatable for credit)
Special studies in vocal or instrumental music, including topics such as accompanying, electronic instruments, mixed chamber music, lyric diction.

INSTRUMENTAL AND VOCAL LESSONS

Music 31–131 through 39–139 include studies in technical, stylistic, and aesthetic elements of artistically performing repertory from the standard literature of etudes, solo, chamber, and large ensemble music and are repeatable for credit. For Music majors and minors concurrent enrollment in an appropriate major ensemble is required. All courses are repeatable for credit.

31-131. Brass (1–2)

32-132. Percussion (1–2)

33-133. Strings (1–2)

35-135. Woodwinds (1–2)

36-136. Piano (1–2)

37-137. Harp (1–2)

38-138. Organ (1–2)

39-139. Voice (1–2)

1A. Ear Training and Sight Singing I (1; max total 2, repeatable for credit)
CR/NC grading only. Basic drill in the singing and recognition of intervals, scales, and diatonic melodies, in treble, bass, alto and tenor clefs. Dictation of diatonic melodies and counterpoint in first and second species.

1B. Ear Training and Sight Singing II (1; max total 2, repeatable for credit)
CR/NC grading only. Prerequisite: Music 1A. Continuation of Music 1A. Extension of melodic sight singing and dictation to include chromatic passing tones and more complex rhythms. Drill in the singing and recognition of the basic varieties of triads and seventh chords. Harmonic dictation; recognition of basic chord patterns and cadences.

9. Introduction to Music (3)
Not recommended for music majors. Theory necessary for the reading, playing and understanding of music by the layman and the elementary credential candidate.

10. Fundamental Musicianship (3)
Open to non-majors with some background in music. Fundamental music theory and practice, emphasis on writing, reading and aural skills as they relate to performance and simple compositional techniques.

40. Theory of Music I (3)
Prerequisite: Music 9 or the ability to read music. Fundamentals of music. Tonal species counterpoint in two and three voices.

41. Theory of Music II (3)
Prerequisite: Music 40. Harmonic and contrapuntal practice of the 17th and 18th centuries. Development of written skills, concentrating on four-voice chorale settings.

42. Theory of Music III (3)
Prerequisite: Music 41. Continuation of Music 41, with emphasis on 19th century harmonic and contrapuntal practice. Introduction to analytic-reductive techniques.

43. Theory of Music IV (3)
Prerequisite: Music 42. Survey of the compositional practice of the 20th century, with analysis of selected works.

48. Composition (3; max total 9)
Prerequisite: permission of instructor. Aural-analytic introduction to and study of origins and developments of major compositional concepts and genres in Western music; assigned exercises and creative writing in a variety of styles and idioms; the problems of concepts in notation.

58. Basic Conducting (2)
Prerequisite: Music 41. Fundamentals of conducting and score-reading; standard patterns and stick technique. Required of all Single Subject Teaching Credential candidates.

61. Music Literature (2)
Introductory course in music literature, primarily for music majors and minors. Masterpieces of Western music from the Middle Ages through the 20th century.

73. Music for Young People (3)
Understanding the value and the utilization of music in the lives of young people in both formal and informal situations; representative music and its composers. (Former 76T-176T section)

74. Listener's Guide to Music (3)
The role of musicians in and the contributions of music to the lives of cultured people; major composers and their works. (Former 76T-176T section)

75. Pop Music: Jazz and Rock (3)
Styles of Pop Music with special emphasis on Jazz and Rock and their influence on life styles. (Former 76T-176T section)

119T. Topics in Pedagogy (2; max total 16)
Prerequisite: Music 40, 41. Principles, playing and teaching procedures, and materials for teaching specialized music topics in the elementary school, high school, and community college. Topics include: Brass, Percussion, Strings, Woodwinds, Keyboard Instruments, Children's Instruments, Voice and Chorus, Theory and Appreciation.

130T. Topics in Performance (1–2; repeatable for credit)
Special studies in vocal or instrumental music, including topics such as accompanying, electronic instruments, mixed chamber music, lyric diction.

140T. Topics in Theory and Composition (3; max total 9)
Prerequisite: Music 40, 41, 42, 43. Technical, stylistic, and aesthetic elements of theory and composition.

141. Seminar in Modal Counterpoint (3)
Prerequisite: Music 42, 43. Polyphony of the 15th and 16th centuries; analysis and composition of melodic lines, simple counterpoint, types of imitation; writing motets with text in two or more parts.

142. Seminar in Canon and Fugue (3)
Prerequisite: Music 42, 43. Polyphony of the 17th and 18th centuries; analysis and composition of melodic lines, imitative, strict and invertible counterpoint, canon and fugue.

144A. Form and Analysis I (2)

Prerequisite: Music 40, 41, 42, 43. A study of musical style and structural analysis with emphasis on the solidified, formal designs of the 18th and 19th centuries. (Former Music 144)

144B. Form and Analysis II (2)

Prerequisite: Music 43. Principles of musical form and analysis as applied to representative works of the twentieth century. Includes a systematic study of atonality and twelve-tone technique.

148. Seminar in Advanced Composition (3; max total 9)

Prerequisite: Music 42, 43. Seminar in original composition of a thoroughly contemporaneous nature in media, forms, and styles of student's choice.

150A. Seminar in Electronic Music I (3)

Prerequisite: Music 40, 41, and permission of instructor. An introduction to history, literature, and instruments of electronic music; with a systematic approach to the CSUF Electronic Music Studio.

150B. Seminar in Electronic Music II (3)

Prerequisite: Music 150A and permission of instructor. An in-depth study of electro-acoustical, analog-synthesis, and computer-assisted applications to musical composition; with emphasis on employing the CSUF Electronic Music Studio for artistic realization.

155. Sound, Rhythm, and Song (3)

Prerequisite: Music 40, 41 for students majoring in music; Music 9 for others. Individual research on the place and functions of music in the pre-school and elementary school curriculum; selection, discussion, and analysis of musical materials including state texts; planning activities that enable children to develop aesthetic sensitivity, musical skills, and understanding.

158. Advanced Conducting (2)

Prerequisite: Music 58. Advanced conducting and score reading; rehearsal techniques; problems in tempo, balance, style, and phrasing; mixed meters and other contemporary problems. Assigned projects in conducting. Required of all Single Subject Credential candidates in Music.

159. Marching Band Techniques (1)

Prerequisite: Music 41. Offered first semester only. Practical and creative aspects of producing musical shows and marching formations for athletic events, parades and public ceremonies. Required of all Single Subject Teaching Credential Candidates in Music.

160T. Topics in Music History, Literature and Appreciation (1–3; max total 9)

Prerequisite: Music 161A. Study of selected musical genres, composers, and other specialized topics. 160TW (Writing About Music) meets the upper division writing skills requirement for graduation.

161A. Survey of Music History I (3)

Prerequisite: Music 61, permission of instructor. Lectures, discussion, and reports on music from the early Middle Ages to approximately 1680.

161B. Survey of Music History II (3)

Prerequisite: Music 61, permission of instructor. Lectures, discussion, and reports on music from approximately 1680 to 1880.

161C. Survey of Music History III (3)

Prerequisite: Music 61, permission of instructor. Lectures, discussion, and reports on music from approximately 1880 to the present.

169. Instrumental Techniques and Materials (2)

Prerequisite: Music 41. Instrumental music programs in the public schools; principles, procedures, literature and materials. Expenses for off-campus visits will be incurred by student. Required of all Single Subject Teaching Credential candidates in Music.

171. Music of Non-Western Cultures (2)
Music of Africa, native North and South America, and the East; required of all Single Subject Teaching Credential candidates in Music.

176T. Topics in Music Appreciation (3; repeatable for credit)
Listeners' guide to music appreciation; structure and expression, formal designs, stylistic tendencies; musical literature; analysis of representative works. Topics include: Choral, Wind, Brass, Percussion, String, Chamber, Keyboard, Orchestral, Vocal Recital, Opera, Avant-Garde, Folk and Ethnic, Jazz and Rock, and Musical Theatre.

179. Choral Techniques and Materials (2)
Prerequisite: Music 41, 58. Vocal music programs in the public schools; principles, choral techniques, literature and materials. Expenses for off-campus visits will be incurred by student. Required of all Single Subject Teaching Credential candidates in Music.

182. Band Arranging (3)
Scoring and arranging for the Band and Wind Ensemble; problems in idiomatic writing for individual instrument and sonorities of instruments in combination. Ranges, transposition, technical capabilities of band and orchestra instruments and the voice.

183. Choral Arranging (3)
Scoring and arranging for various sizes and types of choral ensembles; problems in idiomatic writing for the voice and sonorities of voices in combination *a capella* and with accompaniment instrumentation and its relationship to the voice and choral ensembles.

184. Orchestral Arranging (3)
Scoring and arranging for orchestral ensembles; problems in idiomatic writing for the instruments and sonorities of instruments in combination. Ranges, transposition, technical capabilities of band and orchestra instruments and the voice.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

191. Readings in Music (1–3)
Prerequisite: permission of instructor. Readings in depth and discussions in individual conferences; subject to be selected by student and his adviser. May be preliminary research in connection with thesis topic.

198. Senior Recital (1–2)
Prerequisite: Senior standing, approval of major applied music instructor. Preparation and presentation of a satisfactory senior recital. Required of all graduating performance majors; see *Other Departmental Requirements.*

199. Senior Project (1–2)
Prerequisite: Senior standing, approval of major adviser. Preparation, completion and submission of a suitable research paper, study, or composition. Required of all graduating seniors in Options Ib, Ic, II.

GRADUATE COURSES

(See *Course Numbering System—Definition and Eligibility*)

205. Seminar in Analysis, I: Tonal Music (3)
Principles of musical form and analysis as applied to representative works of the eighteenth and nineteenth centuries.

206. Seminar in Analysis, II: Nontonal Music (3)
Development of a descriptive vocabulary suitable for the music of the twentieth century, with special reference to works by Schoenberg, Berg, Webern, and selected American composers.

210. Studies in Performance (2; max total 6)
Open only to master's degree students majoring in performance. Prerequisite: Music 220 and permission of department chairman. Individually directed studies in performing or conducting instrumental or vocal music; historical and theoretical interpretation applied in preparation for public recitals and concerts of works from the standard literature of all periods in the student's major performance area.

214T. Seminar in the History of Music Theory. (3; max total 9)
Prerequisite: Music 220. Critical and bibliographical study of a selected topic in the history or pedagogy of music theory, including emphasis on the teaching of the subject at the senior high school or college level.

219T. Seminar in Music Education (3; max total 9 if no course repeated)
Prerequisite: Music 155, T Ed 161 and permission of the instructor. Topics of special concern to the teacher or administrator. Individual research projects and discussion of problems in the area of literature, philosophy, and practices of teaching, administration, and curriculum planning.

220. Seminar in Research Methods and Bibliography (3)
Prerequisite: Music 161A, B. Bibliography, sources, and research techniques necessary for graduate study in music. Individual projects and research. Required of all students working for the master's degree in music.

234. Studies in Composition (3; max total 9)
Open only to Master's Degree students majoring in composition. Prerequisite: Music 220. Individually directed studies in composition with contemporary techniques of an extended work equivalent in substance to a sonata, cantata, or other composition of major proportions.

237. Seminar in the Music of the Renaissance (3)
Prerequisite: Music 220. Critical and analytical study of the historical sources, selected works and composers of the period from approximately 1425 to 1600 A.D. A term paper will be a central requirement for successful completion of this course.

247. Seminar in the Music of the Baroque (3)
Prerequisite: Music 220. Critical and analytical study of the historical sources, selected works and composers of the period from approximately 1600 to 1750 A.D. A term paper will be a central requirement for successful completion of this course.

257. Seminar in the Music of the Classic and Early Romantic Eras (3)
Prerequisite: Music 220. Critical and analytical study of the historical sources, selected works and composers of the period from approximately 1750 to 1850 A.D. A term paper will be a central requirement for successful completion of this course.

267. Seminar in the Music of the Late Romantic and Contemporary Eras (3)
Prerequisite: Music 220. Critical and analytical study of the historical sources, selected works, and composers of the period from approximately 1850 A.D. to the present. A term paper will be a central requirement for successful completion of this course.

277. Seminar in American Music (3)
Prerequisite: Music 220. Critical and analytical study of the historical sources, selected works and composers in the United States from 1620 A.D. to the present. A term paper will be a central requirement for successful completion of this course.

287. Seminar in Interpretation of Earlier Music (3)
Prerequisite: Music 220. Historical study of performance practices from the Middle Ages to the early classic era. Individual research projects and class discussions centered on primary theoretical and musical sources.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

291. Readings in Music (1–3)
Prerequisite: permission of instructor. Readings in depth and discussions in individual conferences; subject to be selected by student and his adviser. May be preliminary research in connection with thesis topic.

298. Graduate Recital (1–3, max total 3)
Prerequisite: permission of department chairman.

299. Thesis or Project (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES
See *Course Numbering System*

307. Musical Instrument Repair (1; max total 3)

309T. Workshop: Vocational and Avocational Music Topics (1–3)

PHILOSOPHY

FACULTY

James M. Smith, Department Chairman

A. Wayne Colver, Hague D. Foster, Warren L. Kessler, Jack A. Pitt, James W. Slinger

DEGREE OFFERED: BA

Minor

Option in Religious Studies

DEPARTMENTAL PROGRAMS

Philosophy encompasses the study of fundamental questions that arise insistently in different areas of human experience, thought or practice. Whenever, for example, one reflects on the coherence of our common-sense views, or probes the standards used in some art or science, one is engaging in philosophy. The work of the Philosophy Department aims to make this natural activity of thought both richer and more systematic. Courses are offered which provide broad opportunities for self development, acquaintance with world-views of both East and West, and the building of a coherent outlook and critical reason.

Many of the courses offered will be of general interest to all students, while others are designed to explore issues that arise in selected and special areas. All courses stress the importance of dialogue and discussion as a central feature of philosophical development. The participation of students in the work of the Department is therefore always welcomed and encouraged.

The broad compass of philosophy provides a basis for many kinds of lifework, and people who have majors or minors in philosophy can be found in all areas of endeavour, from medicine, law and the ministry, to teaching, social work, and fine arts.

In addition to the regular philosophy major, the Department provides a special option of the Philosophy major in Religious Studies, and a philosophy concentration for the minor in Classical Studies.

BACHELOR OF ARTS DEGREE REQUIREMENTS

The major in philosophy consists of 32 units, with the following specific requirements:

	Units
(a) Phil 25 or 45 or 145	3–4
(b) Phil 101 or approved 170T	3–4
(c) Phil 103 or approved 170T	3–4
(d) Elect from Phil 105, 146, 150, 151, 156, 157, approved 159T, approved 170T	3–4
(e) Elect from Phil 115, 116, 117, approved 119T, 120, 125, approved 170T	3–4
(f) Independent Study and/or Directed Reading (at least 2 courses)	3
(g) Phil 170T or 172T. This course may satisfy one of the above requirements at the same time.	
(h) Electives	9–14
	32

Note: Students intending to pursue graduate study in philosophy should seek the adviser's help in planning adequate preparation.

Religious Studies Option

The major in philosophy with a religious studies option consists of 32 units with the following specific requirements:

	Units
(a) Phil 1, 25, or 45	4
(b) Elect from Phil 115, 116, approved 119T, 120	3
(c) Phil 130, 131	6
(d) Elect from Phil 133W, 134W, 136, 137, 138, 139T	6

(e) Phil 172T (Seminar in Religious Issues) 4
(f) Independent Study and/or Directed Reading (at least 2 courses) 3
(g) Elect from the following: Anth 145, Hist 103A, B, C, 106, 115, 119T, 126, 185, 199T 6
32

The General Education requirement, special course requirements, and electives, which may include a minor, are in addition to the major (32) or Religious Studies option (32), totaling 92 units to complete the 124 units required for the BA degree.

PHILOSOPHY MINOR

The minor in philosophy consists of 16 units in philosophy, of which at least 6 must be upper division.

COURSES

PHILOSOPHY (Phil)

1. Introduction to Philosophy (4)
Introduction to the basic issues, disputes and methods of traditional and contemporary philosophy, including theory of knowledge, ethics, metaphysics, religion and social theory. Development of skills in analysis, logical thinking and self-expression.

10. Self, Religion, and Society (3)
Conceptions of human nature; nature and varieties of religion; personal and social implications and values of religion.

25. Methods of Reasoning (4)
Principles and methods of valid inference. Typical topics: forms of deductive inference, basic types of inductive inference, common pitfalls in moral reasoning, problems in reasoning due to the nature of language, and common fallacies found in arguments in everyday life.

45. Elementary Deductive Logic (4)
Basic concepts and methods of deductive logic with emphasis on truth-functional logic. Development of skills in deductive techniques.

100. Philosophy of Life (3)
Survey of principal perspectives and contributions of philosophers to problems and issues concerning the nature and quality of human life. Topics discussed include: meaning of life, examination of life styles, God and the supernatural, death and immortality, nature of morality. (Former Phil 135T section)

101. Ancient Philosophy (3)
Development of Western Philosophy from its beginning; the emergence of critical theory, doctrines and schools of thought in Greek and Roman culture. Topics considered may include: "pre-Socratic" philosophy; the work of Plato and Aristotle; Epicurus and the Atomists; Stoicism.

102. Medieval Philosophy (3)
Consideration of Western Philosophy—its development, principal figures and schools of thought—from late classical times through the Middle Ages: Neo-Platonism, Augustine to Anselm; Abelard; Theology, "scholastic" thought and revival of Aristotle; Aquinas; the rise of nominalism; William of Ockham.

103. Bacon to Kant (3)
Development of early modern philosophy: the search for new scientific methods—Bacon, Descartes, Spinoza, Newton and Locke; empiricism and skepticism—Berkeley and Hume; rationalist metaphysics—Leibniz; influences on moral and political thought—the Enlightenment; Rousseau; Kant's Critical philosophy.

104. Nineteenth Century Philosophy (3)

Consideration of the principal figures and systems of thought in philosophy after Kant: the development of Idealism; Hegel and his critics; influential concepts of evolution and historical change; Marxism; Comte's positivism; J. S. Mill; irrationalist currents; Kierkegaard and Nietzsche.

105. Twentieth Century Philosophy (3)

Principal developments in philosophy after 1900. Figures and movements include: logical atomism, logical positivism, linguistic analysis, pragmatism, phenomenology, existentialism, G. E. Moore, Russell, Wittgenstein, Whitehead, Dewey, Santayana, Husserl, Heidegger, Sartre, Austin, Ryle, Strawson, Carnap, Ayer. (Former Phil 107)

106T. Topics in History of Philosophy (3; max total 9 if no topic repeated)

Consideration of special historical issues or individual philosophers.

107. Existentialism (3)

Examination of roots of existentialism in Kierkegaard and Nietzsche; study of such 20th century existentialists as Sartre, Heidegger, Jaspers, Buber. Typical problems examined: nature of mind, freedom, the self, ethics, existential psychoanalysis. (Former Phil 106T section)

115. Ethical Theory (3)

Introduction to the fundamental concepts and problems of moral theory. Examination of various ethical theories, including relativism, egoism, utilitarianism, intuitionism, and non-cognitivism; the meaning of ethical terms. (Former Phil 115T section)

116. History of Ethics (3)

Development of the main ethical doctrines of Western Philosophy from Socrates and the Sophists to Hegel and Mill.

117. Philosophy of Art (3)

Investigations of selected topics in the philosophy of art; the nature of the artistic process and the work of art; expression and creativity; aesthetic judgment in criticism and experience; the relation of art to moral and political theory.

119T. Topics in Valuation and Obligation (3; max total 9 if no topic repeated)

Investigations of selected topics in ethics, value theory, political and social philosophy, aesthetics. (Former Phil 115T)

120. Contemporary Conflicts of Morals (3)

Introduction to ethical theory and its application to contemporary moral problems. Discussion to include: business ethics, medical ethics, sexual morality, abortion, mercy killing; pot, drugs, and alcohol; crime and punishment, civil disobedience, revolutionary violence, rights of women and minorities. (Former Phil 115T section)

121. Ethics in Criminal Justice (3)

Philosophical issues concerning society's treatment of criminal behavior. Topics discussed include: what types of deviant behavior should be regarded as criminal? morality and law; punishment or rehabilitation; safe vs repressive society. (Former Phil 135T section)

125. Social and Political Philosophy (3)

Representative view of function and value of social and political institutions; analysis of fundamental concepts involved, for example, the common good, authority, justice, natural law, natural rights, the state, power, freedom, equality, responsibility and democracy. (Former Phil 115T section)

127. Philosophy of Law (3)

Nature and functions of law; methods of justifying legal systems; logic of legal reasoning; analysis of fundamental legal concepts. (Former Phil 135T section)

128. Feminist Theory (3) (Same as W S 128)
Philosophical issues pertaining to the life and status of women in contemporary society. Theories of feminism. Topics to include relationships between culture and nature, androgyny and feminism, economic equality, preferential treatment, abortion, sex roles, sexual morality, marriage. Male participation welcome. (Former Phil 135T section)

129. Marxism (3)
Examination of basic ideas of Marx inherent in his writings and a consideration of later developments now called "Marxist." (Former Phil 135T section)

130. Philosophy of Religion (3)
The nature and function of religious faith, belief, and practice; relations between religion and morals; existence of God; problem of evil; nature and significance of religious experience. (Former Phil 130T section)

131. Comparative Religion (3)
Survey of the major religions of mankind, their history and teachings, with emphasis on Hinduism, Buddhism, Confucianism, Taoism, Judaism, Christianity, and Islam. (Former Phil 130T section)

133W. Literature of the New Testament (3) (Same as Engl 115W)
Discussion and close written analyses of selected texts from the New Testament. Meets upper division writing skills requirement for graduation.

134W. Literature of the Old Testament (3) (Same as Engl 116W)
Discussion and close written analyses of selected texts from the Old Testament. Meets upper division writing skills requirement for graduation.

136. Buddhism (3)
Introduction to Buddhism. Life and teachings of Gautama Siddhartha Buddha; development of Buddhism after death or mahanirvana of the Buddha. (Former Phil 132T section)

137. Hinduism (3)
Introduction to the development and ideas of Hinduism. (Former Phil 132T section)

138. Chinese Thought (3)
Classical religions, ethical and political thought, in ancient China; probable emphasis on Confucianism and Taoism. (Former Phil 132T section)

139T. Topics in Religious Issues (3; max total 9 if no topic repeated)
Investigations of selected topics in philosophy of religion and comparative religion. (Former Phil 130T)

145. Symbolic Logic (3)
Prerequisite: Phil 45. Theory of deductive inference; includes propositional logic, predicate logic, relations, identity, definite description, nature of axiom systems. (Former Phil 110)

146. Philosophy of Language (3)
Nature and uses of language; theories of meaning; concepts of reference, predication, truth, name, ambiguity, vagueness, definition, metaphor; relationships between methodology in philosophy and theories of language. (Former Phil 125T section)

150. Foundations of Knowledge (3)
Nature, sources, and limits of human knowledge; roles of perception, reason, memory, authority, and intuition in the justification of beliefs in all areas; for example, science, math, ethics, religion, the past, other minds. (Former Phil 125T section)

151. Philosophy of Science (3)
Methods and presuppositions of empirical science; scope and limits of science; logic of scientific explanation and theory construction; inductive inference and probability; clarification of such concepts as causality, law, theory, probability, determinism, teleology. (Former Phil 125T section)

156. Philosophy of Mind (3)

Analysis of problems concerning the nature of mind and mental phenomena: relation between mind and body, nature of the self and personal identity, free will, action and behavior, thinking machines, knowledge of other minds; concepts of mind, intention, desire, emotion. (Former Phil 125T section)

157. Freedom, Fate, and Choice (3)

Nature of human action, free will and determinism, free will and moral responsibility; analysis of basic concepts; for example, will action, freedom, determinism, fatalism, chance, choice, decision, intention, reason, desire, belief; implications for everyday life. (Former Phil 125T section)

159T. Topics in Logic, Epistemology, and Metaphysics (3; max total 9 if no topic repeated)

Investigations of selected topics in logic, epistemology, and metaphysics. (Former Phil 125T)

160. Philosophy in Literature (3)

A study of the philosophical content of important literary works. (Former Phil 135T section)

161. Philosophy and Psychology (3)

Investigation of basic philosophical issues concerning the nature of self and mind, and the relation of the individual to other persons, society and technology. These issues investigated as they emerge in the humanistic, existential, Freudian and behaviorist approaches to psychology. (Former Phil 135T section)

165T. Special Topics (3; max total 9 if no topic repeated)

Topics of current or interdisciplinary interest or requiring special background. (Former Phil 135T)

170T. Seminar in Philosophical Issues (4; max total 12 if no topic repeated)

Prerequisite: one upper division philosophy course. Intensive investigation of selected problems, major figures, or an historical period in philosophy. Extensive writing and supervised research.

172T. Seminar in Religious Issues (4; max total 12 if no topic repeated)

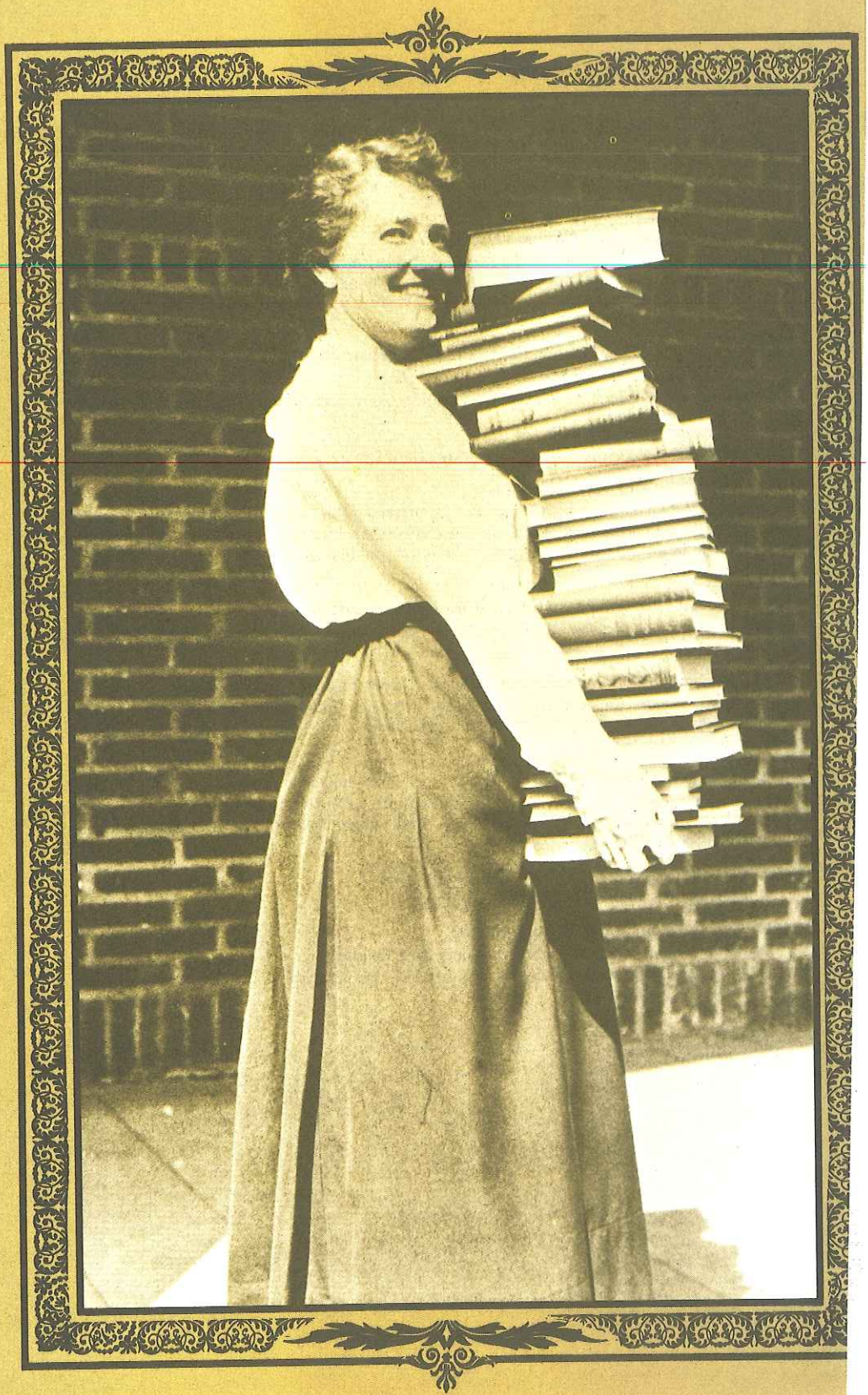
Prerequisite: one upper division philosophy course. Intensive investigation of problems in philosophical theology, comparative religion, and culture. Extensive writing and supervised research. (Former Phil 175T)

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study.*

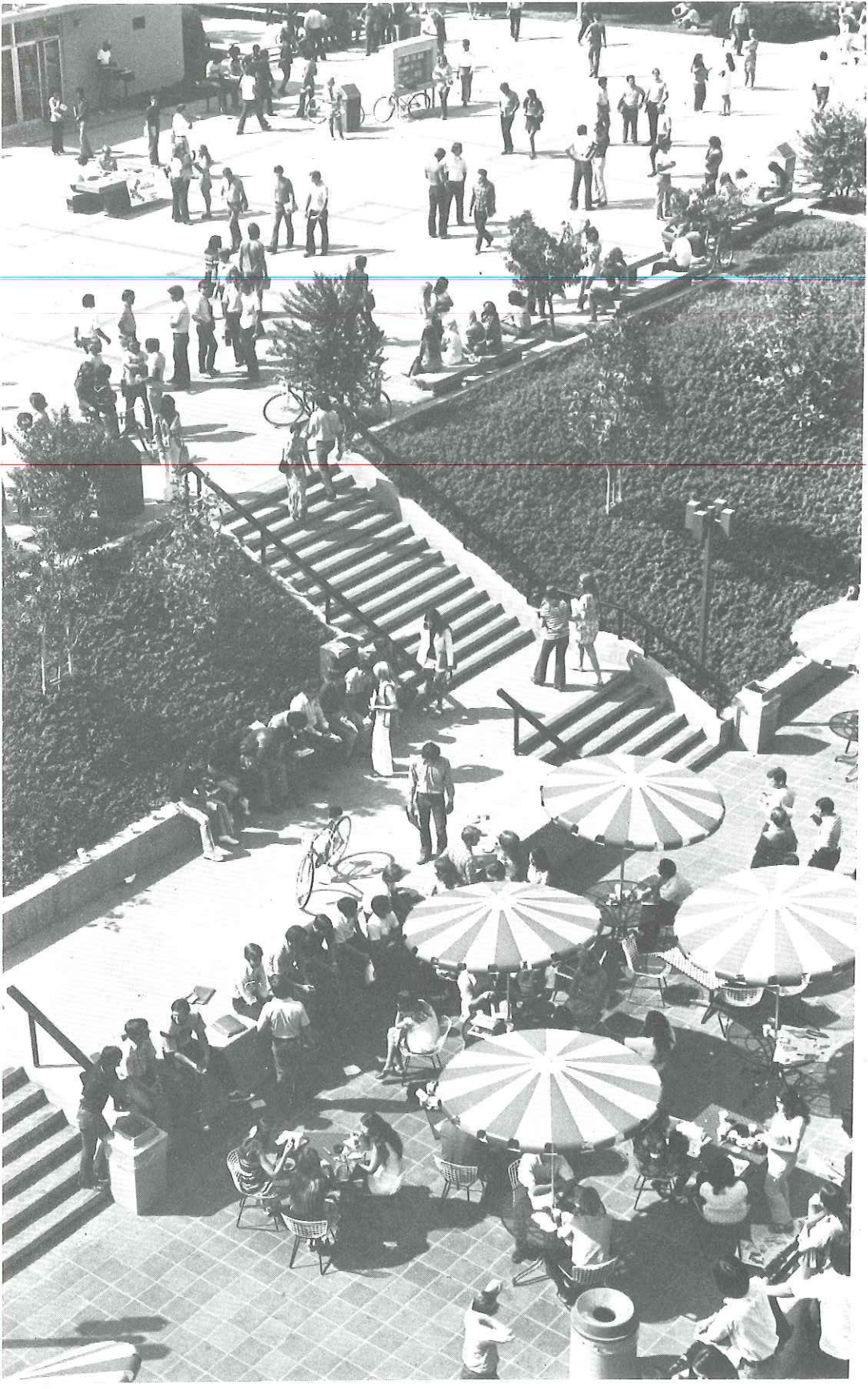
192. Directed Reading (1–3; max total 6)

Prerequisite: permission of instructor. Supervised readings in a selected philosopher or field of philosophy. Combined units of Phil 190 and 192 may not exceed 6 units.



SCHOOL OF BUSINESS AND ADMINISTRATIVE SCIENCES

Photo: *Agnes Tobin—Librarian*
Fresno State Normal School, circa 1917



SCHOOL OF BUSINESS AND ADMINISTRATIVE SCIENCES

Gene E. Burton, Dean

Assistant Dean ..... Allen M. Agnew
Director, Center for Business Research and Service ..... Peter Simis
Director, Graduate Program ..... Joan G. Schroeder

Department	*Chairman*
Accountancy	Elwyn L. Christensen
Aerospace Studies	Robert G. Stuart
Finance and Industry	Paul M. Lange
Information Systems and Decision Sciences	Kelly J. Black
Management and Marketing	Richard D. Tellier

DEGREES OFFERED: BS, MS, MBA

MINORS: Administration of the Performing Arts, General Business, Office Administration

Options:

Accountancy
Agribusiness
Business Economics
Computer Applications and Systems
Decision Sciences
Finance
General Administration
Health Care Management
Information Management
Insurance
Legal Environment of Business
Marketing
Personnel and Industrial Relations
Real Estate and Urban Land Economics
Transportation and Physical Distribution Management

SCHOOL PROGRAMS

The School of Business and Administrative Sciences prepares students for careers in the business and professional world and for teaching in secondary schools and community colleges. At the undergraduate level it offers a program in business administration leading to the bachelor of science degree. The program is designed to provide a knowledge of the principles, procedures and practice of business management; an understanding of the role and responsibility of business in present day society; a foundation of basic background materials for participation in the American enterprise system; and the proficiency in technical skills and information required by our complex business society.

At the graduate level the master of business administration and master of science degrees are offered. The master of business administration degree has been developed for those students who wish advanced education of a broad nature encompassing many disciplines in the field of business. It is designed to prepare students for careers in management of business enterprises and other organizations, including public corporations, educational systems, and nonprofit institutions. The master of science degree has been developed for those students who wish to specialize in a particular field of business, such as computer science, marketing, finance, personnel, international business, or other areas. Either degree may be used to deepen the competence of teachers of business subjects in secondary schools and community colleges.

In addition to preparing students for business careers the school offers real estate courses which fulfill the statutory course requirement needed to qualify for the real estate broker examination (Fin 180, 181, 183, B A 184). The bachelor of science degree in business is also considered appropriate and desirable for prelegal students.

The school offers programs for students planning to work toward a teaching credential with a major in business. Business teacher education students should consult the appropriate advisers in the Schools of Business and Administrative Sciences and Education and Human Development as early in their programs as possible. Students wishing to combine the credential with a master's degree should also consult the Director of the Graduate Program of the School of Business and Administrative Sciences and the Dean of the Division of Graduate Studies and Research.

The School of Business and Administrative Sciences is a member of and is accredited by the

American Assembly of Collegiate Schools of Business at both the graduate and undergraduate levels.

CENTER FOR BUSINESS RESEARCH AND SERVICE

The Center is organized within the School to meet the research and service needs of the San Joaquin Valley business community and to provide ancillary services to the students and faculty of the School. It is a member of and accredited by the Association for University Business and Economic Research. The Center compiles, interprets, and publishes statistics and studies on the local and regional economy. It facilitates research in appropriate areas by the students and faculty; seeks cooperative arrangements with outside organizations for conducting specific research and service projects; and arranges and conducts executive development and other programs as part of the School's responsibility to provide continuing education in business.

BUSINESS ADVISORY COUNCIL

Twenty-five leading business executives of the San Joaquin Valley serve as an advisory body to the School of Business and Administrative Sciences, helping to keep the program attuned to the changing needs of business. The Council meets periodically with faculty and its members participate in a number of school functions. Members of the Council are available to faculty and students for consultation and as speakers. The Council sponsors the Executive-in-Residence Program, an Annual Graduation Dinner for graduating students, and other events which benefit the School.

MANAGEMENT SEMINARS

Each year, a local business firm brings its top management to the School for a series of seminar type meetings with students. The contact between students and executives allows students to develop a fuller perspective of the managerial function. Arrangements are managed by the Inter Business Council, composed of representatives of professional business student organizations. A Forecast Luncheon featuring a nationally recognized business executive or economist is held annually in conjunction with the local business community.

MANAGEMENT BLOCK PROGRAMS

Management Block Programs, a unique feature of the School of Business and Administrative Sciences, are planned to bridge the gap between the classroom and the outside world. There are two programs: Management 101, Basic Management Block and Management 102 A-B-C-D, Advanced Management Block. Each course meets 12 hours per week for 12 units of credit. Students engage in a variety of group projects and are graded on their performance rather than on tests or examinations. Information is gathered from local businesses which the students analyze in research projects and classroom presentations. More than 50 business and community leaders are invited as guest speakers each semester.

Either or both of the Block Programs may be substituted for some requirements. The Basic Management Block substitutes for four basic courses required in all business majors. Students majoring in other fields may use credits to partially meet requirements for a minor in Business. Advanced Management Block credits can be substituted for elective and some required course credits. Consult the Assistant Dean, School of Business and Administrative Sciences, for details.

OTHER SPECIAL FEATURES

A number of internships in local firms and agencies are available. Units are granted the business interns and some also carry stipends.

The School works with the Internal Revenue Service in bringing the VITA (Volunteer Income Tax Assistance) program to the Fresno community. Students are trained to assist low-income citizens with their tax returns. Students receive credit from the School for this voluntary service. The School also works with the Small Business Administration and SCORE (Service Corps of Retired Executives) to improve the managerial performance of new or existing minority-owned enterprises.

Opportunity is afforded students through classes and student organizations to become acquainted with business and industrial organizations in California and the San Joaquin Valley. Effort is made to adapt the program to meet the particular needs of the San Joaquin Valley. Business and industrial concerns in Fresno and vicinity cooperate to make possible practical application of the theory studied in the classroom through field trips and guest lecturers in classes. The School sponsors professional organizations for both men and women.

UNDERGRADUATE PROGRAM

High School Preparation

High school preparation for business majors should include the typical college preparatory courses in social sciences, natural sciences, English, and mathematics through intermediate algebra.

Community College Preparation

It is recommended that students taking their first two years of study at a community college complete, if possible, general education requirements, including the appropriate courses in behavioral sciences, speech, English composition, mathematics, and a year of principles of economics. The following business courses are recommended: principles of accounting, one semester of data processing, one semester each of business law and business statistics. Other transfer business courses taken in community colleges are accepted as elective credit. Transfer students should see the School of Business and Administrative Sciences evaluator prior to registering for business classes.

BACHELOR OF SCIENCE DEGREE IN BUSINESS ADMINISTRATION REQUIREMENTS

All students seeking a bachelor of science degree in business administration must complete a minimum of 124 units. A uniform set of 36 units constitutes the business core and is required in all options. Students with a major in business must complete a minimum of 39 upper division business units. The student must complete a total of 55 units outside the School of Business and Administrative Sciences, including the 40-unit general education course requirements for a degree. Within these 55 units the following specific requirements must be met: 3 units each of Economics 1A and 1B, or Ag Econ 31, English composition and speech. Business majors must also meet the School's behavioral science requirement by completing 9 units from one or more of the following: psychology, sociology, cultural anthropology, ethics (BA 101 or Philosophy 120), Geography 3.

Each student must complete course work for one of the various options in the School of Business and Administrative Sciences. See departmental listing of options.

Core Requirements (Required of all business majors)

The 36 unit business core provides students with a general background commonly acknowledged as furnishing the basis for effective management of business enterprises. The following courses (in alphabetical order) are required of all business majors.

	Units
Acct 4A–4B Financial and Managerial Accounting Principles and Systems	6
BA 18 Business and the Legal Environment	3
DS 73 Statistical Analysis I	3
DS 173 Statistical Analysis II	3
Fin 133 Business Finance	3
IS 50 Computer Concepts	3
Mgt 110A-B Administration and Organizational Behavior	6
Mgt 124 Operations Management	3
Mgt 187 Seminar in Business Strategy	3
Mktg 100 Principles of Marketing	3
	36

BUSINESS MINORS

Administration of the Performing Arts

Provides an opportunity to study the economic and business problems of the arts, to explore their future implications, and to supply the necessary tools for administrative decision making.

	Units
Acct 3, B A 18, 128, Mgt 110A, DS 73	15
Mktg 140	3
	18

General Business

Designed for students with majors in other fields who wish a minor in the broad basic areas of business.

	Units
Acct 4A	3
Elect from: B A 18, Fin 133, Mgt 110A-B, Mktg 100, DS 73	6
Elect from not more than two fields (8 ud): Acct, B A, Fin, Ind R, Mgt, Mktg, IS, DS	11
	20

Information Management

Designed primarily to enable students, especially those in professional studies, the humanities, and other liberal arts fields, to acquire the basic business preparation necessary to enter their chosen fields.

	Units
IS 4, IS 20	7
IS 120, 121, 122	9
	16

CREDENTIAL PROGRAM

The single subject waiver program in Business consists of the Bachelor of Science major (36-unit core plus a departmental option) and all of the following not incorporated in the major: IS 4, 103, 105W, 107, 130.

GRADUATE PROGRAM

The School of Business and Administrative Sciences offers programs for the master of business administration and the master of science degrees. The master of business administration degree program is designed to prepare students for careers in the upper levels of the management of business organizations, public corporations, educational systems, government and nonprofit institutions and agricultural enterprises. The master of science degree is offered for those graduate students who wish to specialize in certain approved areas of study at the graduate level. Either program may be used to increase the competency of teachers in secondary schools and community colleges.

Admission: The MBA and MS programs are open to students with business or other undergraduate degrees who have demonstrated intellectual promise and ability to perform at a satisfactory level. Evidence of such promise is required by: (1) a baccalaureate degree from an accredited institution; (2) a satisfactory undergraduate grade point average (2.75 overall or 3.00 on the last 60 units); (3) a minimum score of 500 on the Graduate Management Admission Test (GMAT). Foreign students must also obtain a score of 500 or higher on the Test of English as a Foreign Language (TOEFL). Test scores must be submitted to the School before action can be taken on the admission application.

Acceptance by the university for graduate study does not imply acceptance by the School of Business and Administrative Sciences. Only students who meet all of the above criteria will be eligible for the School's graduate programs. Special application forms in addition to those required by the university are required by the School.

Before a student can enroll in a graduate (200-series) course, classified standing is required. Students who have met all admission requirements are eligible for placement in classified standing when admitted to the graduate program. Teaching credential candidates may take Bus 280, and 282 in unclassified standing when approved by the Business Credential Adviser.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements;* and *Thesis and Thesis Alternatives.)*

MASTER OF BUSINESS ADMINISTRATION DEGREE REQUIREMENTS

The degree of master of business administration is awarded upon satisfactory completion of a 30-unit program of study. Students are required to have background courses in accounting, business law, computer science, economics, finance, management, marketing, operations analysis, and statistics. Students who lack any of the required background courses must remove

any deficiencies by completing the appropriate graduate foundation courses. For details, consult the Director, Graduate Business Program, School of Business and Administrative Sciences.

Foundation Requirements:

	Units
Bus 202, 205, 207, 208, 209, 211, 214, 216, 217, 218	0–30

MBA Core Course Requirements:

	Units
Bus 221, 223, 225, 226, 228, 229	18
Elect from other Business seminars; must include Bus 291 or Bus 299 or comprehensive examination	12
(For students desiring an agricultural business emphasis, the following four courses offered by the School of Agriculture and Home Economics may be elected: Agri 211, 212, 213, 214.)	
Total	30

MASTER OF SCIENCE DEGREE REQUIREMENTS

The master of science degree is offered for students who wish to specialize in one particular area of study at the graduate level. The degree is based on individual programs developed in the student's special area of interest and it is awarded upon satisfactory completion of a 30-unit program of study. Students are required to have taken the appropriate background courses or to remove any deficiencies as outlined above in the section describing the master of business administration degree. Application for approval of individual programs must be made through the Director, Graduate Business Program, School of Business and Administrative Sciences.

The MS degree requires a minimum of 30 units, including Bus 221, 223, and 299. Interested students should consult the Director, Business Graduate Programs, for program approval.

Foundation Requirements:

	Units
Bus 202, 205, 207, 208, 209, 211, 214, 216, 217, 218	0–30

MS Core Requirements:

	Units
Bus 221, 223, 299	12
Approved electives	18
Total	30

Note: Graduate level courses follow Management and Marketing Department.

ACCOUNTANCY

FACULTY

Elwyn L. Christensen, Department Chairman

Wayne Chapin, Rosita Chen, Gerald L. Johnston, William D. McFerrin, Elwynn Miller, Dell L. Mortimer, Sheng-Der Pan, Joan G. Schroeder, Charles B. Titus, William C. Wayne

Options

Accountancy

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

Business majors must complete the core requirements (36 units) which are listed under the School of Business and Administrative Sciences. The accountancy option available to the students is outlined below. The completion of the 21–36 units as required by the option, the General Education requirements, special course requirements, and the electives, which may include a minor, total the 124 units required for the bachelor of science degree in business administration.

Accountancy Option

	Units
Two semesters of approved college level mathematics	6
Acct 120A-B-C, 132, 144A, 162, and 144B or 167	21
B A 118, IS 50	6
IS 105	3
	36

COURSES

ACCOUNTANCY (Acct)

1B. Principles of Accounting (3)

Not open to freshmen. Primarily for community college transfers. Acct 1A no longer offered. Prerequisite: Acct 1A. Accounting for partnerships, corporations manufacturing accounting, accounting managerial controls, budgeting, funds flow statements.

3. Essentials of Accounting (3)

Not open to students majoring in accounting or business administration. Basic concepts in preparation of business financial statements; introduction to understanding, analyzing, and interpreting accounting data by investors, managers, and creditors for decision making, planning, and control. Only minor attention given to recordkeeping procedures.

4A-B. Financial and Managerial Accounting Principles and Systems (3–3)

Not open to freshmen; meets requirements for Acct 1A-B. (A) Financial accounting; accounting statements, transaction analysis, and data accumulation; partnership and corporation accounting. (B) Prerequisite: Acct 4A. Balance sheet analysis and interpretation: managerial control and information systems; organization, planning, budgeting; cost accumulation and capital budgeting; measuring and reporting performance.

120A-B-C. Intermediate Accounting (3–3–3)

Prerequisite: for 120A, Acct 1A-B or 4A-B; for 120B, 120A; for 120C, 120B. Accounting theory and its application to financial statements. Accounting for assets, liabilities, equities, funds-flows, and price-level changes. Authoritative pronouncements, recent developments, unsettled issues. (Former Acct 120A-B).

129. Accounting for Management and Taxation (3)

Not open to students with credit in Acct. 120A, 132, and 144A-B; not open for credit toward major in accounting. Prerequisite: Acct. 1A-B, or Acct. 4A-B. Analysis and interpretation of financial statements. Use of accounting data by management for planning and control. Basic concepts of federal income taxes. Tax planning. (Former Acct 128)

132. Cost Accounting (3)

Prerequisite: Acct 1A-B or 4A-B; Math 71 and 72 or DS 71-72 recommended. Industrial cost accounting; general principles of job-order, process and standard cost systems; special problems; use of linear programming and computer.

144A-B. Tax Accounting and Planning (3–3)

(A) Effect of federal and California income tax laws on individual tax returns and tax planning. (B) Prerequisite: Acct 120A-B. Effect of federal and California income tax laws on partnerships, corporation, estates and trusts; social security taxes, estate and gift taxes; business income tax planning.

162. Auditing (3)

Prerequisite: Acct 120A-B. Objectives and techniques in verification of business financial statements; duties, responsibilities, and professional ethics of the auditor; auditor's reports; analysis of internal controls; audits of computerized systems.

167. Advanced Accounting Problems (3)

Prerequisite: Acct 120B. Partnership, corporation, governmental and institutional accounting.

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study.*

198. Supervised Work Experience (1)

Open only to business majors. Prerequisite: permission of instructor. Workstudy: Learning through on-the-job experience in a business. Written reports.

199. Internship (2–6; max total 6)

Open only to business majors. Prerequisite: permission of instructor. Workstudy: Student holds responsible position in business or government agency and reports on firm's operations and suggested improvements.

200 series. Graduate courses are listed under *Business.*

FINANCE AND INDUSTRY

FACULTY

Paul M. Lange, Department Chairman

Ellis T. Austin, Wayne A. Brooks, Robert A. Carr, Irving F. Davis, J. Parry Dodds, Tom Doyel, Dean A. Dudley, John T. Emerson, Lynn M. Forsythe, James M. Highsmith, F. Lee Hull, Nalini Jeyapalan, Gerald D. Martin, Marshall E. Minich, John C. O'Brien, Charles R. Smith

Options

Agribusiness
Business Economics
Finance
Insurance
Legal Environment of Business
Real Estate and Urban Land Economics

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

Business majors must complete the core requirements (36 units) which are listed under the School of Business and Administrative Sciences. The six options available to the student are outlined below. The completion of 21–30 units as required by the options, the General Education requirement, special course requirements, and the electives, which may include a minor, total the 124 units required for the bachelor of science degree in business administration.

	Units
Agribusiness Option	
One semester of approved college level mathematics	3
Ag Econ 127, Fin 137	6
Approved upper division electives from the Schools of Business and Agriculture	12
	21
Business Economics Option	
One semester of approved college level mathematics	3
B A 100, 101, Fin 104, 135	12
B A 115 or 117	3
Elect from: Econ 103, 110 and approved electives	12
	30
Finance Option	
One semester of approved college level mathematics	3
Acct 120A or 129	3
B A 100, 101	6
Fin 104, 134, 139	9
Fin 132 or 135	3
B A 115 or 117	3
	27
Insurance Option	
One semester of approved college level mathematics	3
Fin 143, 144, 145	9
Elect from approved upper division courses in Accounting, Business Administration, Finance, Industrial Relations, Management, Marketing, Decision Science, Information Systems, Information Management, Health Sciences	9
	21
Legal Environment of Business Option	
One semester of approved college level mathematics	3
Elect from B A 115, 116, 117, 118, 119, 156 and 184	12
Elect from approved upper division courses in Accounting, Business Administration, Finance, Industrial Relations, Management, Marketing, Decision Science, Information Systems, Information Management	9
	24

Real Estate and Urban Land Economics Option

One semester of approved college level mathematics	3
B A 100, Fin 104	6
Fin 132 or 135	3
Elect from B A 184, Fin 180, 181, 183, 186	12
	24

COURSES

BUSINESS ADMINISTRATION (B A)

8. Law and Society (3)

Function of law in implementing solutions to human problems, in giving body to theories of justice and to ethical judgments, and in providing a frame of order and authority within which clashes of value may be resolved. Lecture discussion; case studies, analysis.

10. Business and Society (3)

Examination of the interaction of business and social forces in modern society. Nature of business and the management of firms in a changing environment; interrelationships among business, government, labor, and the public. Emphasis on current business-environmental problems.

18. Business and the Legal Environment (3)

Prerequisite: sophomore standing. Legal environment of business through examination of sources of law; relation of the legal system to business through examination of the law of contracts and of agency; case studies; analysis.

50. Business Lectures (1; max total 2)

Various viewpoints on current business problems and developments presented by a different guest business executive each class meeting.

100. Business Economics (3)

Prerequisite: Econ 1A-B. Applications of economic principles in business management; measure of profit, analysis of demand, cost analysis; price, wage, and public policies; case studies.

101. Economics, Ethics and Civilization (3)

Theories of ethics and their relevance to the realm of business; economic, social, and political implications of theories advanced by Adam Smith, Machiavelli, William Graham Sumner, John Dewey, Keynes, Eric Fromm, and others.

106. Health Legislation and Legal Controls (3)

Legislation applicable to health care laws influencing the provision and administration of health services to individuals and communities. Patient rights, controls on practitioners and institutions, use of medical information. (Former B A 189T section)

115. Government Regulation and Control of Business (3)

Prerequisite: B A 18. An analytical approach to the government regulation of business as it affects employment, inflation, consumerism, pollution, wages, and restraints on business and corporate power. Legislative analysis and case studies.

116. Environmental Legislation and Controls (3)

Review of environmental problems, search for root causes and objectives; identification and evaluation of past and present controls; examination of alternative legislative remedies for present and anticipated problems.

117. Administrative Law and Business (3)

Prerequisite: B A 18. The effects of regulatory agencies, such as F.T.C., I.C.C., on business. Study of their rule making powers, procedures, and control through judicial review.

118. Law and Business Activities (3)
Prerequisite: B A 18. Nature of property and the relation of the legal environment to the ambiguities of economic capability through examination of the law of bailments, shipments, sales, commercial paper, and secured transactions; case studies; analysis.

119. Law of Business Organizations (3)
Prerequisite: B A 18. Partnerships, corporations and trusts with reference to their advantages and limitations. Effect of form of operations on taxation, freedom from liability, and on social responsibilities. Includes bankruptcy and security transactions, such as mortgages and installment sales.

128. Business Environment of the Fine Arts (3)
Proseminar for seniors. Integration of principles of business management with production in the fine arts; case studies; analysis.

156. Labor Law (3)
Prerequisite: Econ 1A-B; B A 18, Mgt 110A-B recommended. Proseminar in the law of industrial relations; historical and current principles for legal settlement of labor-management disputes; statutes, court decisions, administrative rulings; case studies; individual presentations.

174. Introduction to International Business (3)
Principles and practice of international business and finance; government policies; mechanisms of world trade; international commercial relations.

175. Management of Multinational Enterprises (3)
Entering foreign markets; building an operational organization abroad to meet host country requirements; management strategies; problems of managing in foreign environments; trade barriers; comparative management styles of foreign businesses; case studies.

176. World Commerce and Development (3)
History, growth and change in world trade; importance of foreign trade in national economies; relationship of social and cultural development to foreign trade; opportunities and constraints for expansion of international business.

178. Technical Aspects of International Business (3)
International finance, foreign exchange, balance of payments, source of capital, management of funds, IMF, World Bank; accounting procedures in foreign countries; handling of multinational transactions; inflation, valuation of currencies, taxes and financial reporting; import/export procedures; international investments.

184. Real Estate Law (3)
Meets California statutory course requirement for real estate license. Prerequisite: B A 18. Legal aspects of acquisition and ownership of real estate; conveyances, mortgages, evidences of title; planning and zoning.

189T. Topics in Business Administration (1–3; max total 9 if no topic repeated)
Prerequisite: senior standing. Studies in business administration.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study*.

198. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Workstudy: Learning through on-the-job experience in a business. Written reports.

199. Internship (3–6; max total 6)
Open only to business majors. Prerequisite: permission of instructor. Workstudy: Student holds responsible position in business or government agency and reports on firm's operations and suggested improvements.

200 series. Graduate courses are listed under *Business*.

FINANCE (Fin)

34. Personal Investments (3)

Alternative uses of personal savings; stocks, bonds, mortgages and other securities, mutual funds, credit unions, banks, savings and loans, real estate investment trusts, insurance; financial security; mathematics of finance.

103. Financial Management in Health Care Institutions (3)

Prerequisite: Fin 133. Administrative use of financial information for internal control, capitalization and budgeting, and credits and collections. Sources of financing, asset management, operational planning and control, and investments in health care facilities.

104. Business Forecasting (3)

Prerequisite: DS 173. Business activity analysis; methods of forecasting; general and specific forecasts; analysis of trends in product groups, sectors, regions, and other areas of the world economy; mathematical models and statistical decisions; analysis of case problems.

132. Financial Institutions (3)

Prerequisite: Econ 1A-B, Acct 4A-B. Theory of the financial system; intermediation; gross and net money doctrines; financial institutions; money and capital markets; mathematical models, simulation, case problems.

133. Business Finance (3)

Prerequisite: Econ 1A-B; Acct 4A-B. Theory of financing the business firm under uncertainty. The supply of and demand for capital; asset management, simulation problems, capital structure analysis, cost of capital, capital budgeting decisions, mathematics of finance.

134. Security Analysis (3)

Prerequisite: Fin 133. Analysis of security markets; financial mathematics; stocks, bonds and mortgages; fundamental analysis; public and private regulation of security markets.

135. Monetary Theory and the Banking System (3)

Not open to students with credit in Econ 135. Prerequisite: Econ 1A-B. Monetary theory, commercial banking, central banking; the Federal Reserve system; the international monetary system; mathematical models of money flows.

137. Credit Management (3)

Mercantile and consumer credit; derivation of credit information from business data; credit agencies and credit bureaus; valuation; analysis of financial statements; technical and legal problems; collections.

138. Small Business Finance and Development (3)

Prerequisite: permission of the instructor. Practical application of business principles to improve small businesses; minority business problems; students serve as consultants to owners, managers; class reports.

139. Intermediate Business Finance (3)

Prerequisite: senior standing, B A 100, DS 173. Integration of analysis and policy for financial organizations; decisions under uncertainty; mathematical models and simulation.

143. Risk and Insurance (3)

Fundamentals of insurance and risk management. Covers the basic areas of property, liability, auto, life, health, and social insurance. Other areas including marketing, underwriting, claims, investments, and loss control.

144. Life Insurance (3)

Nature and use, types and forms of life and health insurance and annuities. Covers organization, management and regulation; employee benefit plans, social security.

145. Property and Liability Insurance (3)
Standard forms of property insurance including fire and allied lines, business interruption, and transportation insurance. Indentification and treatment of personal, business, and professional liability situations. Analysis of major property and liability insurance contracts. Case studies.

180. Real Estate Principles and Practice (3)
Meets California statutory course requirement for real estate practitioner license. Prerequisite: Econ 1A-B. Theory and practice of urban land use. Location and legal dimensions, planning and market processes; financial and investment decisions in real estate; case analysis.

181. Real Estate Appraisal (3)
Meets California statutory course requirement for real estate practitioner license. Prerequisite: Fin 180. Theory of real property value; historical development; methods used in urban and rural property appraisals; special purpose appraisals. Field work required.

183. Real Estate Finance and Investment (3)
Meets California statutory course requirement for real estate practitioner license. Prerequisite: Fin 180. Financial analysis, pricing, acquiring, managing, and marketing the real estate investment.

186. Urban Land Economics (3)
Prerequisite: Fin 180. Metropolitan and regional growth analysis, population pressures and urban land use patterns, planning, and investment decisions.

189T. Topics in Finance and Industry (1–3; max total 9 if no topic repeated)
Prerequisite: senior standing or permission of instructor. Studies in business including agricultural economics, business economics, business law, finance, real estate and urban economics.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

198. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Workstudy: Learning through on-the-job experience in a business. Written reports.

199. Internship (3-6; max total 6)
Open only to business majors. Prerequisite: permission of instructor. Workstudy: Student holds responsible position in business or government agency and reports on firm's operations and suggested improvements.

200 Series. Graduate courses are listed under *Business.*

INFORMATION SYSTEMS AND DECISION SCIENCES

FACULTY

Kelly J. Black, Department Chairman

Allen M. Agnew, Sarah G. Bedrosian, Jack Coffey, Harry G. Costis, Mostafa Elhag, Robert A. Flam, Berle Haggblade, Wallace C. Liu, Margaret W. MacMillan, Kristofer C. Neslund, Dwayne G. Schramm, Peter Simis, Gayle A. Sobolik, Seshagiri Rao Vemuri, T. Hillman Willis

Options:

Computer Applications and Systems
Decision Sciences
Information Management

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

Business majors must complete the core requirements (36 units) which are listed under the School of Business and Administrative Sciences. The three options available to the students are outlined below. The completion of the 24-27 units as required by the options, the General Education requirements, special course requirements, and the electives, which may include a minor, total the 124 units required for the bachelor of science degree in business administration.

Computer Applications and Systems Option	*Units*
Two semesters of approved college level mathematics	6
IS 54, 166, DS 181 and 182 or IS 163	12
Elect from: IS 107, 152, 159, 163, 164, 165, 168, DS 178, 182	9
	27
Decision Sciences Option	
Two semesters of approved college level mathematics	6
IS 53, DS 178, 181, 182,	12
Elect from: BA 100, IS 166, DS 175, 176, 179	6
	24
Information Management Option	
One semester of approved college level mathematics	3
IS 103, 105, 107	9
Elect from: IS 4, 115, 120, 121, and 122 or 12 units from Acct 120A-B, 129, 132, BA 100, 118, IS 53, 54, and 166	12
	24

COURSES

DECISION SCIENCES (DS)

70. Basic Quantitative Block (3) (3) (3)

Meets School of Business and Administrative Sciences requirements for IS 50, DS 71, and 73. Not open to students with credit in IS 50 or DS 71 or 73 or equivalents from another college.

Prerequisite: intermediate algebra and one year high school geometry, application and permission of instructor. Integrative lower-division course meets 9 hours weekly; computer concepts, mathematical, and statistical analysis. Mathematical and statistical background for study of business and managerial economics, including computer programming of statistical and mathematical constructs.

71. Quantitative Analysis I (3)

Prerequisite: intermediate algebra, one year high school geometry. Applications of finite mathematics in the quantitative formulation and solution of problems of modern management. (Former QM 21A)

72. Quantitative Analysis II (3)

Prerequisite: DS 71. Applications of selected tools of mathematical analysis in the quantitative formulation and solution of problems of modern management. (Former QM 21B)

73. Statistical Analysis I (3)

Prerequisite: Math 51 or 71 or DS 71; Econ 1A-B recommended. Introduction to descriptive statistical tools as applied to management decision making. Central tendency and dispersion measures; index numbers (CPI, deflators); time series analysis (trends, seasonal variations); probability theory; probability and sampling distributions (normal, exponential, binomial, poisson); central limit theorem. (Former QM 65)

141. Quantitative Analysis in Health Care Systems (3)

Prerequisite: DS 73. Survey of quantitative decision-making techniques and models and their applications in health care organizations. (Former QM 104)

173. Statistical Analysis II (3)

Prerequisite: DS 73, IS 50. Statistical inference as applied to managerial problems and decision making. Emphasizes the inferential process; interval estimation, hypothesis testing, one and two-way analysis of variance, regression, and correlation and related inferential analysis, non-parametric methods, Bayesian decision theory. (2 lecture; 2 lab hours) (Former QM 103)

175. Sampling Methods and Applications (3)

Prerequisite: DS 173. Sample designs, estimation using samples, including simple random, stratified, cluster, systematic, area, and multi-stage samples. Replicated sampling, acceptance sampling, industrial uses of sampling, and non-probability designs. (Former QM 175)

176. Bayesian Inference and Decision Theory (3)

Prerequisite: DS 173. Revision of probability and subjective interpretation. Bayes' theorem, statistical estimation of various parameters and decision theory, prior analysis and prior probability distributions; posterior analysis and posterior probability distributions; utility problems, expected value of perfect information. (Former QM 178)

178. Regression and Correlation Models (3)

Prerequisite: DS 173. Bivariate, joint, and conditional probability distributions. Linear and non-linear regression models involving multiple relationships. Covariance analysis, significance tests, autocorrelation, serial and partial correlation, and time series analysis. (Former QM 174)

179. Design of Scientific Experiments (3)

Prerequisite: DS 173. Notion of sampling distributions, theoretical probability distributions, gamma and F-distribution; analysis of variance, one-way and two-way classification tests; mixed and random effect models. Latin and Graeco Latin squares; factorial experimentation. (Former QM 176)

181. Principles of Operations Research I (3)

Prerequisite: DS 173. Introduction to operations research and the systems approach: mathematical programming, network analysis, queuing theory, Markov chains, input-output analysis, simulation. (Former QM 161-A)

182. Principles of Operations Research II (3)

Prerequisite: DS 181. Managerial applications of operations research: deterministic and Stochastic models; case studies. (Former QM 161-B)

189T. Topics in Decision Sciences (1-3; max total 6 if no topic repeated)

Prerequisite: 12 units in decision sciences. Theory or application of statistics or operations research applied to current developments. (Former QM 189T)

INFORMATION SYSTEMS (IS)

*** 1. Typewriting I (2)**

Not recommended for students with one or more semesters of high school typewriting. Development of keyboarding techniques and their applications for personal and business usage. (4 lab hours) (Former O Ad 1)

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* Not more than six units of credit in typewriting will be allowed toward any degree.

*** 2. Typewriting II (2)**

Prerequisite: IS 1 or equivalent. Refinement of keyboarding techniques for personal and business applications. Familiarity with use of keyboards including typewriters, communications terminals, and data entry devices. (4 lab hours) (Former O Ad 2)

*** 4. Office Production (3)**

Prerequisite: IS 1 or equivalent. Problems and solutions applicable to office production, reprographics, machine transcription, and word processing systems. (2 lecture; 2 lab hours) (Former O Ad 4)

20. Shorthand I (4)

Prerequisite: IS 1 or equivalent. Mastery of theory; proficiency in reading, writing, and transcribing shorthand. (2 lecture; 4 lab hours) (Former O Ad 23)

50. Computer Concepts (3)

Introduction to computer hardware and software systems and to several computer languages with emphasis on BASIC. Discussion of the social impact of computers; privacy and legal issues. (2 lecture; 2 lab hours) (Former QM 60)

53. Programming Languages—FORTRAN (3)

Prerequisite: IS 50. Programming in FORTRAN, using batch and on-line systems. (2 lecture; 2 lab hours) (Former QM 63)

54. Programming Languages—COBOL (3)

Prerequisite: IS 50. Programming in COBOL, using batch and on-line systems. (2 lecture; 2 lab hours) (Former QM 64)

103. Principles of Office Management (3)

Office management in business and industry; organization and control of office services; selection, training, and supervision of personnel; utilization of the computer and peripheral equipment in the office; improvement of office efficiency; office planning and layout; equipment and supplies. (Former O Ad 103)

105W. Business Communication (3)

Prerequisite: 3 units of English composition and junior standing. Business communication theory; analysis of communication alternatives; effective business writing and dictating; case studies. Meets the upper division writing skills requirement for graduation. (Former O Ad 105)

107. Management of Information (3)

Prerequisite: IS 50. Major types of information systems; data origination, representation, and transmission. Applications in the design, implementation and use of management decision/information systems. Integrated planning of hardware and software on cost effective basis. Introduction to DBS and FMS in the environment of information management. Latest privacy legislation as it affects the security and divulgence of information. (Former O Ad 107)

115. Word Processing Concepts (3)

Prerequisite: typewriting ability. Study of how automated equipment, highly trained personnel, and specified procedures affect information management. Emphasis on the information-processing-cycle phases. Acquisition of a word processing vocabulary. Competency in electronic-typewriter and text-editor operation. Awareness of word processing careers. (2 lecture; 2 lab hours)

120. Shorthand II (3)

Prerequisite: IS 20 or one year high school shorthand. Review of theory and development of proficiency in writing and transcribing shorthand notes; speed and endurance in writing and transcribing shorthand notes. (2 lecture; 2 lab hours) (Former O Ad 112)

121. Transcription (3)

Prerequisite: IS 120 (may be taken concurrently). Transcription from shorthand and machine dictation; development of production standards for office transcription. (2 lecture; 2 lab hours) (Former O Ad 114)

* Not more than six units of credit in typewriting will be allowed toward any degree.

122. Office Services and Procedures (3)
Prerequisite: IS 121. Duties and responsibilities of executive secretarial positions. (2 lecture; 2 lab hours) (Former O Ad 121)

130. Office Systems for Business Teachers (3)
Prerequisite: IS 1 or equivalent. For students working toward a standard secondary credential in business and those wishing to teach business subjects in community colleges. Office organization and control; computers, word processors, duplicating, and production equipment for the modern business office. (2 lecture; 2 lab hours) (Former O Ad 116)

142. Information in Health Care Organizations (3)
Prerequisite: Acct 4A, IS 50. Design, implementation, and evaluation of comprehensive information systems for planning and controlling the operations of health care organizations. (Former QM 105)

150 A-B-C Statistical Computer Applications (1) (1) (1)
Prerequisites: IS 50, DS 73, 173 (may be concurrent). 150A: Structuring sample surveys for computer analysis. Selection of statistical measurements. Selection of computer programs and interpretation of output. 150B: Use and interpretation of the Statistical Package for the Social Sciences (SPSS). 150C: A survey of available statistical computer packages with applications, including BMDP, FSUSTAT, and MINITAB.

152. Advanced Computer Programming (3)
Prerequisite: IS 53, 54. Algorithmic and procedure-oriented languages; arrays, graphs, sorting, merging, symbol tables, searching, list processing, simulation techniques, disk and tape program segmentation and linkage. (Former QM 162)

159. Machine Language Programming (3)
Prerequisite: IS 53 or 54. Machine assembler and symbolic languages; report generators; development of macro instructions. Requires development of programs in several languages. (Former QM 169)

163. Business Models and Simulation (3)
Prerequisite: IS 53 or 54 and DS 73, DS 173 desirable. Computer modeling of inventory, queueing, network, financial and planning problems. (Former QM 163)

164. Computer Configurations (3)
Prerequisite: IS 53 or 54 (a basic electronics course (Ia 151) desirable). In-depth study of selection and installation of hardware and software of various computers; feasibility studies, comparisons of self-managed versus service bureau operations; comparison of competitive systems; costs of reprogramming; distributed systems and microcomputers. (Former QM 173)

165. File Organization and Data Base Systems (3)
Prerequisite: IS 53 or 54. Data and storage structure; file design; approaches to data base management system design; use of generalized data base management systems. (Former QM 165)

166. Applied Computer Systems (3)
Prerequisite: Acct 4A-B, IS 54 (IS 53 and DS 181, 182 desirable) Development and programming of management information systems; accounting subsystems for external reporting and for internal control; techniques and methods used in systems analysis. (Former QM 166)

168. Data Processing Management (3)
Prerequisite: Acct 4A-B, 128, or 132; IS 53 or 54; Mgt. 124 desirable. Theories, cost, and problems of operation of a computer center; standards; flow of work, scheduling, batching, spooling, multiprogramming and multiprocessing techniques as methods of control and operation. (Former QM 168)

189T. Topics in Information Systems (1-3; max total 6 if no topic repeated)
Prerequisite: permission of instructor. Theory or application of information systems or information management as applied to current developments in the field. (Former O Ad 189T and QM 189T)

MANAGEMENT AND MARKETING

FACULTY

Richard D. Tellier, Department Chairman

David C. Anderson, Ralph H. Bergmann, Harold L. Best, Karen D. Bowerman, Gerald O. Bryan, Gene E. Burton, Douglas A. Cords, Charlotte M. Erb, Robert E. Hampton, Dewey E. Johnson, Gerald L. Jones, Robert I. Kutscher, Victor G. Panico, Charles S. Sherwood, Douglas B. Simpson, Louis D. Volpp, Irwin Weinstock, Charles H. Wetmore

Options

General Administration
Health Care Management
Personnel and Industrial Relations
Marketing
Transportation and Physical Distribution Management

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

Business majors must complete the core requirements (36 units) which are listed under the School of Business and Administrative Sciences. The five options available to the student are outlined below. The completion of the 24–27 units as required by the option, the General Education requirement, special course requirements and electives, which may include a minor, total the 124 units required for the bachelor of science degree in business administration.

General Administration Option	*Units*
One semester of approved college level mathematics	3
Elect from: Fin 104 or Mktg 104	3
Ind R 150	3
I S 105W	3
Elect: 12 approved upper division units from one of the following areas or 6 units from each of two areas: Accounting, Business Administration, Decision Sciences, Finance, Industrial Relations, Information Systems, Management, Marketing.	12
	24

Health Care Management Option	
One semester of approved college level mathematics	3
B A 106	3
Fin 103	3
H S 100	3
Mgt 108	3
Elect from: Acct 132, D S 141, H S 109, I S 142, Mgt 127, approved Independent Study or Internship, approved courses in related areas	12
	27

Personnel and Industrial Relations Option	
One semester of approved college level mathematics	3
Ind R 150, 152, 159	9
Elect from: B A 156, Ind R 153, 154, 157, 189T, I S 105W, Mgt 127, approved Independent Study or Internship, Econ 150, 151, Psych 134, 176, Soc 146	12
	24

Marketing Option	
One semester of approved college level mathematics	3
Mktg 104, 106, 109	9
Elect from: B A 118, Fin 104, I S 105W, Mgt 146, 147, Mktg 112, 117, 127, 130, 140, 142, 150, 155, 176, 189T, approved Independent Study or Internship, Jour 113, Ag Ec 161	12
	24

Transportation and Physical Distribution Management Option	*Units*
One semester of approved college level mathematics	3
Mgt 146, 147, 148	9
Elect from: B A 115, Fin 104, Ind R 152, I S 53, 105W, Mgt or Mktg or Ind R 189T (appropriate section), Mktg 104, 176, Acct 129, approved Independent Study or Internship, Geog 152, Econ 170	12
	24

COURSES

INDUSTRIAL RELATIONS (Ind R)

150. Administration of Personnel (3)
Prerequisite: Mgt 110A-B or 110 or Econ 150. Composition of labor force; acquisition and utilization of human resources in organizations: recruitment; selection; performance appraisal; motivation; compensation; communications; social issues and government influence. Individual and group projects; written and oral reports.

152. Labor Relations and Collective Bargaining (3)
Prerequisite: Mgt 110A-B or 110 or Econ 150. Relations between employers and organized employee groups; organization, election, and certification procedures; techniques of collective bargaining; labor agreements; grievance handling; settlement of industrial disputes.

153. Management Development (3)
Prerequisite: Mgt 110A-B or 110, INDR 150, senior standing. Self-assessment, personal objectives and career planning; careers and factors relating to personal career choice; career stages; role of mentor, inter/intra-organizational mobility, staffing and organization. Speakers, cases.

154. Compensation Administration (3)
Prerequisite: Mgt 110A-B or 110, Ind R 150. Analysis of compensation programs for business, not-for-profit, and government organizations. Special attention given to job evaluation programs, motivation-to-work theory, micro and macro forces influencing compensation decisions. Case analysis; individual and group reports.

157. Equal Employment Opportunity (3)
Prerequisite: IND R 150 and/or permission of instructor. Review of EEO law and application; development of affirmative action programs and enforcement of government regulations; prevention of discrimination complaints; procedures for resolution of existing complaints. Attention given to newly developing EEO-AAP issues.

159. Seminar in Personnel and Industrial Relations (3)
Prerequisite: Ind R 150, 152. Advanced problems in various areas of Personnel and Industrial Relations. Case analysis and discussion; individual and/or group reports.

189T. Topics in Industrial Relations. (1–3; max total 9 if no topic repeated)
Prerequisite: senior standing. Studies in personnel and labor relations: recruiting and selection, motivation, compensation, training, evaluation, labor organizations, collective bargaining, government and industrial relations, special problems in industrial relations.

190. Independent Study (1–3; max see reference)
See *Academic Planning—Independent Study.*

200 series. Graduate courses are listed under *Business.*

MANAGEMENT (Mgt)

101. Basic Management Block (12)

Meets School of Business and Administrative Sciences requirements for Mgt 110A-B or 110, 124, Mktg 100. Not open to students with credit in Mgt 110A-B, 110, 124, Mktg 100. Prerequisite: first-semester junior, Econ 1A-B, Acct 4A, D S 73, application, and permission of instructor. Special integrative undergraduate seminar: 12 hours weekly; marketing, production, administration, organizational behavior. Small group projects; field trips and research; computer simulation; student planned and presented programs; business, government, academic guest presentations. Consult school or departmental office.

102A-B-C-D. Advanced Management Block (3-3-3-3)

Can be substituted for some option requirements. Concurrent enrollment in A-B-C-D. Prerequisite: Permission of instructor. Undergraduate seminar integrating business disciplines, decision applications, models of local businesses, business simulation by computer, case analysis, student planned programs, individual and group presentations with executives and academicians, field trips, negotiations, group projects.

108. Health Care Facility Management (3)

Prerequisite: Mgt 110A. Operational and administrative demands of health care facilities including the processes of planning and decision-making, organizational structure and behavior, and important areas of managerial control. (Former Mgt 189T section)

110. Administration and Organizational Behavior (6)

Not open to students with credit in Mgt 110A or B. Combines Mgt 110A and B into an integrated, one-semester course, under one instructor. Extended use of small group work, individual research, and class presentation. (See Mgt 110A–B description for course content.)

110A–B. Administration and Organizational Behavior (3–3)

Prerequisite: Mgt 110A prerequisite to B. Organizational theory; structure and forms of organization, authority, leadership, group dynamics, policy formulation, conflict resolution, organizational control, theory of work and motivation, individual differences, communications, planning, development, evaluation, cross-cultural analyses of managerial processes, management of human resources. Lecture-discussion, individual and group projects and reports.

124. Operations Management (3)

Prerequisite: D S 173 (may be taken concurrently), Mgt 110A or 110. Operations systems and problems; facility location and design; material handling; operation planning and control; inventory control; product development; quality control; methods analysis and job design; work measurement. Lecture discussion; application of quantitative methods in solution of national and multinational operations problems; computer simulation.

127. First-Line Supervision (3)

Prerequisite: Mgt 110A-B or 110. Emphasis on motivating, communicating, counseling, training, managing time, evaluating performance, and understanding the worker. Guest speakers, role-playing and incident reports. (Former Ind R 189T section)

128. Problems in Small Business Management (3)

Prerequisite: senior standing. Special problems of small businesses: initiation, financing, operations. Class projects: studying local business operations; preparing business plans and financial requests.

146. Transportation Management (3)

Prerequisite: Econ 1A-B. Major modes for movement of goods and people; comparison of alternatives; carrier organization and management; rate structures; government regulation; effect of transportation on plant location, pricing, and markets; urban and national transportation problems.

147. Physical Distribution Management (3)
Prerequisite: Mktg 100. Systems approach to physical distribution; traffic management; plant and warehouse location; inventory control; information flows and order processing; supply scheduling; total cost planning; organizational patterns.

148. Advanced Transportation Management (3)
Prerequisite: Mgt 146, 147. New tools and techniques in carrier management, physical distribution management, carrier-shipper cooperation; trends in intracarrier and intercarrier competition, pricing and regulatory philosophy; case problems; computer simulation; individual and group problem solving.

187. Seminar in Business Strategy (3)
Prerequisite: last semester senior and completion of School of Business and Administrative Sciences core requirements. Integration of various fields of knowledge through utilization of previously acquired academic and practical experience; emphasis upon decision making under conditions of uncertainty, and experience with international policy formulation and implementation.

189T. Topics in Management (1–3; max total 9 if no topic repeated)
Prerequisite: senior standing. Studies in management, organizational theory, organizational behavior, production, transportation, business administration, special management and organizational problems.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

200 Series. Graduate courses are listed under *Business.*

MARKETING (Mktg)

100. Principles of Marketing (3)
Prerequisite: Econ 1A-B. National and multinational economic and social problems involved in moving goods and services from the producer to the consumer; major kinds of goods and services to be marketed; the institutions and agencies of distribution, and the series of functions involved.

104. Proseminar in Marketing Research (3)
Prerequisites: D S 173, Econ 1A-B, Mktg 100. Fundamentals of market and marketing analysis, research procedure, methods of analysis; individual and group problem analysis and presentation of results; computer simulation.

106. Consumer Behavior (3)
Prerequisite: Mktg 104. Survey of research findings related to concepts, principles and theories of consumer behavior drawn from marketing, economics, sociology and psychology; decision processes involved in buyer behavior and marketing implications thereof; individual/group research and analysis.

109. Marketing Problems (3)
Prerequisite: Mktg 104, and senior standing. Integration and application of marketing theory; decision making and decision models, class analysis; individual and small group research and presentations, computer simulation. Relationship of other business areas to marketing.

112. Product and Pricing Policies (3)
Prerequisite: Mktg 100. Policies and practices involved in developing and maintaining products, services, and prices.

117. Industrial Marketing (3)
Prerequisite: Mktg 100. Analysis of marketing systems serving business, industry, government, and other institutions; industrial procurement practices; individual and group problem research, analysis and presentation of results.

127. Consumerism and Marketing (3)

Prerequisites: B A 18, Mktg 100. Consumerism impact on marketing strategy and decision-making. Examination and evaluation of consumerist movement; historical development and current state of consumerism; consideration of consumerist groups, role of government, involvement of private enterprise and general public. Individual and group presentations; seminar instruction.

130. Retailing Management (3)

Prerequisite: Mktg 100. Management operations and functions of retailing organizations; structure, personnel, impact on the community; buying, pricing and selling of merchandise.

140. Advertising Principles (3)

Analytical approach to advertising as a broad social influence; functions in our culture; application as a marketing and communication force; individual and group problem analysis and presentation of results; individual field research.

142. Advertising Problems (3)

Prerequisite: Mktg 140. Advertising production and media problems; market research techniques; selection of campaign themes, copy preparation, art and layout. Field trips required.

150. Psychology of Personal Persuasion (3)

Prerequisite: Mktg 100. Behavioral science approach to personal selling. Emphasis on analysis of psychological aspects of consumer decision-making and consumer attitudes toward the salesman that affect success. Case analysis, individual and group presentations.

155. Sales Administration (3)

Prerequisite: Mktg 100. Techniques of personal persuasion; behavioral science methods; selection, training, and supervision of sales staff.

176. International Marketing (3)

Prerequisite: Mktg 100. Examination and evaluation of business policies and practices of firms engaged in world trade; the marketing area; organization, product, channels of distribution, marketing research, demand creation, and other management problems.

189T. Topics in Marketing (1–3; max total 6 if no topic repeated)

Prerequisite: senior standing or permission of instructor. Topics in advertising, consumer behavior, distribution, industrial procurement, marketing research, retailing, wholesaling.

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study.*

198. Supervised Work Experience (1)

Open only to business majors. Prerequisite: permission of instructor. Workstudy: Learning through on-the-job experience in a business. Written reports.

199. Internship (3–6; max total 6)

Open only to business majors. Prerequisite: permission of instructor. Workstudy: Student holds responsible position in business or government agency and reports on firm's operations and suggested improvements.

200 Series. Graduate courses are listed under *Business.*

GRADUATE COURSES—BUSINESS AND ADMINISTRATIVE SCIENCES

(See *Course Numbering System—Definitions and Eligibility)*

BUSINESS (Bus)

Note: The foundation courses (Bus 202, 205, 207, A–B–C, 208, 209, 211, 214, 216, 217, and 218) are open only to classified graduate students and are required of those who have not completed equivalent undergraduate courses. Other 200 series courses are open only to graduate students in classified standing, except that teaching credential candidates may take Bus 280 and 282 in unclassified standing when approved by the Business Credential Adviser.

202. Economics for Business Decisions (3)

Not required of students with credit in Econ 1A-B. Microeconomic decisions; product, service, and factor markets; risk, uncertainty, and profits; macroeconomic framework of business decisions.

205. Financial and Managerial Accounting (3)

Not required of students with credit in Acct 1A-B or 4A-B. Financial accounting; statement analysis and interpretation; transaction analysis; partnerships and corporations; taxation; financial reporting; managerial controls, information systems, budgeting; costs, capital budgets.

207A-B-C. Quantitative Foundations for Business Decisions (1-1-1)

Not required of students with credit in DS 71, 72. (A) Functional representation of business relationships, (B) Variable rates of change, marginal analysis and optimization of business functions, (C) Analysis of business data arrays. (Lecture/lab)

208. Quantitative Methods in Business (3)

Not required of students with credit in D S 73, 173. Statistical analysis in business, tests of hypotheses, time series, correlation analyses, index numbers, estimation models, and Bayesian statistics in business decision making. (2 lecture, 2 lab hours)

209. Computers and Programming (3)

Not required of students with credit in I S 50 and I S 53 or 54. Computing algorithms, statistical and other software packages, data processing, programming languages; COBOL, FORTRAN, Interactive BASIC-PLUS. (2 lecture, 2 lab hours).

211. Legal Environment of Business (3)

Not required of students with credit in B A 18. Basic legal concepts; nature of the legal system, law of contracts, sales, negotiable instruments, agencies, partnerships, corporations.

214. Organization and Management Theory (3)

Not required of students with credit in Mgt 110 or 110A–B. Organizational theory, structure and forms of organization, authority, leadership, group dynamics, policy formulation; conflict resolution, organizational control.

216. Operations Analysis (3)

Not required of students with credit in Mgt 124. Prerequisite: Bus 208 and 214 recommended. Operations theory and methods; operations planning and control; methods analysis, work measurements; materials handling and control, facilities location and layout; application of statistical techniques and electronic data processing; relationships with other functional areas of management.

217. Marketing Organization and Policies (3)

Not required of students with credit in Mktg 100. Prerequisite: Bus 202 recommended. Environmental factors for marketing, elements of marketing and marketing systems, marketing activities and strategies of the firm; evaluating marketing programs and systems.

218. Principles of Finance (3)

Not required of students with credit in Fin 133. Prerequisite: Bus 205; Bus 202 recommended. Impact of uncertainty and environmental considerations upon the finance function. Financial problems and policies: working capital management, capital budgeting, cost of capital, and dividend policy. Problems and cases.

221. Seminar in Business Research (3)

Prerequisite: Bus 208, 209. Methods of research; applications to business problems. (Former Bus 200, 222)

223. Seminar in Organizational Behavior (3)

Prerequisite: Bus 214; Bus 221 (or concurrently). Problems of the individual and groups brought about by modern industrial organizations and techniques; motivations for work and cooperation between executives and different economic and social groups; analysis of effect of company policy on employee and public relations.

225. Seminar in Managerial Economics (3)

Prerequisite: Bus 202, 208; Bus 221 (or concurrently). Economic analysis of managerial problems; theory of the firm. (Former Bus 229)

226. Seminar in Accounting Control and Reporting (3)

Prerequisite: Bus 205, 208; Bus 221 (or concurrently). Procedures for financial reporting, systems and internal control, interpretation of administrative reports; accounting control—statistical inference, budgetary planning, standard costs, differential cost analysis, profit volume relationships.

228. Seminar in Quantitative Analysis (3)

Prerequisite: Bus 208, 216; Bus 221 (or concurrently). Quantitative analysis of business problems; development of operations research models for decision making; applications.

229. Seminar in Business Policy (3)

Prerequisite: completion of foundation courses; completion of MBA core (or concurrently) completing MBA core. Advanced problems in business policy; evaluation, determination, execution, administration, and control; policy objectives in integration of product, marketing, manufacturing, finance, and organization; analysis of administrative policy-making bodies and processes. (Former Bus 220)

232. Seminar in Money and Capital Markets (3)

Prerequisite: Bus 218. Analysis of money and capital markets, their organization and role in economic activity.

233. Seminar in Business Finance (3)

Prerequisite: Bus 218. Critical review of theory and practice; supply and demand factors; sources and uses of business funds; management of financial assets; cost of capital; theory of financial structures; promotion; liquidation of firms; current trends; changing institutional environment.

237. Seminar in Public Policy and Enterprise (3)

Prerequisite: Bus 211. Development of legal controls of business; constitutional problems; legal aspects of business organization; anti-trust laws and competition, securities regulation, consumer protection.

240. Seminar in Marketing (3)

Prerequisite: Bus 217. Critical review of the literature of marketing, special reports and research dealing with marketing institutions and organization, and marketing functions.

242. Seminar in Marketing Management (3)

Prerequisite: Bus 217. Analysis of basic problems of marketing management and alternative methods of approaching these problems; case studies; use of statistics, economics, psychology, and other tools in directing marketing activities; relation of marketing to other areas of business administration.

250. Seminar in Personnel Management (3)

Prerequisite: Bus 214. Trends and problems in management-employee relationships; administrative action in selection, motivation, and development of personnel; relation of personnel administration to other areas of management; concentrated study by each student of a special phase of personnel work.

252. Seminar in Labor Relations (3)
Prerequisite: Bus 214. Current trends in labor relations theory and practice; labor relations systems; contract negotiations; dispute prevention and settlement; role of government; applications of behavioral sciences; individual research.

253. Manpower Management (3)
Prerequisite: Bus 214, 250. Principles and methods for understanding the effective use of manpower resources, macro and micro. Analysis and resolution of specific manpower problems at the operating level.

255. Seminar in Operations Management (3)
Prerequisite: Bus 216. Current operations management theories and problems; critical analysis and review of present practices and theories.

257. Seminar in Business Communication (3)
Investigation and analysis of the Communication process as it relates to managerial effectiveness.

258. Seminar in Office Management (3)
Managerial control of office functions, services, and personnel; case studies.

260. Seminar in Accounting Theory (3)
Prerequisite: Bus 226. Development of accounting theory; current accounting theory; areas of accounting theory where professional differences exist; AICPA research studies, governmental regulations, recent literature, and accounting classics.

261. Accounting for Non-Profit Organizations (3)
Prerequisite: Bus. 205. Accounting for various types of funds as applied to governmental and other not-for-profit organizations. Budgets and accounting controls; revenues and appropriations, expenditures and encumbrances; accounting statements and reports.

262. Seminar in Programming (3)
Prerequisite: Bus 209 . Advanced techniques of sorting, file maintenance and information systems, controls and teleprocessing directed toward business applications.

263. Seminar in Cost Accounting (3)
Prerequisite: Bus 226. Advanced study of process and standard costs; overhead costs; budgeting; use of cost accounting data in economic analysis and managerial control; problems illustrating course material.

264. Seminar in Auditing (3)
Prerequisite: Acct 162. An advanced study of the philosophy, theory, and practice of auditing with special emphasis in recent developments, and cases involving ethical and legal responsibilities, statistical sampling methods, using the computer, and reliance on internal control; operational auditing.

265. Seminar in Information Systems (3)
Prerequisite: Bus 209. Analysis of integrated and decentralized systems related to business organizations, their decision and control centers; underlying technologies and methods for designing, implementing, and operating an information system.

266. Data Processing Management and Computer Selection (3)
Prerequisite: Bus 205, 209. Theories, costs, and problems of operating computer centers: standards, flow of work, scheduling, batching, spooling, multiprogramming techniques. In-depth study of hardware and software of various computers; feasibility studies; comparisons of competitive systems; costs of reprogramming.

268. Regression, Correlation, Factor Analysis (3)
Prerequisite: Bus 208. Conditional, marginal, and joint probability distributions; statistical dependence; simple, multiple, linear and nonlinear regression models; correlation analysis; analysis of variance and regression; introduction to Bayesian decision theory.

269. Seminar in Taxation (3)
Prerequisite: Acct 144A–B. Tax planning and decision making with respect to income, estate, and gift taxes; tax research and review of current cases involving application of tax laws to individuals, partnerships, corporations, and fiduciaries; analysis of governmental tax policy.

270. Accounting for Estates and Trusts (3)
Prerequisite: Acct 120A-B, 144A. Theory, practice, and legal requirements for reporting by fiduciaries of estates and trusts. Estate planning techniques to maximize wealth and minimize taxes. Reporting by companies in bankruptcy.

272. Seminar in International Finance (3)
Prerequisite: Bus 202, 218. Theory and practice in international money and capital markets; foreign exchange; balance of payments; problems of adjustment; comparative financial systems.

275. Seminar in International Business (3)
Prerequisite: Bus 225. International trade and finance; cultural and institutional environment of multinational enterprise, trade and development aid; accounting, marketing, production and operations aspects of international trade and enterprise.

280. Seminar in Business Education (3)
Study of advanced problems in business education.

282. Seminar in Business Curricula (3)
Objectives, principles, and curricula of business in secondary schools, and colleges and universities; evaluation and trends of current programs.

289T. Seminar in Business Topics (3; max total 9 if no topic repeated)
Prerequisite: 9 units of 200 courses. Theory and developments in accounting, administration and organization, business education, communications, consumer economics, finance, industrial and regional studies, international business, law, management, marketing, personnel and industrial relations, quantitative studies, real estate and urban economics, records management, resource economics, risk and insurance, or transportation. (Former Bus 210T, 230T)

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

291. Management Project (3)
Prerequisite: Completion of the MBA core or concurrently completing the MBA core. Independent field analysis of an operating business firm or one of its principal functional areas. The managerial audit may be submitted to the faculty in lieu of a thesis.

292. Readings in Business (2–3; max total 6)
Prerequisite: permission of instructor. Individually directed readings in a field of special concern to the student's graduate program; appropriate reports and evaluation required. Individual conferences; no formal class meetings.

299. Thesis (3 or 6)
Prerequisite: Completion of master's core or concurrently completing master's core. See *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree. Elective for master of business administration.

IN-SERVICE COURSES

(See *Course Numbering System.*)

367. CPA Review (2–4)

380T. Topics in Business (2; may be repeated if no topic repeated)

381. Instructional Procedures in Vocational Business Education (2–3)

385. Bridging the Gap (2–4)

389. Workshop in Business Education (1–6; max total 6)

398. Business Internship (1–6; max total 6)

AEROSPACE STUDIES

FACULTY

Robert G. Stuart, Department Chairman

Denis I. Gibbs, Darrell C. Hayes

AEROSPACE STUDIES MINOR

A minor in aerospace studies consists of satisfactory completion of the AFROTC program (16 upper division units). Open to men and women.

AIR FORCE RESERVE OFFICER TRAINING CORPS PROGRAM

This program is designed to provide students with the opportunity to develop professional, academic, and leadership attributes essential to their progressive advancement to positions of responsibility as officers in the United States Air Force. Successful completion of the program leads to a reserve commission as a Second Lieutenant in the United States Air Force upon graduation.

There are two plans to this program. Plan I is the four-year plan which is composed of two years in the General Military Course (GMC), four weeks at a Field Training summer encampment, and two years in the Professional Officer Course (POC). Plan II is the two-year plan which consists of six weeks of Field Training and two years in the Professional Officer Course (POC).

The ideal time to apply for Plan I is in the Fall of the senior year of high school, but it is also possible to join the program during the freshman and sophomore years of college. In order to receive financial aid during the first two years of Plan I a student may apply for an AFROTC scholarship. 4, 3½, 3, 2½, and 2-year scholarships are available. Plan II can be applied for in the Fall of the sophomore year or at any time a Bachelor's Degree can be earned within two years or has already been earned.

Scholarship students enrolled in the GMC and all students enrolled in the POC receive $100 a month nontaxable financial assistance. All students on Air Force scholarships receive full tuition, payment for text books, laboratory fees, and incidental fees. All AFROTC payments and other benefits are in addition to those a veteran is entitled to under the GI Bill, other laws, or scholarships. In addition to degree requirements and AFROTC courses, the following college courses are required:

(1) Air Force scholarship students in the General Military Course (GMC) must complete English 1 *Composition* before completing the GMC.

(2) Professional Officer Course (POC) contract students must complete a course in mathematical reasoning. One of the following courses will satisfy the requirement: Math 1, *Elementary Algebra,* Math 4, *Intermediate Algebra,* Math 11, *Elementary Statistics,* Math 52, *Elementary Linear Algebra.* POC scholarship students must also complete a foreign language course approved by the Professor of Aerospace Studies.

A 25-hour flight instruction program is offered to pilot candidates at government expense.

Prior military service is beneficial in competing for acceptance into the program. See the Professor of Aerospace Studies for details.

Students with any academic major may apply for admission to AFROTC.

To be eligible for the GMC each individual must:

(1) Be a member of the four-year program.
(2) Be a full-time student at CSUF.
(3) Be age 14 or older.
(4) Be a United States citizen.
(5) Be of good moral character.
(6) Meet the medical standards for admission to CSUF.
(7) Not have been disenrolled from an Officer Training Program (a waiver of this requirement can often be obtained).

To be eligible for the POC a student must:

(1) Be a citizen of the United States and not less than 17 years of age.
(2) Be physically, mentally, and morally qualified in accordance with standards established by the Department of the Air Force.
(3) Have two academic years, either undergraduate or graduate, remaining at the time of POC entry.

(4) Take the Air Force Officer Qualifying Test.
(5) (a) (For Pilot and Navigator) Be not more than 26½ years of age on date of appointment.
(b) (For all other categories) Be not more than 30 years of age at date of commissioning (Former military members may request an age waiver).
(6) Be a full-time student according to the rules of CSUF.
(7) Be approved for AFROTC training by the Professor of Aerospace Studies.

COURSES

AEROSPACE STUDIES (A Sp)

1A–B. The Air Force Today (1–1)
This course deals with the Air Force in the contemporary world through a study of the total force structure, strategic offensive and defensive forces, general purpose forces, and aerospace support forces.

2A–B. The Development of Air Power (1–1)
This course includes the study of the development of air power from balloons and dirigibles through contingency warfare and the peaceful employment of U. S. air power in relief missions.

3. Leadership Laboratory (1; max total 4)
Must be taken each semester of the General Military Course (GMC). Cadets experiment with and develop their military and leadership skills and techniques.

14. General Aviation: Private Pilot (3)
Fundamentals of flight and aerodynamics, aircraft controls and maneuvers, powerplants and systems, flight instruments, aircraft performance, Airman's Information Manual, flight computer, meteorology, flight planning, navigation, Federal Aviation Regulations, and radio communications. Prepares student for FAA private pilot written examination.

25. Air Force ROTC Field Training (3)
For all nonprior-service applicants. Taken during summer preceding entry into AFROTC. Six-week field training to acquaint student with Air Force life; basic military skills; Air Force weapons and support systems; and discipline essential to military environment. The Air Force provides meals, housing, $483 pay, and travel pay to and from designated Air Force base.

103C. Air Force ROTC Field Training (3)
Required for those who have completed the General Military Course (GMC) and prior-service cadets. Four weeks of military training taken during the summer at designated Air Force installations. Physical training, drill, weapon familiarization, flying, field exercises, orientation in United States Air Force base activities, and equipment. The Air Force provides meals, housing, $322 pay, and travel pay to and from designated Air Force Base.

104A–B. Air Force Management and Leadership (3–3)
Prerequisite: A Sp 25, or equivalent military training. Systematic study of published research on leadership theories and group dynamics; review of the principles and functions of management with emphasis on problem solving and practical application of management tools; communication skills, military speech and writing formats.

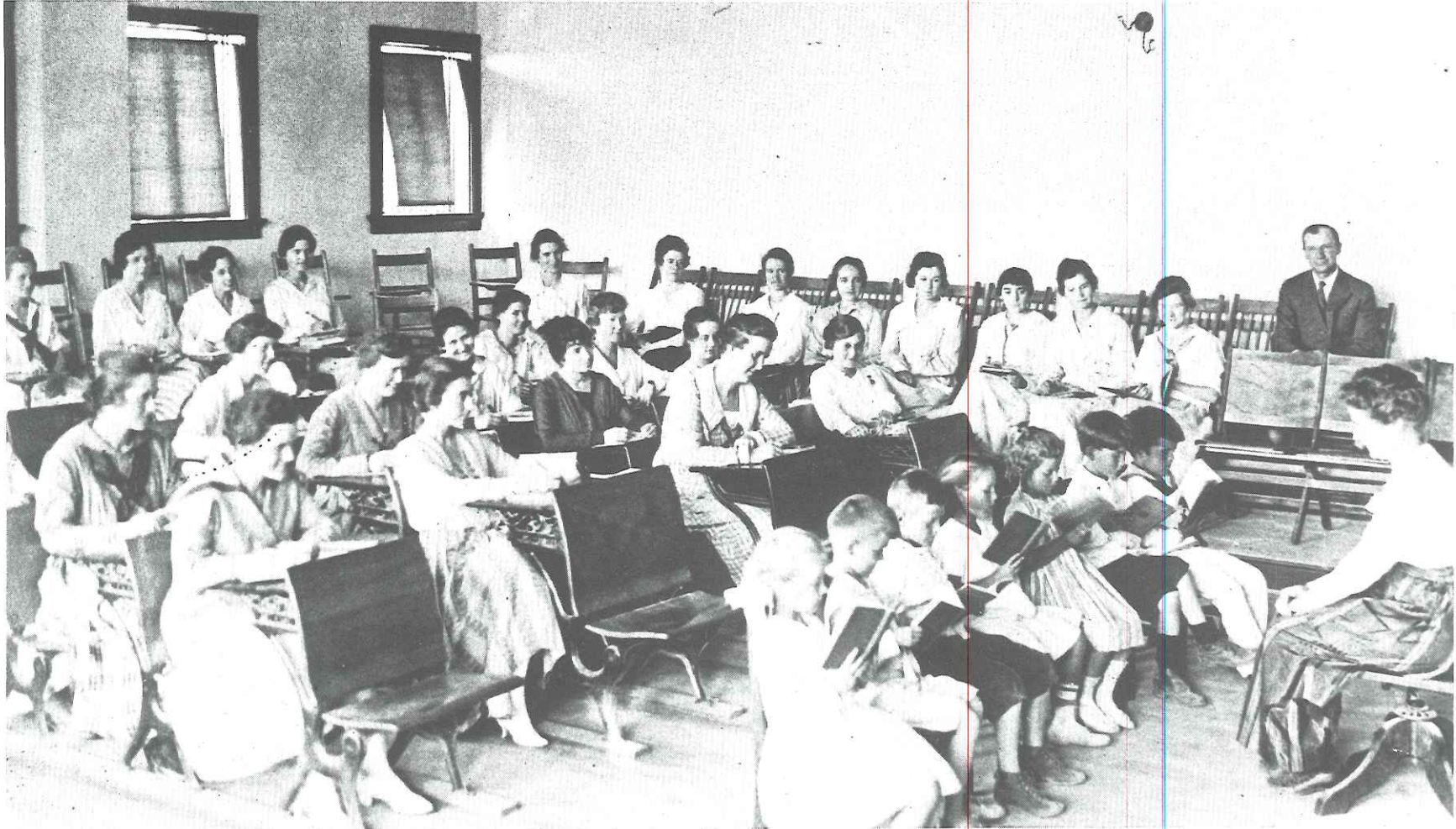
105A–BW. American Defense Policy (3–3)
Prerequisite: A Sp 104A–B. National security forces in contemporary American society; societal attitudes towards the military; requisites for maintaining adequate armed forces; political and economic constraints on national defense; impact of technological and international developments on strategic preparedness and policy-making; introduction to military and international law. 105BW meets upper division writing skills requirement for graduation. (Former A Sp 103A–B)

113. Leadership Laboratory (1; max total 4)
Prerequisite: A Sp 25, or equivalent military training. Must be taken each semester of the Professional Officer Course (POC). Cadets experiment with and develop their leadership skills and techniques.



SCHOOL OF EDUCATION AND HUMAN DEVELOPMENT

Photo: *Floralyn Cadwell—Teacher, Reading*
Fresno State Normal School, circa 1917



Fresno State Teachers College trained elementary and secondary school teachers, using all the newest and most progressive teaching methods available in 1922, when this picture was taken. The laboratory training school was located on the college campus (the present Fresno City College).

SCHOOL OF EDUCATION AND HUMAN DEVELOPMENT

Homer M. Johnson, Dean

Departments

Advanced Studies ..... Robert H. Monke
Teacher Education ..... Sanford W. Reitman

Degree and Credential Programs and Services

Admission and Certification
  Credential Analyst ..... Janet Smith
  Admissions Secretary ..... Charlotte Dishian
Liberal Studies ..... Ivan H. Rowe
Multiple Subjects (Teacher Education) ..... David Haimbach
Single Subjects (Teacher Education) ..... James P. Echols
Administration (Advanced Studies) ..... Richard K. Sparks
Bilingual/Cross-Cultural Education (Teacher Education) ..... Cecilio Orozco
Early Childhood Education (Teacher Education) ..... Joyce M. Huggins
Pupil Personnel Services (Advanced Studies) ..... Ray E. Brewer
Reading (Teacher Education) ..... Beatrice E. Bradley
Special Education (Advanced Studies) ..... Peter G. Fast
Graduate Studies ..... Robert H. Monke
Planning and Development ..... Ric Brown

DEGREES OFFERED: MA in Counseling
MA in Education
MA in Special Education

The School of Education and Human Development utilizes the resources of the university in the preparation of teachers, administrators, and special service personnel for elementary and secondary schools. The professional preparation program is based on the assumption that a teacher or administrator needs a liberal education, should be well versed in subject matter, and must be highly trained in the principles and practices of teaching, including psychological and cultural factors influencing learning and achievement.

The School of Education and Human Development through its two departments and the related programs provides basic teaching credential programs for elementary (multiple subjects) and secondary (single subject) teaching; specialist teaching credential programs in the agricultural, bilingual/cross-cultural, early childhood, reading, and special education fields; and advanced credential programs for administrative, clinical-rehabilitative, health (school nurse), and pupil personnel (including school psychologist) services.

Supporting services included in the school organization are the Curriculum Library, Children's Library in the University Library, Instructional Materials Center for Special Education, Education Learning Laboratory, and Reading Center.

COOPERATING PUBLIC SCHOOL DISTRICTS

The professional preparation programs of the School of Education and Human Development utilize the services and facilities of a number of cooperating public school districts for assignments in student teaching, and other clinical and field work. Teachers, administrators, consultants, and other personnel assist students to gain practical experience in the field. The school works closely with the public schools in planning and implementing credential programs.

The following school agencies and districts are currently cooperating in the university program:

California State University, Fresno (Campus Day Care Center)
Caruthers Union High School District
Central Union High School District
Chowchilla Union High School District
Clovis Unified School District
Coalinga Unified School District
College of the Sequoias
Dinuba Joint Union High School District
Firebaugh-Las Deltas Unified School District

Fowler Unified School District
Fresno City College
Fresno Colony School District
Fresno County Department of Education
Fresno Unified School District
Hanford Elementary School District
Hanford Joint Union High School District
Hughson Union High School District
Kerman Union High School District
Kern Joint Unified High School District
Kings Canyon Joint Unified School District
Lindsay Unified School District
Madera Unified School District
Merced Union High School District
Newman-Crows Landing Unified School District
Raisin City Elementary School District
Sanger Unified School District
Selma Unified School District
Sierra Union High School District
State of California Diagnostic School for Neurologically Handicapped Children
Tranquility Union High School District
Tulare City Elementary School District
Tulare County Department of Education
Visalia Unified School District
Washington Union High School District
Woodlake Union High School District



CREDENTIAL PROGRAMS

The state now issues credentials for public school service under the provisions of the Teacher Preparation and Licensing Law of 1970 (the Ryan Act).

Information regarding the Ryan Act and the professional preparation programs is available in the Teacher Education and Advanced Studies departmental offices and in the School of Education and Human Development Admissions Office (EdP 120).

Basic Teaching Programs

Multiple subjects (elementary teaching)	*see* Teacher Education Department/Multiple Subjects Coordinator
Multiple subjects, with emphasis in early childhood education	*see* Teacher Education Department/Coordinator of Early Childhood Education
Multiple subjects, with emphasis in bilingual/cross-cultural education	*see* Teacher Education Department/Coordinator of Bilingual/Cross-Cultural Education
Single subject	*see* Teacher Education Department/Single Subject Coordinator

(For major requirements, see subject matter departments.)

Specialist Teaching Programs

Agricultural	*see* Enology, Food Science and Nutrition Department
Bilingual/Cross-Cultural	*see* Teacher Education Department/Coordinator of Bilingual/Cross-Cultural Program
Early Childhood	*see* Teacher Education Department/Coordinator of Early Childhood Education
Reading	*see* Teacher Education Department/Coordinator of Reading Specialist Program
Special Education	*see* Advanced Studies Department (Education)/Coordinator of Special Education

Services Credential Programs

Administrative	*see* Advanced Studies Department (Education)/Coordinator of School Administration Program
Clinical-Rehabilitative	*see* Communicative Disorders Department/Coordinator of Special Education
Health (School Nurse)	*see* Nursing Department
Pupil Personnel, including School Psychologist	*see* Advanced Studies Department (Education)/Coordinator of Pupil Personnel Program

APPLICATION FOR ADMISSION TO CREDENTIAL PROGRAMS

Students planning to undertake a program of studies leading to a credential must apply for admission in the School of Education and Human Development Admissions Office (EdP 120). Application for admission should be filed during the first semester of the junior year or immediately after transferring to CSUF. Application for student teaching is a separate action and must be filed no later than the fourth week of the semester preceding the semester in which the applicant desires to take student teaching (T Ed 110 and 160, T Ed 155A and 155B).

The following minimum requirements must be met for acceptance in the respective credential programs (*Title 5, California Administrative Code, Section 41100*):

1. **Academic Aptitude.** Students who fall below the percentile rank of 50 on the college aptitude and reading tests must demonstrate compensating strength in other areas listed in the following sections.
2. **Scholarship.** Candidates for credentials with elementary (multiple subject) specialization must present a minimum grade-point average of 2.50 in the total university program; candidates for secondary (single subject) specialization must present a minimum grade-point average of 2.75 in the waiver program and the total university program. A grade-point average of not less than 2.50 must be maintained in all work taken at CSUF.
3. **Professional Aptitude.** Evidence of ability to work with pupils, parents, and school officials must be demonstrated by the candidate.
4. **Physical Fitness.** All candidates for public school credentials must secure medical clearance from the staff of the university Student Health Service before admission to a credential program is approved.
5. **Language Usage.** Habitual use of clear, correct, and appropriate language, both written and oral, is required, including demonstrated competency in composition and reading.
6. **Personality and Character.** Personal qualifications required for professional service are expected. These include appearance, dress, poise, force, vitality, social attitudes, cooperativeness, temperament, emotional stability, integrity, and such personal habits and manners as are not offensive to pupils, co-workers, and school patrons.
7. **General Fitness for Teaching.** Weakness in the foregoing items, or evidence of unfavorable traits of character or personality, will disqualify a student from candidacy for a credential program.

The School of Education and Human Development Admissions and Standards Committee is responsible for recommending to the Dean (Director of Teacher Education) applicants who qualify for admission to teaching, specialist, and services credential programs. Students who do not meet all of the criteria for admission to a credential program may submit written petitions to the Admissions Committee requesting review of their applications.

Note: All applications for admission to credential programs are to be made in the School of Education and Human Development Admissions Office, EdP 120.

GRADUATE PROGRAMS

The Master of Arts degree programs in Education are administered by the School of Education and Human Development and are designed to provide advanced study and research for the purpose of extending the competence of classroom teachers and specialists, counselors, and school administrators; to increase depth of insight into educational problems; and to provide for a first graduate degree for persons anticipating advanced graduate study related to school service. To meet these purposes, the following programs are offered: early childhood education (pending approval by Graduate Council), elementary teaching, secondary teaching, reading, educational theory, administration, counseling, and special education.

In addition to making application for admission to the university through the Office of Admissions, the student should consult the School of Education and Human Development Graduate Office for program information, special application forms for admission to the School of Education and Human Development graduate programs, and assignment to an appropriate adviser. The School of Education and Human Development Graduate Office maintains a record center for all students who are working toward the master's degree in the School of Education and Human Development. It also maintains liaison between the Division of Graduate Studies and Research and departments in the School of Education and Human Development offering master's degree programs.

In order to ensure selection of courses that will be acceptable on a master's degree program, candidates should consult with an adviser as indicated below:

MA in Education

Elementary Teaching	*see* Multiple Subjects Coordinator
Secondary Teaching	*see* Single Subject Coordinator
Reading	*see* Coordinator of Reading Specialist Program
Educational Theory	*see* Coordinator for Planning and Development
Administration	*see* Coordinator of Administrative Services Program
MA in Counseling	*see* Coordinator of Pupil Personnel Services Program
MA in Special Education	*see* Coordinator of Special Education Program

MASTER OF ARTS DEGREE IN EDUCATION (Concentration in Educational Theory)

The Master of Arts Degree in Education with a concentration in Educational Theory provides in-depth study of learning theory and the sociological/psychological issues in education. Specialization within this area is useful in teaching and supervision with all age level populations. See the Division of Graduate Studies and Research-Master's Degree for general requirements; see the Coordinator of the Educational Theory Program for specific requirements.

Prerequisite: Fifteen units in Education.

Requirements: Under the direction of a graduate adviser, each student prepares and submits a program within the following framework:

	Units
Educ 220 and 298 or 299	7
One or more courses from each of the following groups	12
(1) Psychological and sociological foundations	
(2) Historical and philosophical foundations	
(3) Counseling, guidance, and measurement	
(4) Administration, curriculum, methodology, supervision	
Approved 100- or 200-series courses outside A S-T Ed	4–9
Approved electives	2–7
Total	30

INTERDEPARTMENTAL COURSES

Interdepartmental courses are applicable to a variety of student interests and needs. They are taken by students pursuing credentials and degrees within the field of education, as well as by students seeking credentials and degees in other schools.

EDUCATION (Educ)

101. Practicum in Tutoring (1–3)

Skills in tutoring individuals and small groups. Study habits, problem solving, writing and test-taking skills. Field work in tutoring. Not applicable for public school credentials. (Former S Ed 165)

122F. Field Work in Outdoor Education (1–2; max total 2)

Prerequisite: T Ed 130 or T Ed 152; permission of instructor. Practice at camp with responsibilities of counseling, camp leadership, curriculum planning and evaluation; utilization of resource people from several disciplines. (Former E Ed 122F)

135. Audio-Visual Education (2)

Evaluation, selection, and utilization of various types of contemporary instructional materials, systems, and equipment. Laboratory experiences in the operation of equipment and materials design. (Former E Ed/S Ed 135)

136. Multicultural Education (3)

Helps teachers cope effectively with diverse student needs in a plural society. Considers ethnic, socio-economic, sex, religious, other subcultural differences and problems of curriculum and instruction in multi-group classrooms. (Former E Ed 136)

138. Teaching the Linguistically Different (3)

In-depth study of principles and problems of new bilingual and bicultural modes in the education of the culturally and linguistically different child of Hispanic descent in the USA. Contrasting linguistic, cultural, learning styles, including classroom implications. (Former E Ed 180T, E Ed 138)

139. Bilingual/Cross-Cultural Education (3)

Prerequisite: Educ 138 recommended. Methods and materials for bilingual/cross-cultural classrooms. A practical look at language arts methodologies for English and Spanish; teaching subject matter in two languages to bilinguals; bilingual teacher-pupil interaction strategies. (Former E Ed 180T, E Ed 139)

143. Literature for Young People (3)

Prerequisite: permission of instructor. Survey of selected materials appropriate to the needs, interests, and abilities of young poeple. Use of books for curricular, leisure, and guidance purposes, practice in reviewing media and in giving book talks. (Former E Ed/S Ed 143)

153. Educational Statistics (3)

Methods of describing, analyzing, and interpreting data; statistical inference, including "t" test, ANOVA, correlation and prediction, chi square, and simple research design. (Former AS 153)

157. Curriculum and Instruction in the Middle School (3)

Prerequisite: T Ed 130 or T Ed 152 (may take concurrently). Principles and practices of instruction in middle schools, classroom organization and management, measurement and evaluation.

164. Tutorial Reading (3)

Prerequisite: T Ed 156. Designed to give the student direct involvement with a child who has reading problems; practical experience that uses the knowledge, skills, and techniques obtained in the prerequisite basic reading course. Testing, diagnosis, and remediation techniques are stressed. (2 lecture, 2 lab hours) (Former E Ed/S Ed 164)

166. Reading Improvement (2)

A course to improve reading abilities. Emphasis placed on improving vocabulary, comprehension, and flexibility in reading skills.

174. Theory of Reading (3)

Prerequisite: T Ed 156 and permission of instructor. Study of the theory of teaching as it relates to the psychology of reading, thinking, and learning; the structure and dialects of the English language; cultural differences; motivation of children, colleagues, and communities. (Former E Ed 174)

180T. Topics in Education (1–3; max total 9)

Issues and topics in educational foundations; curriculum and instruction; early childhood, elementary, middle school, and secondary education; special education; pupil personnel services; and supervision and administration. (Former E Ed 180T)

181. Methods and Materials in College Teaching (2)

Prerequisite: Graduate standing. Instructional strategies, procedures, and techniques. Laboratory management, audio visual techniques, measurement and evaluation. (1 seminar, 2 lab hours)

182. Field Work in College Teaching (4)

Prerequisite: Educ 181 or T Ed 161, advancement to candidacy for master's degree. Supervised field experiences, including teaching practice in community colleges, minimum 45 hours. Scheduled conferences with university supervisor and cooperating community college instructor.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

220. Research in Education (3)

Prerequisite: 15 units of education courses or equivalent. Seminar in research methodology; identification of educational research problems; use of library resources, data gathering and processing, writing a research report; applies to elementary and secondary teaching, early childhood, reading, administration, counseling, special education, and related fields. (Former E Ed/S Ed/AS 220)

224. Diagnosis and Correction of Reading Disabilities (3)

Prerequisite: T Ed 156 and permission of instructor. Causes of reading disabilities; observation and interview procedures; diagnostic instruments; standard and informal tests; materials and methods of instruction (2 lecture, 2 lab hours) (Former E Ed 224)

234. Practicum in Reading Disabilities (3)

Prerequisite: T Ed 156, Educ 224. Laboratory experiences in the diagnosis and correction of reading disability cases under supervision (2 lecture, 2 lab hours) (Former E Ed/S Ed 234)

244. Research in Reading Curriculum (3)

Prerequisite: Educ 174, 224, 234, and permission of instructor. Study of selected curricula; planning curriculum in reading; effective ways of dealing with the functions and duties of reading specialists and consultants. (Former E Ed/S Ed 244)

250. Seminar in Curriculum (3)

Prerequisite: teaching credential. Theory and practice of curriculum development, evaluation, and revision. Study of contemporary problems and curricular approaches to meet societal needs. (Former E Ed 250)

254. Supervised Field Experiences in Reading (3)

Prerequisite: Educ 224, 244, and permission of instructor. Intensive varied supervised field experiences involving diagnosis and treatment of reading difficulties; development or refinement of reading programs; evaluation of reading instruction; application of interpersonal communications and group process skills. (Former E Ed/S Ed 254)

275. Practicum in Curriculum Development (1–6; max total 6)

Prerequisite: teaching credential. Study and application of contemporary research in curriculum development. (Former E Ed/S Ed 275)

282. Philosophy of Education (3)

Seminar on philosophical issues in educational theory and practice and their historical backgrounds. Educational implications of current and historical systematic philosophical outlooks and ideological trends. (Former S Ed/AS 282)

284. Seminar in International Education (3)

Analysis of historical, social and political forces which shape national education endeavor. Emerging international education efforts and organizations. (Former AS 284)

285. Seminar in Advanced Educational Psychology (3)

Prerequsite: T Ed 130 or T Ed 152. Seminar on the psychological foundations of education; nature and characteristics of development, learning process, forces which affect educational growth. (Former AS 285)

286. Social Issues in Education (3)

Prerequisite: Educ 186 or T Ed 140 or T Ed 151, or course in sociology or anthropology and permission of instructor. Seminar for analysis of effect on institutional and ideological trends and problems on the role and operation of the school in American society. (Former AS 286)

287. Seminar in History of Educational Thought (3)

Prerequisite: Educ 282, or philosophy course and permission of instructor. Seminar on historical foundations of educational theory; growth of thought regarding teaching and learning; relationship of educational theory and practice in the United States. (Former AS 286)

298. Directed Research (4)

Prerequisite: advancement to candidacy for MA degree; B average on 24 units of MA program including Educ 220. Research in solution of educational problems in administration and supervision, counseling and guidance, educational theory, early childhood, reading, special education. Individual research papers and weekly seminar conference arranged. (Former E Ed/S Ed/AS 298)

299. Thesis (4)

Prerequisite: see Master's Degrees—Thesis, Project, or Thesis alternative. Preparation, and completion and submission of an acceptable thesis for the master's degree. (Former E Ed/S Ed/AS 299)

IN-SERVICE COURSES

(See *Course Numbering System*)

306. Foundations of Adult Education (3)

Scope and function of adult education, curriculum principles and practices, instructional techniques and media, student and instructional evaluation; applicable on a BS degree in Vocational Education.

316. Seminar in Adult Education (3)

Prerequisite: Educ 306. Community and occupational relationships, work experience, counseling and guidance, leadership development, community and cultural differences; applicable on a BS degree in Vocational Education.

326. Independent Study in Adult Education (3)

Prerequisite: Educ 316. Individually prescribed assignments in terms of candidate's educational and occupational background and teaching field; applicable on a BS degree in Vocational Education.

353. Curriculum Problems and Practices (1–3; max total 12 if no topic repeated)

380T. Topics in Education (1–6; max total 12)

395. Supervision of Student Teachers (2; max total 4)

Note: Educ 306, 316, and 326 are equivalent to the CSUC consortium courses D S 306, 316, and 326; they satisfy specified requirements for the Designated Subjects Credential for Adult and Vocational Education.

ADVANCED STUDIES

FACULTY

Robert H. Monke, Department Chairman

Ray E. Brewer, Peter G. Fast, I. Ace Griffiths, Gordon F. Johnson, Homer M. Johnson, Leland E. Mach, Deanna E. Schilling, H. Dan Smith, James G. Snider, Richard K. Sparks, Robert E. Valett, Marvin B. Wampler, Bruce M. Wilkin

The Advanced Studies Department offers programs for credentials and master's degrees in the areas of school administration, pupil personnel, and special education. The programs utilize the services and facilities of community agencies and many of the school districts listed at the beginning of this (School of Education and Human Development) section.

CREDENTIAL PROGRAMS

The Advanced Studies Department credential programs may, with prior approval, be used for some or all of the fifth-year requirement for a clear teaching credential.

Special Education Specialist Instruction Credential

The Special Education credential program offers preparation for teaching in the areas of learning handicapped, severely handicapped, communication handicapped, the gifted, and resource specialist.

An emphasis in Career/Vocational Education is available to all Special Education credential candidates; see the Coordinator of Special Education for details.

Program requirements. Candidates for the Special Education credential must do the following:

(1) File a credential applicant locator card in EdP 120.
(2) Consult the Coordinator of Special Education concerning specific admission requirements.
(3) Complete requirements, if any, for a basic teaching credential.

Course requirements. All emphases except Communication Handicapped include Educ 153 and A S 114, 116, and 170. Additional requirements are as follows:

Learning Handicapped (educationally handicapped, behaviorally disturbed, and educable mentally retarded): A S 230, 242, 243, 245, 246, 248, 253, 256.

Severely Handicapped (severely mentally regarded, severely emotionally disturbed or autistic, and multiple handicapped): A S 230, 242, 243, 245, 246, 253, 254, 256.

Communication Handicapped: see Communicative Disorders Department.

Gifted: A S 230, 245, 256D, 257, 258, 259, 260, 290

Administrative Services Credential

Candidates for the Administrative Services credential must satisfy the following requirements in order to be recommended to the Commission for Teacher Preparation and Licensing:

(1) Possession of a valid California teaching credential based on a bachelor's degree, or a pupil personnel services credential.
(2) Verification of three years of successful, full-time teaching experience in the public schools, or in private schools of equivalent status, or three years of experience in the field of pupil personnel work.
(3) Completion of a credential applicant locator card to be filed in EdP 120.
(4) Admission to the Administrative credential program (see Coordinator of School Administration Program for details).
(5) Completion of A S 261, 262, 263, 264, 266, 272, 273, 275, 276.
(6) To meet the requirement of "training in the needs of, and methods of providing educational opportunities to, individuals with exceptional needs," completion of A S 114, or one year of full time experience in special education, or six units of approved special education coursework.

Pupil Personnel Services Credential—Counseling

Candidates for the Pupil Personnel Services Credential—Counseling must satisfy the following requirements in order to be recommended to the Commission for Teacher Preparation and Licensing:

(1) Completion of a credential applicant locator card to be filed in EdP 120.
(2) Application for admission to graduate standing at CSUF.
(3) Application for admission to the Pupil Personnel Services credential program in EdP 131 during the first 15 units of course work; due November 30 for spring semester and April 30 for summer or fall semester. (See Coordinator of Pupil Personnel Services for further details.)
(4) Completion of prerequisites: Educ 153 and A S 174; program requirements: Educ 220 and A S 118, 172, 222, 223, 224, 224FA or 224FB, 225, 226, 227, 228, 230, 231.

Note: See the Psychology Department for the Psychology track program leading to the Pupil Personnel Services Credential—Counseling.

Pupil Personnel Services Credential—School Psychologist
See the Psychology Department.

GRADUATE PROGRAMS

The Advanced Studies Department offers programs leading to Master of Arts Degrees in Counseling, Education with a concentration in Administration, and Special Education. Candidates who qualify for a preliminary teaching credential with completion of a bachelor's degree program may, with prior approval, use a master's degree program to satisfy the fifth-year requirements for a clear teaching credential.

MASTER OF ARTS DEGREE IN COUNSELING

The Master of Arts degree program in Counseling is designed for persons who desire to practice in the field of Counseling. Persons completing this degree may qualify to work with public schools, social agencies, community colleges, four-year colleges and universities and in vocational settings, marriage and family counseling, and related areas.

Prerequisites: Evidence of satisfactory academic background in (1) human growth and development, (2) social and cultural foundations, (3) statistics, (4) oral and written communication, and (5) introduction to counseling. The student must file an autobiography, three letters of recommendation, a health clearance, satisfactory scores on the GRE Aptitude and Advanced Tests in Education, and transcripts of all college work. Students entering the program should go to EdP 131 for appropriate forms; admission to the program is recommended by a departmental committee. Students may apply during fall and spring semesters. Those seeking admission for the fall semester should submit applications during the preceding spring semester.

Requirements: Under the direction of a graduate adviser, each student prepares and submits an individually designed program within the following framework:

	Units
Educ 220 and 298 or 299	7
A S 222, 224, 227, 228, 231	16
Approved electives	7
Total	30

Electives. Select from A S 118, 172, 223, 224FA, 224FB, 224FC, 225, 226, 230, 290, and other approved courses. Substitutions must be approved by the Program Coordinator.

MASTER OF ARTS DEGREE IN EDUCATION, CONCENTRATION IN ADMINISTRATION

The Master of Arts Degree program in school administration is designed to provide professional preparation for the positions of building principal, consultant, supervisor, program director, assistant superintendent, and superintendent.

Prerequisites. Fifteen units in Education and an adequate background for advanced work in the field.

Requirements:	*Units*
Educ 220, 298 or 299	7
Select fifteen (15) units from A S 261, 262, 263, 264, 266, 272	15
Electives: A S 273, 275, 276, 277 or other approved electives.	8
Total	30

MASTER OF ARTS DEGREE IN SPECIAL EDUCATION

The Master of Arts Degree program in Special Education offers specializations in the gifted, learning handicapped, and severely handicapped for those interested in professional work with retarded or gifted children and with regular and exceptional children having specific learning disabilities.

Prerequisites. Fifteen (15) units in Education, including Educ 153, A S 114, 116, 163A, B or C, 170.

Requirements:	*Units*
Educ 220 and 298 or 299	7
Area of specialization, required courses:	
Gifted: A S 256D, 257, 258, 259, 260	17
Learning Handicapped: A S 230, 242, 245, 248, 253	16
Severely Handicapped: A S 230, 242, 243, 253, 254	15
Approved Electives:	6– 8
Total	30

Electives. Select from A S 115F, 164A or B, 230, 242, 243, 244, 245, 246, 248, 249, 254, 256, 290.

COURSES

ADVANCED STUDIES (A S)

114. Education of Exceptional Children (3) (Same as C D 114)
Identification of common and differentiating characteristics of exceptional children. Diagnostic instructional program of legal provisions, certification requirements. Observation in clinical sites on and off campus, public and/or parochial schools. Students will incur travel expenses. (2 lecture, 2 lab hours)

115F. Field Work With Exceptional Children (1–3; max total 6)
Prerequisite: permission of instructor. Supervised observation and participation in selected programs for exceptional children; educational planning, guidance, and counseling.

116. Prescriptive and Individualized Instruction (3) (Same as C D 116)
Prerequisite: A S 114. Development and examination of methods and materials relative to individual learning problems; study of models and individual programs. (2 seminar, 2 lab hours)

118. Mental Hygiene and Guidance (3)
Seminar on emotional and social problems of children in their adjustments to school and home practices and pressures.

163A. Student Teaching: Severely Handicapped (1–8; max total 8)
Prerequisite: admission to Special Education credential program. Directed observation, participation, and teaching in classes for the mentally retarded in public schools under supervision. Weekly conference with university supervisor.

163B. Student Teaching: Learning Handicapped (1–8; max total 8)
Prerequisite: admission to Special Education credential program. Directed observation, participation and teaching in classes for the educationally handicapped in public schools under supervision. Weekly conference with university supervisor.

163C. Student Teaching: Gifted (1–8; max total 8)
Prerequisite: admission to Special Education credential program. Directed observation and teaching in classes for the gifted and creative in public schools under supervision. Weekly conference with university supervisor.

164A. Student Teaching: Speech and Hearing Handicapped (4–9; max total 9)
Prerequisite: 4–6 units of C D 130 or 230, including 150 clock hours of therapy; admission to the credential program. To be taken concurrently with C D 209. Directed observation, participation, and clinical practice (120 hours minimum) under supervision. Weekly conference with university supervisor.

164B. Student Teaching: Deaf and Hard of Hearing (4–9; max total 9)
Prerequisite: 4 units of C D 160 or 260; approval by a departmental review committee; admission to the credential program. Teaching under supervision in a class for the deaf or hard of hearing. Directed observation; participation and weekly conference with university supervisor.

170. Introduction to Learning Disabilities (3)
Prerequisite: A S 114. Introduction to theories, programs, and methods of educating children with specific learning disabilities. (2 lecture, 2 lab hours)

172. Laws Relating to Children (3)
Current and proposed legislation in parent-child relationships, adoption, and guardianship, education of the minor, marriage contract, child labor, juvenile delinquency, and child welfare programs.

174. Introduction to Counseling and Guidance (3) (Same as Psych 174)
Prerequisite to all courses in the Pupil Personnel Services programs. Principles, procedures, and techniques in counseling and guidance.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

222. Seminar in Occupational Analysis and Information (3)
Prerequisite: A S 174. Theories of vocational development, job classification systems, placement techniques, skill assessment, work evaluations, and problems in vocational counseling. Test materials fee. (2 seminar, 2 lab hours)

223. Seminar in Counseling of Children and Parents (3)
Prerequisite: A S 174. Study of theories and techniques in counseling with parents and children. Emphasis on methodology and application of counseling skills in working with problems of children.

224. Seminar in Counseling Techniques (3)
Prerequisite: A S 174 or R C 201. Emphasis given to interviewing skills, counseling philosophy, theory and methodology as applied to self, and rational approaches to counseling. (2 seminar, 2 lab hours)

224FA. Field Work in Counseling (2–12; max total 12)
Prerequisite: 12 units in counseling program, including A S 224. Supervised practice in a school. (40 hours field work required for one unit of credit.)

224FB. Field Work in Child Welfare and Attendance (2–12; max total 12)
Prerequisite: 12 units in counseling program, including A S 224. Supervised practice in a child welfare and attendance office. (40 hours field work required for one unit of credit.)

224FC. Field Work in Counseling—Professional Services (3–12; max total 12)
Prerequisite: 12 units in counseling program, including A S 224. Designed for students wishing to do field work in professional counseling services, including, but not limited to, agencies, colleges, and universities. Supervised placement (40 hours field work required for one unit of credit).

225. Seminar in Advanced Theories and Techniques in Counseling (3)
Prerequisite: A S 224. Emphasis on philosophy, theory, and methodology as applied to Gestalt and behavioral approaches to counseling. (2 seminar, 2 lab hours)

226. Seminar in Guidance Services (3)
Prerequisite: A S 222, 224. Organization, administration, and evaluation of programs related to the areas of pupil personnel services.

227. Seminar in Tests in Counseling (3)

Prerequisite: Educ 153. Selection, administration, and evaluation of psychological tests and psychometric data for use in counseling settings. Test materials fee. (2 seminar, 2 lab hours)

228. Seminar in Group Process (3)

Prerequisite: A S 174 or R C 201. Theories and methods of group leadership, group effectiveness, communication within groups, and group counseling. (2 seminar, 2 lab hours)

230. Seminar in Guidance of Exceptional Children and Their Parents (3)

Theories and techniques in working with parents of exceptional children; emphasis placed on individual and group counseling skills with parents, case study, and current legislation. (2 seminar, 2 lab hours)

231. Counseling Practicum (4; max total 8)

Prerequisite: 12 units in counseling program, including A S 224. Supervised on-campus counseling experiences with selected clients. Experience in individual counseling, critiquing of tapes and typescripts, observations, and case report writing. (2 seminar, 4 lab hours)

242. Seminar in Behavior Modification (3)

Behavior modification principles, programs, and techniques employed in special education and clinical-prescriptive teaching. Emphasis on school and home applications. (2 seminar, 2 lab hours)

243. Motor, Sensory, and Perceptual Abilities (3)

Prerequisite: A S 114, 170, 245. Seminar in the special education of children who are educationally handicapped with psychomotor disabilities. Diagnostic-prescriptive programming and critiques required. (2 seminar, 2 lab hours)

244. Organization and Supervision of Special Education (3)

Seminar in the organization, financing, housing, equipping, staffing, and supervision of the special education program; desirable educational provisions for each type of exceptionality; legal provisions for special education including curriculum development, inservice education, and teacher-pupil relationships.

245. Seminar in Identification and Evaluation of Exceptional Children (4)

Prerequisite: A S 114, Educ 153. Seminar and field work in the identification and evaluation of exceptional children. Review of testing techniques, evaluation of psychological reports, development of psychoeducational recommendations as a clinical process. Extensive independent child study and evaluation with appropriate diagnostic instruments. Test materials fee. (2 seminar, 2 lab hours, 2 field work hours)

246. Language and Cognitive Abilities (3)

Prerequisite: A S 114, 170, 243, 245. Seminar in the special education of children who are educationally handicapped with language and cognitive disabilities. Diagnostic-prescriptive programming and critiques required. (2 seminar, 2 lab hours)

248. Social and Affective Education (3)

Seminar. Development and remediation of social skills and affective abilities. Model programs for normal children and prescriptive interventions for those with social and personal behavior disorders. (2 seminar, 2 lab hours)

249. Practicum/Clinic: Career Education for the Handicapped (3–9; max total 9)

Prerequisite: A S 253 and permission of instructor. Clinical experience in private and public agencies involved with vocational/career training for the handicapped work evaluation and job training programs supervised by university personnel. (2 lab hours and 1 hour outside preparation per unit)

253. Vocational/Career Education for the Handicapped (3)

Seminar. Examination and application of vocational/career education and training for the handicapped; local, state, and federal models. Test materials fee. (2 seminar, 2 lab hours)

254. Seminar in the Severely Handicapped Child (3)

Prerequisite: A S 114. Characteristics, identification procedures, training programs, legal, and administrative problems. Research in causation, prevention, and treatment. Counseling of parents.

256. Practicum in Special Education (3–9; max total 9)

Prerequisite: A S 114, 116, 170, Educ 153, A S 230, 242, 243, 245, 246, 248, 253. Clinical experience in diagnosis and evaluation of exceptional children, prescriptive program development, prescriptive instruction, and program management. Experience to include data gathering, program planning and execution, evaluation, and consultation. (2 field hours per unit)

256D. Practicum and Clinical Experience: Gifted (3-9; max total 9)

Prerequisite: A S 114. Clinical experience in community agencies dealing with the identification, diagnosis, and education of mentally gifted children. Practical field experience in cooperating school districts with special and experimental programs. (2 field hours per unit)

257. Seminar on the Gifted Child (3)

Prerequisite: A S 114. Research and practice regarding community attitudes, means of identification, types of giftedness, behavioral characteristics, environmental backgrounds, differentiated needs of the gifted.

258. Seminar in Educational Provisions for the Gifted (3)

Prerequisite: A S 114. Research pertaining to administrative provisions, program planning, curricular adaptations, teaching-learning strategies, and ways of motivating gifted and talented youth.

259. Seminar in Creative Children and Youth (3)

Prerequisite: A S 114. Analysis of current theory and research on creativity, its manifestations and measurement; guidelines for creative development, creative approaches in learning and teaching.

260. Seminar in Research in Contemporary Problems: Gifted and Creative (3)

Prerequisite: A S 114. Analysis of research problems regarding the gifted, creative, and talented. Individual critiques or original research. Development of research project in preparation for the thesis.

261. Organization for Administration and Support of Education (3)

Prerequisite: teaching experience. Interrelationships of federal, state, county, city, and district units in the administration and promotion of programs of education.

262. Seminar in School Principalship (3)

Prerequisite: teaching experience; A S 261. Seminar on problems, procedures, and organizational relationships of elementary and secondary schools; principal's responsibilities in areas of organization and control; teacher personnel, pupil personnel, noncertificated personnel; special and auxiliary agencies; guidance; supervision; community relationships.

263. Seminar in Supervision for Improvement of Instruction (3)

Prerequisite: teaching experience; Educ 250 or T Ed 273; A S 261. Seminar for clarification and application of modern concepts and techniques of supervision; practice in leadership roles, promoting productive human relationships, developing communication skills, and evaluation of teaching; ways of helping teachers in their credential fields.

264. Seminar in the Legal Aspects of Education (3)

Prerequisite: teaching experience; A S 261. A case study approach in reviewing important court decisions, both state and federal, that have directly affected the public schools. Legal relationships in public education applied to federal, state, and local levels.

266. Seminar in School Finance and Business Administration (3)

Prerequisite: A S 261. Principles and practices of school finance and business administration; local, state, and federal responsibility for financial support of education.

272. Seminar in Advanced Curriculum Evaluation and Development (3)
Nature and scope of curriculum development: administrative determiners of curriculum; influence of governmental agencies and organizations, foundations, business and industry, and power structures as curriculum determiners; international influence on curriculum development and curriculum evaluation at various levels of governmental operation.

273. Field Work in Administrative Services (3)
Prerequisite: 18 units of course work in school administration to be selected from: A S 261, 262, 263, 264, 266, 272, 275. For individuals working toward an administrative services credential. Involves on-the-job experiences in the solution of practical administrative problems with written reports thereon; seminar discussions of field experiences and related literature and interaction in field and in seminar with practicing school administrators.

275. Seminar in Advanced Techniques of Personnel Administration in Education (3)
Prerequisite: A S 262, 264, 266. Advanced techniques of staff improvement in service, staff participation in policy making, improvement of communication channels and methods of communication, economic and contractual relationships, and improvement of working conditions; work and responsibiliy of nonteaching staff members.

276. Seminar in School-Community Relations and Facilities (3)
Prerequisite: A S 261, 262, 263. Seminar on interaction with community forces, news media, political agencies, and minority groups in policy development; decision-making based on factual data; and management of physical facilities.

277. Computer Applications in Educational Administration (3)
Prerequisite: A S 261, 266. Factors relating to assessment and implementation of computer applications to support educational programs and administrative operations in school districts, including: computer assisted instruction, student personnel, fiscal and property controls, personnel and related educational and business functions characteristic of school districts.

295. Seminar: The Special Education Resource Specialist (3)
To develop knowledge and skills in consultant services in identification and assessment, application of classroom management, procurement of appropriate resources and development of career and vocational plans for individuals with exceptional needs. This seminar will partially fulfill the requirements for the Resource Specialist Certificate in Special Education.

296. Practicum: The Special Education Resource Specialist (3; max total 6)
Field experiences in consulting, coordinating, implementing and evaluating individualized education plans. Designing and implementing staff development and in-service education; consulting and educating parents; utilizing personnel/agency resources. This practicum, in conjunction with A S 295 fulfills the requirements for the Resource Specialist Certificate in Special Education.

290. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

IN-SERVICE COURSES
(See *Course Numbering System*)

373. Instructional and Curriculum Problems and Practices (1-3; max total 12 if no topic repeated)

TEACHER EDUCATION

FACULTY

Sanford W. Reitman, Department Chairman

George E. Avery, Leonard H. Bathurst, Beatrice E. Bradley, Robert D. Brenner, Ric Brown, Norma Cochran, Maxima Dandoy, James P. Echols, David Haimbach, Arthur A. Hiatt, Joyce M. Huggins, Alexander H. Lark, Jerome E. Leavitt, James B. Lundberg, John E. Martin, Georgia E. Nicklett, Arne J. Nixon, Cecilio Orozco, Richard F. Osterberg, Theresa M. Perez, Lester J. Roth, Ivan H. Rowe, M. Marty Santigian, Robert D. Segura, Forrest E. Sloan, Charlene K. Smith, Carl R. Stutzman.

CREDENTIAL PROGRAMS

The Teacher Education Department offers alternative state-approved programs leading to two basic credentials: the Multiple Subjects Credential (primarily for prospetive elementary school teachers); and the Single Subject Credential (primarily for prospective secondary school teachers). In addition to the general Multiple Subjects program, approved special emphasis credential programs leading to a Multiple Subjects Credential currently include: Bilingual/Cross-Cultural Education; Bilingual/Cross-Cultural Specialist; Early Childhood Education; Early Childhood Specialist; and Reading Specialist. Special emphasis credential programs leading to a Single Subject Credential currently include Agricultural Specialist. Advisors for the respective programs are assigned when students make application for admission to a particular program in EdP, room 120.

I. Multiple Subjects Credential Programs

Holders of Multiple Subjects Credentials are authorized to teach in self-contained classrooms as commonly found in elementary schools. The preliminary Multiple Subjects Credential requires (1) certification of subject matter competency, established by examination or completion of an approved waiver program (see Liberal Studies Major below); (2) completion of an approved program of professional preparation, including one semester (or equivalent) or full-time student teaching under supervision; and (3) a bachelor's degree. Requirements for the fifth year program leading to a clear credential are outlined in Section III. Other requirements are detailed in the application for admission to a program leading to the credential.

Liberal Studies Major. The Liberal Studies Major, which leads to a Bachelor of Arts degree, is an 84 unit program which utilizes courses from twenty-one departments of the University to provide an interdisciplinary course of study involving the areas of English; Humanities and the Fine Arts (including Foreign Language); Mathematics and the Physical or Life Sciences; and Social Science.

Each area has an A and B section. A minimum of 12 units is required from each A section (48 units), a minimum of 6 units is required from each B section (24 units), and 12 units may be selected from A or B for a total of 84 units.

Since the major utilizes 84 units of the 124 units required for the degree, careful planning by the student is essential if all requirements for the degree, or requirements for the degree and the credential, are to be satisfied within a four year time space.

Students in their first semester at CSUF are *required* to consult with the Coordinator, Liberal Studies Major, in the first two weeks of the semester. Appointments are made in Room 120, Education-Psychology Building. The Liberal Studies Credential Major at CSUF is accepted by the California Commission for Teacher Preparation and Licensing as an alternative to taking and attaining qualifying scores on the National Teachers Examination (NTE—Commons Branch). Candidates who complete this major are also adjudged to have completed all the General Education requirements for the baccalaureate degree. *(Note: P1 Si 2 or 101 must be completed in addition to the Liberal Studies Major.)*

The Liberal Studies Major must be completed prior to or concurrently with the final student teaching assignment, and it consists of the following categories and courses:

Area I *English*

A. Required:
   1. Engl 1
   2. Engl 20

3. Ling 10 or 134
4. Spch 3 or 4 or 8

B. Select 6-12 units in upper division courses in one of the following disciplines: English, Linguistics, Speech

Area II *Humanities and Fine Arts*

A. Required:
1. One course from Art 20, 27, 40, 60, 70, 91
2. One course from Music 9, 73, 74
3. One course from Drama 22, 33, 34
4. One course from Art H 10, 20, 134, 136, 140, 142, 144, 160, 162, 170, 173, 175; or Ethnic Studies 2; or Humanities 10 or 11; or three units from Music 3, 4, 5, 6, 8, 11, 12, 13, 15, 16, 18, 20, 21, 22, 25, Dance 116, 160, PE AC 111A, 111B, 113A, PE 151A, 152B, 157A.
5. Six units in one foreign language may be substituted for 3 and 4 above.

B. Select 6–12 units in upper division courses from one of the following disciplines: Art, Black Studies, Drama, one Foreign Language, La Raza, Music, Philosophy

Area III *Mathematics and Sciences*

A. Required:
1. Math 41
2. One course from Math 4, 11, 52, 70, 71, 72
3. P Sci 20 or 21, or Chem 1, or Geol 1 or 2, or Geog 5 or 7
4. Biol 10 or Bot 10 or Zool 10

B. Select 6–12 units in upper division courses from one of the following disciplines: Biology, Chemistry, Geology, Mathematics, Physical Geography (select from 111, 112, 114, 117, 118, 120, 121, 126, 128, 129), Physics

Area IV *Social Sciences*

A. Required:
1. Hist 2
2. Hist 12
3. Geog 2 or 4
4. Anth 2 or Soc 1 or Psych 10 (prerequisite to T Ed 130) or Eth S 1

B. Select 6–12 units in upper division courses from one of the following disciplines: Anthropology, Black Studies, Economics, Geography (excluding Geog 111, 112, 114, 117, 118, 120, 121, 126, 128, 129), History, La Raza, Political Science, Psychology, Sociology

Bilingual/Cross-Cultural Emphasis in Liberal Studies. Students wishing to prepare to teach in bilingual/cross-cultural educational settings should include the following courses in their Liberal Studies Credential Major program: In Area I B, 6 units in Linquistics from 132, 141, 147, 148, 171; Area II A 5, 6 units of Spanish; Area II B, 9 units of upper division Spanish, including 118 or 120, 122, and 3 units from 102, 104 and 139; Area IV B, La R 105, 110, and 145.

Students in this program are given a student teaching assignment (T Ed 160) in a bilingual/cross-cultural setting; they should include Educ 138 in their professional education program.

National Teachers Examination (NTE). If candidates select any major other than Liberal Studies, they must attain qualifying scores on the Commons Branch section of the NTE before they may be admitted to full-time student teaching in one of the Multiple Subjects Credential Programs. Consult the office of Testing Services (JAd 218) for information about the National Teachers Examination.

Admission to Multiple Subjects Credential Programs. Candidates must apply in Room 120, Education-Psychology Building, and complete the required steps in the admissions process during the first semester of enrollment in the professional preparation program. Those who are not approved by the Admissions and Standards Committee of the School of Education and Human Development will not be permitted to enroll in T Ed 160.

Professional Preparation: Preliminary Credential. Each approved program of professional preparation for the preliminary Multiple Subjects Credential consists of 25–26 upper division units; three options are available. Option I, which general Multiple Subjects as well as Bilingual/Cross-Cultural teaching candidates complete, assumes that the candidate has had limited or no experience with children and teaching. Option II is designed for candidates who wish to prepare for a specialization in Early Childhood Education. Option III is designed for general Multiple Subjects candidates who have had extensive experience with children and teaching and for those who are working toward the Special Education Specialist Credential with emphasis on Communication Handicapped.

The sequence of required courses in the three options is as follows:

Option I (General & Bilingual M.S.)	*Option II (Early Childhood M.S.)*	*Option III (General M.S. & Communicative Disorders candidates)*
T Ed 110 (2)	T Ed 110 (1–1–1)	T Ed 130 (3)
T Ed 130 (3)	T Ed 130 (3)	T Ed 140 (3)
T Ed 140 (3)	T Ed 140 (3)	T Ed 150 (4)
T Ed 150 (4)	T Ed 150 (4)	T Ed 156 (3)
T Ed 156 (3)	T Ed 156 (3)	T Ed 160 (5–5)
T Ed 160 (5–5)	T Ed 160 (5–5)	Elect (2)
25	26	25

308 **Early Childhood Program Emphasis.**

Students wishing to prepare for teaching in early childhood educational settings should select Option II (See Professional Preparation: Preliminary Credential above); it is a block program with field work and student teaching in early childhood agencies and classes.

Early Childhood Specialist Credential

The Early Childhood Specialist Credential requires completion of a basic teaching credential program and approval of application for admission to the specialist credential program. Courses taken in the Early Childhood program may be used to satisfy part or all of the fifth year postgraduate requirement of 30 semester units for multiple and single subjects credential programs (see Section III), providing prior approval is obtained from the Coordinator of Early Childhood Education.

Required courses: T Ed 145, 171, 231, 241, 251, 271 and 12 units of approved electives (see Graduate program below for coordination with a Master of Arts Degree in Education), for a minimum of 30 postgraduate units.

Bilingual/Cross-Cultural Program Emphasis (See *Professional Preparation: Preliminary Credential* above)

Bilingual/Cross-Cultural Specialist Credential

The Bilingual/Cross-Cultural Specialist Credential requires completion of a basic teaching credential program and approval of an application for admission to the specialist credential program. Courses taken in the Bilingual/Cross-Cultural program may be used to satisfy part or all of the fifth year postgraduate semester units, for Multiple and Single Subjects Credential programs (see Section III), providing prior approval is obtained from the Coordinator of the Bilingual/Cross-Cultural program.

Required courses: Educ 138, 139; T Ed 160—bilingual classroom (or equivalent); 9 units from LR 109, 112, 114A, 120, 121A, 124, 127, 142, Ling 132, 171 and Span 102, 104, 139 for a minimum of 30 postgraduate units.

Reading Specialist Credential

The Reading Specialist Credential requires a basic teaching credential and completion of a Master of Arts Degree in Education with a concentration in Reading. On completion of the degree, a supervised field experience of one semester is required. Courses taken in the Reading program may be used to satisfy part or all of the fifth year postgraduate requirement of 30 semester units for multiple and single subjects credential programs, providing prior approval is obtained from the Coordinator of the Reading program.

Required courses: Educ 164 or 234, 174, 220, 224, 244, 254, 298 or 299 and electives for a minimum of 30 postgraduate units. (See Graduate Program for the Master of Arts Degree in Education with a Concentration in Reading.)

Recommended electives: Educ 138, 139, 143, T Ed 120ST, 213, 214; Ling 136, 140T; Drama 137; AS 114, 116.

II. Single Subject Credential Program

Holders of single subject credentials are authorized to teach subjects commonly offered by secondary schools and specified on their credentials. The preliminary Single Subject Credential requires (1) certification of subject matter competency, established by examination or completion of an approved waiver program (see below for majors and advisers); (2) completion of an approved program of professional preparation, including one semester (or equivalent) of full-time student teaching under supervision; and (3) a bachelor's degree. Requirements for the fifth year program leading to a clear credential are outlined in Section III. Other requirements are detailed in the application for admission to the program.

Area coordinators (see below) advise credential candidates majoring in their respective departments, teach the methods courses in their subject fields, assign and supervise their student teachers, and act as official liaison between the subject matter departments and the Single Subject program of the Teacher Education Department.

Single Subject Areas
Agriculture: R. Rogers
Art: Dolarian
Business: Schramm
English: Karr
English—Drama: G. Anderson
English—Speech: G. Anderson—Women:
Foreign Language: R. Poythress
Home Economics: F. Harkins

Single Subject Areas
Industrial Arts: Winegar
Life Science (Biology): Clay
Mathematics: Hiatt
Music: Huff
Physical Education: Bevans, Mott
Physical Science: Shockley
Social Science: J. Christensen, Echols

Single Subject Majors. CSUF offers approved waiver programs in Agriculture, Art, Business, English, English—Drama, English—Speech, Foreign Language, Home Economics, Industrial Arts, Life Science (Biology), Mathematics, Music, Physical Education, and Social Sciences. A program in Physical Science is currently being submitted for approval. For further information about waiver programs, see the Single Subject Coordinator and the appropriate departmental coordinator listed above.

Single Subject Examinations. Candidates who wish to obtain authorization to teach additional subjects may validate such subject matter competency by passing an examination in one or more of the single subject categories listed above. For further information, see the Single Subject Coordinator.

Admission to Single Subject Credential Program. Candidates must apply in Room 120, Education-Psychology Building, and complete the required steps in the admissions process during the first semester of enrollment in the professional preparation program. Those who are not approved by the Admissions and Standards Committee of the School of Education and Human Development will not be permitted to enroll in T Ed 155B.

Professional Preparation: Preliminary Credential. The approved program of professional preparation for the preliminary Single Subject Credential consists of 24 upper division units in professional education courses as follows:

	Units
T Ed 155a Student Teaching	4
T Ed 151 Social Foundations	3
T Ed 152 Psychological Foundations	3
T Ed 161 Methods and Materials in Secondary Teaching	3
T Ed 155B Student Teaching	4-4 (or 8)
T Ed 156 The Teaching of Reading	3
	24

Agricultural Specialist Credential

The Agricultural Specialist Credential is offered jointly by the School of Education and Human Development and the School of Agriculture and Home Economics. It requires completion of a bachelor's degree program (See School of Agriculture and Home Economics—Agricultural Education Major for the BS Degree), professional education courses (see Professional Preparation: Preliminary Credential above), and an approved fifth year program of 30 postgraduate units. The credential authorizes candidates to teach secondary school vocational agriculture. (For further information, see the departmental coordinator in Agriculture and the Single Subject Coordinator.)

III. Fifth Year Programs: Clear Credential

Candidates for Multiple and Single Subject credentials must secure approval, in advance, for all courses intended to satisfy the requirement of an approved fifth year program. The approved program must contain 30 units of upper division credit subsequent to the bachelor's degree, including courses taken in the last semester of the senior year that are not required for graduation. The fifth year of preparation must be completed within five years of the date of issuance of the preliminary credential in order to qualify for a clear Multiple Subjects or Single Subject Credential. The fifth year program must be approved by an assigned credential advisor, the appropriate program coordinator, and the department chairman. *Note:* The clear credential requires a total of 30 units of professional education.

All individuals receiving a clear credential must have training in "the needs of, and methods of providing educational opportunities to individuals with exceptional needs." Any candidate may meet this requirement by taking AS 114 (3 units). Candidates who enter the professional preparation program after June 1979 will receive partial preparation for this requirement in the professional coursework. Completion of the requirement may be met by taking T Ed 120 CM (2 units in conjunction with full time student teaching for Multiple Subjects Credential candidates) or T Ed 162 (2 units for Single Subject Credential candidates).

Mini Corps, Teacher Corps, ESEA Title VII, and Bilingual Teacher Development Grant Programs

These programs are designed to help students and teachers preparing to work in bilingual classrooms obtain credentials. Stipends and grants are available.

Additional information may be obtained in the Education Psychology Building: for Mini Corps, room 153; Teacher Corps, ESEA Title VII and the Bilingual Teacher Development Grants, Room 111.

MASTER OF ARTS DEGREE IN EDUCATION (CONCENTRATION IN ELEMENTARY EDUCATION)

The Master of Arts Degree in Education with a concentration in Elementary Teaching provides professional and specialized preparation for the candidate interested in teaching and supervising in elementary educational settings. Prospective candidates can usually plan to coordinate many of the requirements for the degree with the fifth year program required for a clear Multiple or Single Subject credential. See Division of Graduate Studies and Research—Master's degrees for general requirements; see the Multiple Subjects Coordinator for specific requirements.

Prerequisites: Fifteen (15) units in Education coursework and an adequate background for advanced work in the interest area.

Requirements:	Educ 220, 298 or 299	7
	T Ed 250, 285	6
	Courses selected within the classroom teaching option area	9
	Approved electives in 100 and/or 200 series courses	8
	Total—at least 15 units in 200 series	30

MASTER OF ARTS DEGREE IN EDUCATION (CONCENTRATION IN READING)

The Master of Arts degree program in Education with a concentration in Reading is designed to provide professional and specialized preparation for classroom and resource teachers and consultants; diagnosticians, and supervisors in reading clinics, schools, and community colleges. It enables graduates to do consulting and editing for publishing companies and to pursue advanced graduate study in universities offering the doctoral degree.

Admission to the program requires possession of a basic teaching credential and satisfaction

of the CSUF Division of Graduate Studies and Research requirements for classified graduate standing.

Prerequisite: Fifteen (15) units in Education.

Requirements: Under the direction of a graduate adviser, each student prepares and submits a program within the following framework:

	Units
Educ 220 and 298 or 299	7
Educ 164 or 234, 174, 224, 244	12
Approved electives	11
Total	30

MASTER OF ARTS DEGREE IN EDUCATION (CONCENTRATION IN SECONDARY EDUCATION)

The Teacher Education Department offers a program leading to the Master of Arts Degree in Education with a concentration in Secondary Education. The program includes at least 11 semester units in a subject matter field, and each candidate is advised jointly by a departmental coordinator and a graduate adviser in the Teacher Education Department. See Division of Graduate Studies and Research—Master's Degrees for general requirements; see Teacher Education Department graduate adviser for specific requirements.

Prerequisites: Fifteen (15) units in Education and an adequate background for advanced work in professional education and the subject matter area.

		Units
Requirements:	Educ 220, 298, or 299	7
	Educ 282, 284, 285, 286, 287, AS 277 (Select 6 units)	6
	T Ed 272, 273, 274	6
	Courses in a subject matter field	11
	Total	30

COURSES

TEACHER EDUCATION (T Ed)

110. Student Teaching in Elementary School (1–3)

Orientation to problems and practices of elementary teaching; observation, participation and directed teaching in multicultural, multigrade classrooms. Minimum of 45 minutes per day per unit, with additional conference periods, observations and visitations by arrangement. (Former E Ed 110)

120. Problems in Elementary Education (2–3; repeatable with different topics)

Study in depth of various areas in elementary education including children's literature (CL), classroom organization, management, and mainstreaming (CM), curriculum (CU), kindergarten (KG), language arts (LA), mathematics (MA), nursery school (NS), science (SC), social studies (SS), storytelling (ST). (120 LA meets the upper division writing skills requirement for graduation.) (Former E Ed 120)

130. Psychological Foundations of Education (3)

Not open to students with credit in T Ed 152. Prerequisite: Psych 10, T Ed 110 (Option II Multiple Subjects, concurrent enrollment); admission to a Multiple Subjects Credential program. Facts, ideas and principles fundamental to an understanding of educational procedures in teaching and learning and to the growth and development of children. (Former E Ed 130)

137. Creative Dramatics (2) (See Drama 137) (Former E Ed 137)

140. Cultural Foundations of Education (3)

Not open to students with credit in T Ed 151. Prerequisite: T Ed 110 (Option II Multiple Subjects, concurrent enrollment); admission to a Multiple Subjects Credential program. Functions of education in America's multicultural society; role of school and teacher; impact of social conflict and interaction on the school's function; relationshp between school and community. (Former E Ed 140)

145. Organization of Programs for Young Children (3)

A study of varied types of organization and Administrative patterns for young children. Principles of democractic supervision and policies related to purposes and organization, licensing, equipment, records, financing, parent and community relations, personnel policies, and staff development. (Former E Ed 151)

147. Early Childhood Curriculum for Handicapped Children (3)

Modifications in either mainstreamed or special settings to help teachers adapt the early education curriculum to meet the needs of young handicapped children. Course includes teaching techniques, criteria for selection of appropriate materials, and provisions for adapting physical classroom environment. (Former E Ed 161)

150. Curriculum and Instruction in Elementary Schools (4)

Prerequisite: admission to a Multiple Subjects Credential program, T Ed 110 (Option II Multiple Subjects, concurrent enrollment), 130 and 140. Current conceptions of curriculum and instructional resources in the elementary school; methods of teaching. (3 lecture, 2 lab hours) (Former E Ed 150)

151. Social Foundations of Education (3)

Not open to students with credit in T Ed 140.

Scope and function of secondary schools; social, historical and philosophical influences; curriculum, recent trends and issues. (Former S Ed 151)

152. Psychological Foundations of Education (3)

Not open to students with credit in T Ed 130. Prerequisite: Psych 10; admission to Single Subject Credential Program. Educational psychology; growth and development, learning, personality and self concepts of adolescents; implications for learning and teaching. (Former S Ed 152)

155A. Student Teaching in Secondary School (4)

Supervised field experiences and teaching in secondary schools, minimum 120 hours. Scheduled conferences with college supervisors, and public school personnel. (Former S Ed 155A)

155B. Student Teaching in Secondary School (4 or 8; max total 12)

Prerequisite: T Ed 151, 152, 161 (or concurrent), 155A, senior standing, admission to Single Subject Credential Program, approval of major department or passing of single subject examination. Supervised field experiences and teaching in secondary schools; minimum 120 hours for each 4 units. Scheduled conferences with college supervisor and public school personnel. (Former S Ed 155B)

155C. Student Teaching in Secondary School (12)

Not open to students with credit in T Ed 155B. Prerequisite: T Ed 151, 152, 161 (or concurrent), senior standing, admission to Single Subject Credential Program, approval of major department or passing of single subject examination. Supervised field experiences and teaching in secondary schools; minimum 360 hours. Scheduled conferences with college supervisor and public school personnel. (Former S Ed 155C)

156. The Teaching of Reading (3)

Prerequisite: admission to a Multiple or Single Subjects Credential program; T Ed 110, if the former. The nature of reading, methods and materials for teaching reading skills; provision for individual differences (ethnic, socio-economic, dialectal); theories, programs, and organization; stimulation of interest; improvement in oral reading and phonics. Check Schedule of Courses for appropriate credential sections. (Former E Ed or S Ed 156)

157. Conservation of Natural Resources (3) (See Biol 157) (Former E Ed 157)

158. Communication and Learning (3) (See Spch 114) (Former E Ed 158)

160A–B. Student Teaching in Elementary School (5A–5B)

Prerequisite: admission to a Multiple Subjects Credential program. Completion of Liberal Studies Major or qualifying score on National Teachers Examination; completion of all required courses in approved program. Supervised teaching in public school classrooms; total assignment requires full days or equivalent. Special sections provided for Early Childhood, Communicative Disorders, Special Education. (See Schedule of Courses) (Former E Ed 160A–B)

161. Methods and Materials in Secondary Teaching (3)

Prerequisite: T Ed 152, admission to credential program or teaching experience. A methods course in secondary school subjects. Instructional procedures, techniques, and resources for teaching; appraisal of instructional innovations; classroom organization and management; measurement and evaluative techniques. Some areas have labs. (Former S Ed 161)

162. Mainstreaming in the Secondary School (2)

Not open to students with credit in AS 114. Prerequisite: T Ed 152, 155A. Special education environment in academic and non-academic curriculum, organization of classroom, referral practices in mainstreaming. Individual educational prescriptions, and non-discriminatory assessment. Interpretation of state and local guidelines. (Former S Ed 162)

171. Principles of Early Childhood Education (3)

A study of the physical, social and psychological influences on the young child's learning. The development of program models and principles of curriculum development for the child up to eight years of age. (Former E Ed 171)

190. Independent Study (1–3; max see reference) (Former E Ed or S Ed 190)

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*

213. Language in the Elementary School (3)

Prerequisite: graduate standing. Seminar in the study of the English language arts. Objectives, curriculum, materials, and research in oral and written communication; project required. (Former E Ed 213)

214. Children's Literature (3)

Prerequisite: graduate standing. Seminar in children's literature; critical interpretation of children's literature; emphasis upon impact of changing social and cultural patterns in books for children; project required. (Former E Ed 214)

221. Early Childhood Education: Classroom Ecology and the Child with Special Needs (3)

A study of classroom environment with a focus on the relationships, attitudes and actions of teachers, the child and his peers, parents and staff who work with the special child in the regular classroom. (Former E Ed 221)

231. Curriculum in Early Childhood Education (3)

Prerequisite: T Ed 171; admission to Early Childhood Emphasis or Specialist program. Concepts underlying curriculum development for children eight years and younger. Teacher's role in planning, implementing, and assessing curriculum; development of teaching strategies in environmental settings to include nursery, kindergarten, and primary levels. (2 seminars, 2 lab hours) (Former E Ed 231)

241. Field Work in Early Childhood Education (3)
Prerequisite: admission to Early Childhood Emphasis or Specialist program. Concurrent enrollment in T Ed 231. Supervised experiences in work with young children in a variety of settings aimed at enabling the student to implement curriculum content and demonstrate teaching skills with the young child and his family in a pre-kindergarten program and at least one other age group. (Minimum of 135 hours) (Former E Ed 241)

251. Home, School, Community Resources in Early Childhood (3)
Teacher-parent relationshhips in individual and group settings; role of classroom aides and community volunteers; work with student teacher; organization and execution of in-service programs using home, school, and community resources. (Former E Ed 251)

271. Comparative Cultures in Early Childhood (3)
Factors affecting personality, language, and cognitive skills in early childhood. Analysis of similarities and contrasts among varying cultures and environments for young children, including a study of UNESCO and international children's agencies. Project required. (2 seminars, 2 lab hours) (Former E Ed 271)

272. Instructional Planning and Evaluation (2)
Principles and practices of instructional planning, assessment and testing of learning outcomes, performance appraisal, test construction and analysis, grading. Evaluation of teaching. (Former S Ed 272)

273. Secondary School Curriculum (2)
Prerequisite: T Ed 155B (may take concurrently). Seminar on concepts and principles of curriculum planning, evaluation of processes and programs; availability and use of resources; innovations and research in curriculum development. Project required. (Former S Ed 273)

274. Social Interaction in Teaching (2)
Prerequisite: T Ed 155B (may take concurrently). Problems of social interaction between teachers, students and parents, classroom guidance, extracurricular activities, mental hygiene of teachers. (Former S Ed 274)

290. Independent Study (1–3; max see reference)
(Former E Ed or S Ed 290) (See *Academic Placement—Independent Study*)

IN-SERVICE COURSES

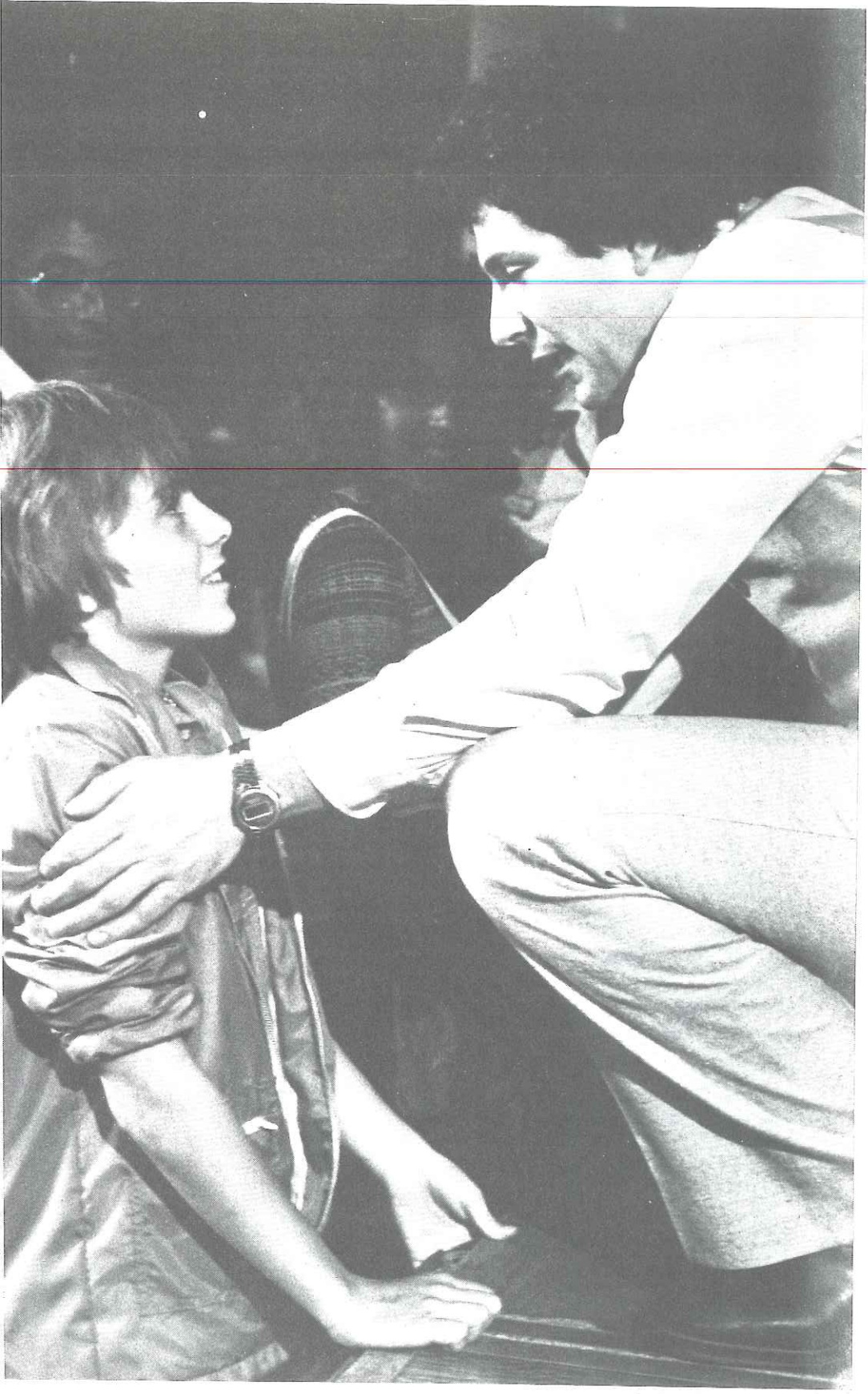
(See *Course Numbering System*)

361. General Methods of Teaching (3)
(Former S Ed 361)

363F. Field Work in Curriculum (1–3; max total 6, if no project repeated)
(Former S Ed 363F)

381. Planning and Organizing Outdoor Education (3)
(Former E Ed 381)

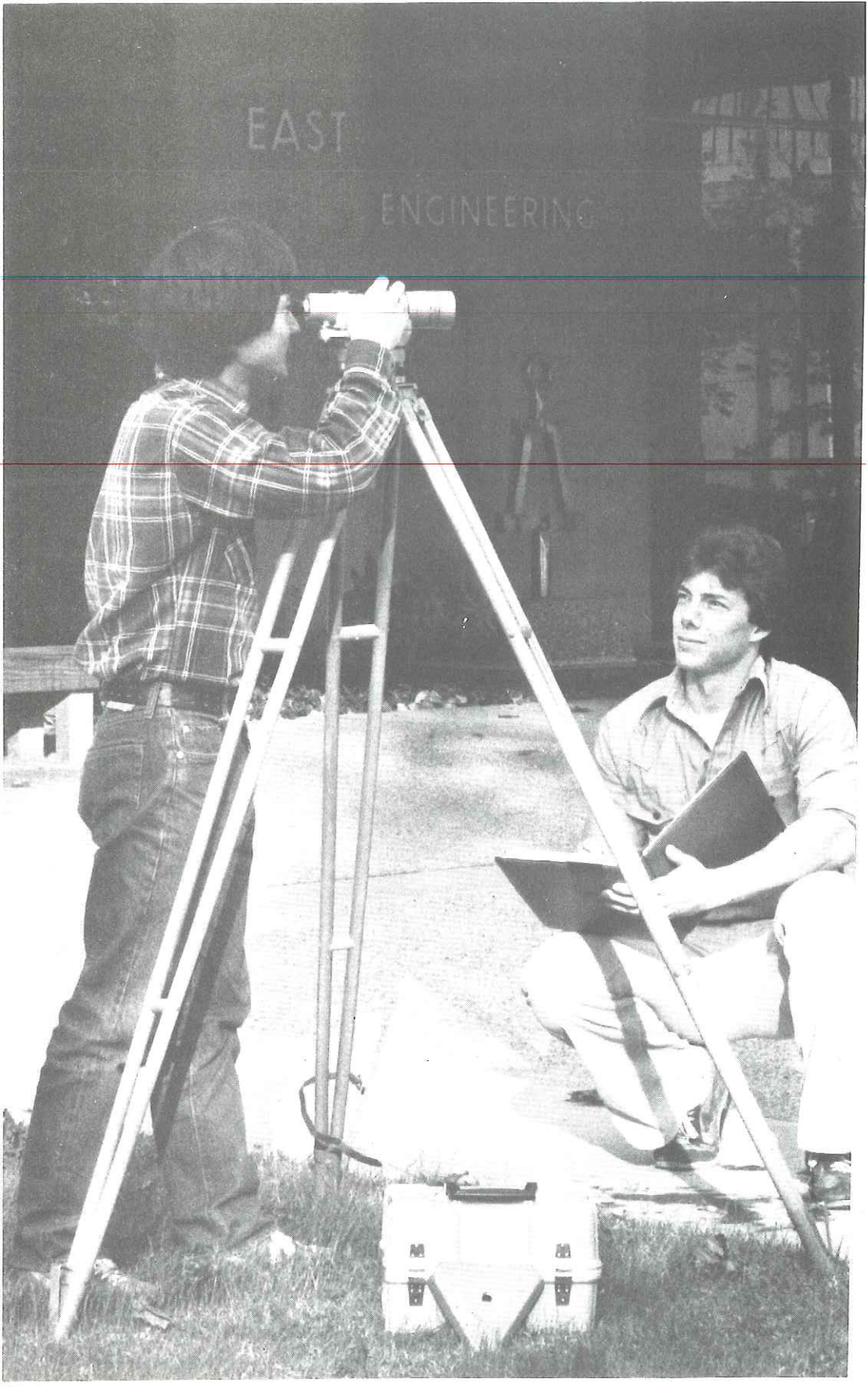
383. Problems in Child Study (2; max total 12)
(Former E Ed 383)





SCHOOL OF ENGINEERING

Photo: *P. F. Valentine—Principal, Training School*
Fresno State Normal School, circa 1917


EAST
ENGINEERING

SCHOOL OF ENGINEERING

James Matheny, Dean

FACULTY

Joseph R. Battenburg, Andy Bazar, Vincent D. Bevill, W. Kenneth Bodger, Chandra Brahma, George Burnham, Shyhming Chang, Wayne P. Dominick, Keith Faherty, George Hanna, John Hatzopoulos, Charles W. Haynes, Albert A. Heaney, Mushtaq Hussain, Medhat Ibrahim, McRae Jarrett, Samuel Y. Liao, Satya Mahanty, Fareed W. Nader, Joseph Plunkett, R. Lowell Preston, Hans B. Puttgen, D. E. Robison, Walter F. Rowland, Jankie N. Supersad, Mohamad Yousef

DEGREES OFFERED: BS (Civil, Electrical, Industrial or Mechanical Engineering, or Surveying and Photogrammetry), MS (Civil Engineering), MS (Electrical or Mechanical) at Edwards Air Force Base

Options:

Civil
Electrical
Industrial
Mechanical
Surveying and Photogrammetry

SCHOOL PROGRAMS

Engineering may be defined as the application of science and technology for the benefit of society. Therefore, the engineering student pursues courses in the sciences, mathematics, humanities, and social sciences; and in engineering science which interfaces the courses in science with those in professional engineering. Because it embraces a broad horizon, engineering is divided into interrelated fields of specialization. The School provides instruction in the fields of civil, electrical, industrial, and mechanical engineering, and in surveying and photogrammetry. Electrical engineering includes the study of electronics. A program in surveying and photogrammetry is also offered. Engineering students are prepared to enter the practice of professional engineering or graduate study; students studying surveying and photogrammetry are prepared to become specialists in the various aspects of surveying.

The civil, electrical, mechanical engineering, and surveying and photogrammetry programs are accredited by the Accreditation Board for Engineering and Technology (ABET), the nationally recognized accrediting agency of the engineering profession.

The School of Engineering offers a program in cooperation with the Health Science Department. The program is designed to prepare its graduates for careers in occupational health and safety. Interested persons are referred to the section of this bulletin entitled Health Science Department.

ENGINEERING FIELDS

Civil Engineering. Civil engineering is concerned with the science and technology of planning, analyzing, designing, constructing, operating, and maintaining structures, transportation systems, environmental works, and water resource developments. Within these fields the civil engineer deals with buildings, bridges, foundations, highways, airports, waterways, pipelines, surveying, mapping, water supply systems, waste treatment systems, environmental water quality control, dams, hydropower installations, irrigation, flood control, and other fixed engineering works.

The civil engineer may utilize computer methods of analyzing and designing complex structures and systems; undertake research on structural use of new materials or on advanced methods of water and waste treatment; design protective structural features and radiation shielding in nuclear power plants; participate in structural and facility aspects of aerospace projects; or work in municipal engineering, urban planning, or vehicular traffic control.

Electrical Engineering. Electrical engineering deals with energy and information in electrical form. This dynamic field of contemporary technology encompasses activities such as the conversion and control of energy; the application of physical electronics phenomena in devices,

circuits, and systems; the design and characterization of electronic communication and electromagnetic systems; the development and application of computers; and the automation and control of industrial processes and man-machine interactions.

Electrical engineers design and develop electronic circuits, equipment, and systems in the areas of *electromagnetics* (antennas; radar, radio, and television systems), *communications and control* (telephone systems; satellite communications; aircraft and missile guidance systems), *computer sciences* (computers; automated manufacturing; robots; artificial intelligence), *physical electronics and optics* (transistors; integrated circuits; optical display devices; lasers), *power systems and energy conversion* (hydro, thermal, nuclear, solar electric power generation; analysis and synthesis of power transmission and distribution systems; on-line power control and dispatch centers), and *bioelectronics* (sensory aids for the physically handicapped; biomedical instruments for clinical applications).

Industrial Engineering. Industrial engineering is concerned with the design, improvement, and installation of integrated systems of people, materials, equipment, and energy. It draws upon specialized knowledge and skill in the mathematical, physical, and social sciences together with the principles and methods of engineering analysis and design to specify, predict, and evaluate the results to be obtained from such systems.

Industrial engineers give valuable service to management in decision making relative to the most efficient utilization of people, materials, equipment, and energy. Industrial engineers are a prime source of management talent and therefore are in demand by a wide variety of organizations, even those not usually regarded as "industrial."

Mechanical Engineering. Mechanical engineering deals with engineering problems relating to the generation, transmission, and utilization of energy in the thermal or mechanical form. It is concerned also with engineering problems related to the production of tools, machinery, and their products and to heating, ventilation, refrigeration, and plumbing in their research, design, production, operation, organization, and economic aspects.

Mechanical engineers are concerned with propulsion systems; cryogenics; environmental systems for control of humidity, temperature, and air cleanliness; transportation equipment including land, water, and space vehicles and mechanical, pneumatic, and hydraulic conveyor systems; power components including engines, turbines, rockets, jets, and fuel cells; and machinery such as pumps, fans, compressors, blowers, valves, and material handling and processing equipment including machine tools and food processing equipment.

SURVEYING AND PHOTOGRAMMETRY

This program prepares specialists in the science and art of making measurements necessary to determine the relative positions of points on or near the earth's surface (Surveying) and the science of making measurements from photographs (Photogrammetry).

The Surveyor/Photogrammetrist applies his knowledge for: map making, locating property boundaries, collecting data for engineers and architects to use in design of structures, making measurements for guiding construction operations, measuring the size and shape of the earth, delineating boundaries of water bodies, and accurately establishing horizontal and vertical control points for scientific and engineering works. Photogrammetry is used for a wide variety of unusual measurements such as: topology of the human body, non-destructive testing of engineering materials, determining size and volume of animals, vehicle accident investigations, structural deformations, criminology investigations, and architectural and anthropological surveys.

HIGH SCHOOL PREPARATION

Recommended preparation for engineering or surveying and photogrammetry consists of: English (4 years), algebra (2 years), geometry (1 year), trigonometry (½ year), physics or chemistry (1 year). Additional recommended courses are: advanced mathematics (½ year), chemistry or physics (1 year), mechanical drawing (½ year).

TRANSFERS

Transfers from community colleges or other institutions of higher learning are accepted under provisions outlined under *General Information—Admissions.* Students planning to transfer to the California State University, Fresno engineering or the surveying and photogrammetry programs should follow as closely as possible the outline of the program of their choice.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

The bachelor of science degree is granted upon completion of the following programs: civil, electrical, industrial, or mechanical engineering; surveying and photogrammetry. These programs include the general education and degree requirements of the university; students must consult their engineering advisors about meeting the requirements of the general education program. Foreign students taking I S C 10, 21, and 93 in their first year may postpone courses that are not prerequisite to courses in their major. A minimum G.P.A. of 2.0 must be maintained in all courses taken in the CSUF School of Engineering.

For specific requirements see course outline under selected option.

CIVIL ENGINEERING

(74 units engineering; 134 units total)

FIRST SEMESTER		Units
S & P 11,L	Plane Surveying	3
C E 85	Introduction to Civil Engineering	1
Engr 26	Engineering Graphics	3
Math 75	Mathematical Analysis I	4
Engl 1	Composition	3
Gen Ed	(any area except area I)	1
		15

SECOND SEMESTER		Units
S & P 12, L	Advanced Plane Surveying [4]	3
Engr 70	FORTRAN IV Programming	2
Math 76	Mathematical Analysis II	4
Phys 5A	Principles of Physics I	5
Hist 11/12	American History	3
		17

THIRD SEMESTER		
Engr 20	Engineering Mechanics: Statics	3
Math 77	Mathematical Analysis III	4
Phys 5B	Principles of Physics II	5
Chem 1A	General Chem & Qual Analysis	5
		17

FOURTH SEMESTER		
Engr 31	Engineering Materials	3
Math 81	Applied Analysis	4
Pl Sc 2	American Govt and Institutions	3
*Chem 8	Elementary Organic Chemistry	3
Geol 1	Physical Geology	4
		17

FIFTH SEMESTER		
Engr 121, L	Mechanics of Materials	4
C E 150	Transportation Planning & Design	3
Engr 112	Engineering Mechanics Dynamics	3
Engr 116, L	Fluid Mechanics	4
Soc Sci	See [2]	3
		17

SIXTH SEMESTER		
C E 123, L	Soil Mechanics	3
C E 130	Theory of Structures	3
C E 142, L	Water Supply & Wastewater	4
Engr 136	Thermodynamics	3
Humanities	See [3]	3
		16

SEVENTH SEMESTER		
C E 124	Concrete Laboratory	1
C E 132	Reinforced Concrete Design	3
C E 185	Civil Engineering Practice	1
Engr 160	Engineering Economy	2
Engr 90	Principles of Electrical Circuits	3
App Elect	See [1]	6
		16

EIGHTH SEMESTER		
C E 133	Steel and Timber Structures	4
C E 180	Senior Project	1
Engr 182W	Engineering Writing	2
App Elect	See [1]	6
Humanities	See [3]	3
Soc Sci	See [2]	3
		19

[1] Approved Electives: Select from courses in one or more of the following groups; selection of asterisked courses requires the Dean's prior approval.
Environmental Water Quality: C E 140, 144, 145; Biol 133 *.
Structures: Engr 122; C E 131, 134, 135.
Surveying: S & P 23 & L, 41, 102, 135, 151.
Transportation: C E 140, 151, 152, 153; S & P 41.
Water Resources: C E 140, 141, 143, 144.
Additional approved electives: C E 161, 190, 191T, 193; Engr 161, I E 110.

[2] Social Sciences: Select from Anth 2, 3, 4; As Am 15; B1 S 38, 135; Crim 1, 132; Econ 1A, 1B, 101; Geog 3, 4; Hist 4, 5; La R 3, 5; NAS 103; P1 Si 1; Psych 134; Soc 1, 2; W S 10.

[3] Humanities: Select from Art 1; Art H 10, 20; B1 S 25; Drama 1, 62; Engl 30, 76; Hist 1, 2; La R 7, 9; Phil 1; RTV 127, 128; W S 145, 168.

[4] Environmental Water Quality Students: With the Dean's approval, substitute Bot 10 for C E 2, L.

* or Chem 1B.

ELECTRICAL ENGINEERING

(68 units engineering; 129 units total)

FIRST SEMESTER		Units
Math 75	Mathematical Analysis I	4
*Chem 1A	General Chem & Qualitative Analysis	5
E E 1	Intro to Electrical Engineering	1
Engr 70	FORTRAN IV Programming	2
Engl 1	Composition	3
		15

SECOND SEMESTER		Units
Math 76	Mathematical Analysis II	4
Phys 5A	Principles of Physics I	5
*Chem 8	Elementary Organic Chemistry	3
Engr 26	Engineering Graphics	3
		15

THIRD SEMESTER		
Math 77	Mathematical Analysis III	4
Phys 5B	Principles of Physics II	5
E E 85	Logic Design and Microprocessors	3
Engr 20	Engineering Mechanics: Statics	3
Humanities	See [3]	3
		18

FOURTH SEMESTER		
Math 81	Applied Analysis	4
Engr 31	Engineering Materials	3
Engr 90, L	Principles of Electrical Circuits	4
Engr 112	Engineering Mechanics: Dynamics	3
Government [1]		3
		17

FIFTH SEMESTER		
Mathematics Elective [5]		3
E E 126	Electromagnetic Theory & Appl I	3
E E 128, L	Electronics I	4
Engr 136	Thermodynamics	3
Humanities [3]		3
		16

SIXTH SEMESTER		
E E 121	Electromech Sys & Energy Conversion	3
E E 124	Electrical Circuit Analysis	3
E E 136, L	Electromagnetic Theory & Appl II	4
E E 138, L	Electronics II	4
Hist	See [1]	3
		17

SEVENTH SEMESTER		
EE 114	Physical Electronics	3
E E 121L	Electromech Sys & Energy Conv Lab	1
Engr 160	Engineering Economy	2
Approved Electives [6]		4
General Elective [4]		3
Social Sciences [2]		3
		16

EIGHTH SEMESTER		
E E 155	Control Systems	3
E E 180	Senior Project	1
Engr 116	Fluid Mechanics	3
Engr 182W	Engineering Writing	2
Approved Elective [6]		3
Social Sciences [2]		3
		15

[1] See Special Course Requirements under Degrees and Credentials.

[2] Social Sciences: Select from Anth 2, 3, 4; As Am 15; B1 S 38, 135; Crim 1, 132; Econ 1A-B, 101; Geog 3, 4; Hist 4, 5; La R 3, 5; NAS 103; P1 Si 1; Psych 134; Soc 1, 2; W S 10.

[3] Humanities: Select from Art 1; Art H 10, 20; B1 S 25; Drama 1, 62; Engl 30, 76; Hist 1, 2; La R 7, 9; Music 73, 74, 75; Phil 1; RTV 127, 128; W S 145, 168.

[4] General Electives: May be approved electives but at least 1 unit must be from any area of General Education.

[5] Mathematics Electives: Select from Math 107, 121, 124, 128, 181, or 182.

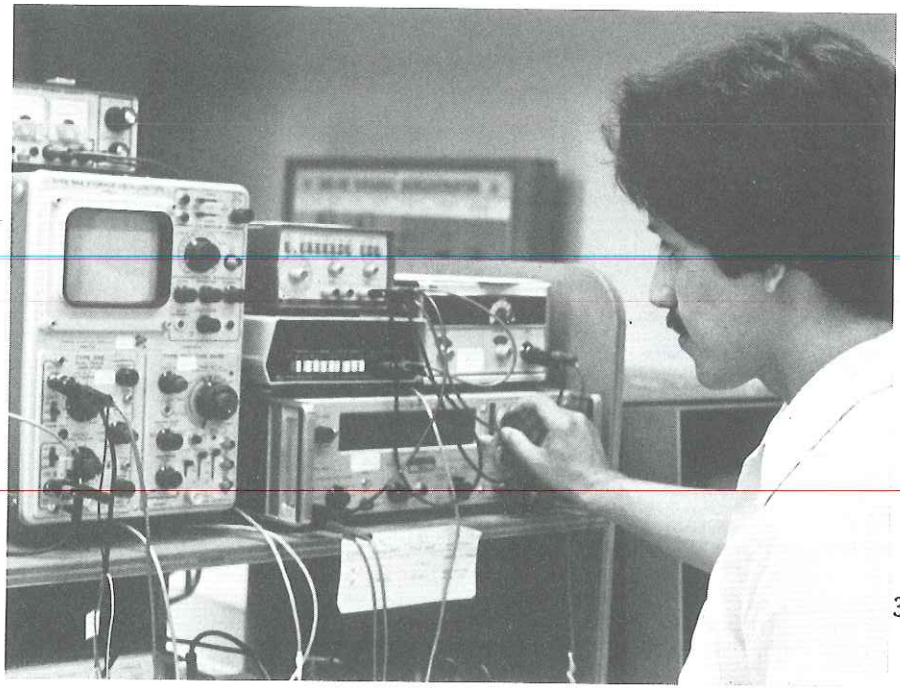
[6] Approved Electives: Select from the following courses with at least 4 units from the underlined course numbers and to include at least one laboratory course from EE 183A, B, C, D:

(a) Electronics and communications: EE *134, 140, 161, 166, 171, 176, 183A, 183C.*

(b) Computer sciences and digital systems: EE 106, *107,* 133, *175, 183B,* Engr 173.

(c) Power systems and energy conversion: E E *151, 183D.*

* or Chem 1B.



INDUSTRIAL ENGINEERING

(65 units engineering; 132 units total)

FIRST SEMESTER		*Units*
Engr 26	Engineering Graphics	3
IE 75	Introduction to Industrial Engrng	1
Math 75	Mathematical Analysis I	4
Chem 1A	General Chem & Qualitative Analysis	5
Hist 11/12	American History	3
		16

THIRD SEMESTER		
Engr 20	Engineering Mechanics: Statics	3
Engr 31	Engineering Materials	3
Math 77	Mathematical Analysis III	4
Phys 5B	Principles of Physics II	5
Econ 1A	Principles of Economics	3
		18

FIFTH SEMESTER		
I E 110	Statistical Anal & Control	3
I E 111	Work Measurement	2
Engr 112	Engineering Mechanics: Dynamics	3
Engr 116, L	Fluid Mechanics	4
Approved Elective See [1]		3
Engr 160	Engineering Econ	2
		17

SEVENTH SEMESTER		
I E 112	Statistical Design of Experiments	3
I E 113	Operations Analysis	3
I E 120	Systems Safety Engineering	3
E E 121, L or, E E 128	Electromechanical Systems & Energy Electronic Devices & Circuits	4/3
App Elect	See [1]	1/2
Humanities	See [2]	3
		17

SECOND SEMESTER		*Units*
Engr 70	FORTRAN IV Programming	2
M E 11, L	Manufacturing Processes	3
Math 76	Mathematical Analysis II	4
*Chem 8	Elementary Organic Chemistry	3
Phys 5A	Principles of Physics I	5
		17

FOURTH SEMESTER		
Pl Si 2	American Govt and Institutions	3
Mgt 110A	Adm and Org Behavior	3
Math 81	Applied Analysis	4
Acct 4A	Financial and Managerial Accounting Principles and Systems	3
Engl 1	Composition	3
		16

SIXTH SEMESTER		
I E 114	Facilities Engineering	2
Engr 121, L	Mechanics of Materials	4
Engr 110, L	Principles of Electrical Circuits	4
Engr 136	Thermodynamics	3
Approved Elect See [1]		3
		16

EIGHTH SEMESTER		
I E 125	Hum Fact in Engr & Design	2
I E 180	Senior Project	1
Engr 182W	Engineering Writing	2
App Elect	See [1]	3
Humanities	See [2]	3
Nat/Soc Sci	See [3]	4
		15

[1] Approved Electives: Select from I E 116, 118, 120, 190, 191T, 193; Engr 122, 161, 173; M E 134.
[2] Humanities: Select from Art 1; Art H 10, 20; Drama 1, 62; Hist 1, 2; Engl 30; Phil 1.
[3] Natural or Social Sciences: Select from Psych 10, 134.
* or Chem 1B.

MECHANICAL ENGINEERING

(72 units engineering; 128 units total)

FIRST SEMESTER		Units
Engr 26	Engineering Graphics	3
Math 75	Mathematical Analysis I	4
Chem 1A	General Chem & Qualitative Analysis	5
Engl 1	Composition	3
		15

SECOND SEMESTER		Units
Engr 70	FORTRAN IV Programming	2
Math 76	Mathematical Analysis II	4
*Chem 8	Elementary Organic Chemistry	3
Phys 5A	Principles of Physics I	5
Humanities	See [2]	3
		17

THIRD SEMESTER		
Engr 31	Engineering Materials	3
Hist 11/12	American History	3
Math 77	Mathematical Analysis III	4
Phys 5B	Principles of Physics II	5
Soc Sci	See [3]	3
		18

FOURTH SEMESTER		
M E 11, L	Manufacturing Processes	3
Engr 20	Engineering Mechanics: Statics	3
Math 81	Applied Analysis	4
Soc Sci	See [3]	3
Pl Si 2	American Govt and Institutions	3
		16

FIFTH SEMESTER		
Engr 112	Engineering Mechanics: Dynamics	3
Engr 116	Fluid Mechanics	3
M E 117	Instrumentation & Fluid Laboratory	2
Engr 121	Mechanics of Materials	3
Humanities	See [2]	3
		14

SIXTH SEMESTER		
M E 131	Advanced Engineering Materials	3
M E 134	Dynamics in Machine Design	3
Engr 136, L	Thermodynamics	4
Engr 90, L	Principles of Electrical Circuits	4
Engr 122	Advanced Mechanics of Materials	3
		17

SEVENTH SEMESTER		
M E 154	Design of Machine Elements	3
M E 156, L	Adv Thermodynamics-Fluid Mechanics	4
E E 121, L	Electromechanical Systems & Energy Conversion	4
App Elect	See [1]	6
		17

EIGHTH SEMESTER		
M E 180	Senior Project	1
Engr 160	Engineering Economy	2
Engr 182W	Engineering Writing	2
App Elect	See [1]	8
Gen Ed	Area 2, 3 or 4	1
		14

[1] Approved Electives: Select at least 6 units from each of the following groups: Group A: E E 155; IE 110; M E 137, 142, 166; Group B: Engr 161, 173; M E 143, 146, 146L, 151, 164.

[2] Humanities: Select from Art 1, Art H 10, 20; Drama 1, 62; Engl 30; Hist 1, 2; Phil 1.

[3] Social Sciences: Select from Anth 2, 3; Econ 1A, 1B; Geog 3, 4; Hist 4; Pl Si 1; Psych 134.

* or Chem 1B.

SURVEYING AND PHOTOGRAMMETRY

(69 units engineering; 130 units total)

FIRST SEMESTER		Units
S & P 11, L	Plane Surveying	3
Engr 26	Engineering Graphics	3
Math 75	Mathematical Analysis I	4
Chem 1A	General Chem & Qual Analysis	5
		15

SECOND SEMESTER		Units
S & P 12, L	Advanced Plane Surveying	3
S & P 21	Photographic Processes	3
Math 76	Mathematical Analysis II	4
*Chem 8	Elementary Organic Chemistry	3
Phys 5A	Principles of Physics I	5
		18

THIRD SEMESTER		
S & P 23, L	Photogrammetry	3
Math 77	Mathematical Analysis III	4
Phys 5B	Principles of Physics II	5
Engr 70	FORTRAN IV Programming	2
Spch 7	Persuasion	3
		17

FOURTH SEMESTER		
S & P 34	Survey Computations	3
S & P 41, L	Route Surveying	3
Geol 1	Physical Geology	4
Engl 1	Composition	3
App Elect	See [1]	3
		16

FIFTH SEMESTER		
S & P 102, L	Geodetic Surveying	3
S & P 123	Photogrammetric Instrumentation	3
S & P 151	Boundary Control & Legal Principles	3
S & P 135	Advanced Survey Computations	3
Pl Si 2	American Govt & Institutions	3
		15

SIXTH SEMESTER		
S & P 108	Geodesy	3
S & P 125	Advanced Photogrammetry	3
S & P 159	Subdivision Preparation	2
Geog 105	Aerial Photographic Interpretation	3
EE 104	Basic Electronics	3
Hist 11/12	American History	3
		17

SEVENTH SEMESTER		
URP 100	Intro to Urban & Regional Planning	3
S & P 147	Electronic Distance Measurements	3
S & P 186	Surveying Practice	1
Engr 160	Engineering Economy	2
App Elect	See [1]	3
Humanities	See General Education Requirements	3
		15

EIGHTH SEMESTER		
S & P 126	Map Design & Reproduction	3
S & P 180	Senior Project	1
Engr 161	Legal Aspects of Engineering	2
Engr 182W	Engineering Writing	2
Geog 104	Map Interpretation	3
App Elect	See [1]	3
Humanities	See General Education Requirements	3
		17

[1] Approved Electives: Select from the following courses: C E 120, 120L, 150; Engr 20, 31, 90, 112, 116, 121; Math 81; Mgt 110A; S & P 190, 191T; IE 110.

* Or Bot 10 or P Sci 22.

BACHELOR OF SCIENCE DEGREE (Undesignated) REQUIREMENTS

The Bachelor of Science degree in Engineering without designated area of specialization is offered by the School. The intent of the program is to allow a student with particular career goals to formulate an individualized interdisciplinary course of study in non-traditional areas of engineering.

The non-designated degree meets the standards of the engineering accreditation agency with regard to requirements in mathematics, basic science and engineering. However, it is not an accredited program.

The student's program of study must be agreed upon in advance by the student, and his engineering faculty adviser and be approved by the Dean of the School.

The student must complete at least 45 units to meet the minimum requirements for the bachelor's degree after approval is given to his program of study.

	Units
Math: 75, 76, 77, 81	16
Science: Chem 1A, 8, Phys 5A and 5B	18
* Humanities and Social Sciences: Political Science 2, Hist 11/12 Humanities (6), Social Science (6)	18
English 1A	3
Engineering: Engr 20, 26, 31, 70, 90, 90L, 112, 116, 116L, 121, 136, 160, EE 124	33
Speciality (including a minimum of 16 upper division units)	24
Electives (Maximum)	16
	128

GRADUATE PROGRAM

The School of Engineering offers a Master of Science in Engineering degree and an off-campus program at Edwards Air Force Base leading to an MS degree.

The MS degree program with option in Civil Engineering is designed to provide additional benefits of salary and career opportunities to graduates of a baccalaureate degree program in engineering; for the continued development of practicing engineers, additional career entry preparation for continuing students, and for preparation for persons planning to teach in pre-engineering, engineering technology and engineering programs. This program also provides the first graduate degree for students desirous of pursuing further graduate study in Civil Engineering; Engineering Mechanics and related areas.

MASTER OF SCIENCE DEGREE (Civil Engineering) REQUIREMENTS

Requirements. (See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives)*

Admission. The requirements for graduate admission to California State University, Fresno must be met. To be admitted to the program, applicants should possess a Bachelor's Degree in Civil Engineering from an institution accredited by the Accreditation Board for Engineering and Technology. To be admitted, students must have a 3.0 grade point average overall on the basis of 4.0 being A; or the approval of the Graduate Committee of the School of Engineering. If an applicant's preparation is deemed insufficient by the Graduate Committee of the School of Engineering, the applicant will be required to take additional courses which will be specified in writing to remove the deficiency. Such courses, taken as an unclassified student, are in addition to the minimum of 30 semester hours credit for the Master's Degree in Engineering.

* Selected to meet the General Education and School of Engineering requirements.

Continuation in the Program. Prior to their being admitted to classified standing, students will be required to take the Graduate Record Examination. The minimum grade considered passing is quantitative 450. The advanced portion of the examination for engineering is not required. The student, together with an adviser, will complete a contract program within his first twelve semester hours of coursework taken for graduate credit. This program must be approved by the Graduate Committee of the School of Engineering. Satisfactory progress towards completion of the contract program is a requirement for continuation in the program. Students must maintain a 3.0 average on all coursework attempted while enrolled as a graduate student. A minimum of twelve semester hours must be earned before the average will be determined.

Program.

Each Master's Degree student will select, as early as possible during the first semester of attendance, and upon consulting with and securing the approval of the major field advisor, a program best suited to his/her interests and objectives.

An M.S. Degree in Engineering requires the completion of a program of study containing 30 units of the following requirements:

1. Satisfaction of a credit-hour core program consisting of the following 3 courses:

		Units
Engr 204	Engineering Planning & Operations	3
Engr 205	Computing in Engineering Analysis	3
Engr 206	Engineering Environmental Impact	3
Total		9

2. Six credit-hours taken outside the School of Engineering from 100 or 200 level courses in Mathematics, Statistics, Management, Business, Physics, Chemistry, Biology or other disciplines best suited to the student's graduate program as approved by the student's graduate advisor.
3. Fifteen credit-hours taken as a coherent program and designed according to one of the following plans:

Plan A—Thesis Plan	*Units*
200-series Engineering courses	9–12
Thesis or Project	6–3
Total	15

Plan B—Non-Thesis Plan	
200-series Engineering courses	9–15
100-series Engineering elective courses	6-0
Total	15

This plan includes a comprehensive final examination.

FOR THE CIVIL ENGINEERING OPTION

Undergraduate courses that may be used as electives:

Engr 122 Advanced Mechanics of Materials (3)
Engr 161 Legal Aspects of Engineering (2)
CE 131 Intermediate Theory of Structures (3)
CE 134 Foundation Design (3)
CE 135 Reinforced and Prestressed Concrete Design (3)
CE 140 Hydrology (3)
CE 141 Water Resources Engineering (3)
CE 143 Engineering Hydraulics (3)
CE 144 Water Quality Control (3)
CE 145 Unit Operations and Processes (3)

Graduate Courses (Engr)

204. Engineering Planning and Operations (3)
205. Computing in Engineering Analysis (3)
206. Engineering Environmental Impact (3)
290. Independent Study (1–3)
291T. Topics in Civil Engineering (3; maximum total 6)
298. Project (3)
299. Thesis (6)

MASTER OF SCIENCE DEGREE AT EDWARDS AIR FORCE BASE

The School of Engineering at California State University, Fresno operates an off-campus degree program at Edwards Air Force Base. This program leads to the MS Degree in Engineering, with options in Electrical Engineering, and in Mechanical Engineering. For information about the program, or admission to the program, write the Office of the Division of Graduate Studies and Research.

COURSES

ENGINEERING (Engr)

20. Engineering Mechanics: Statics (3)
Prerequisite: Math 77 (or concurrently), Phys 5A. Analysis of force systems, equilibrium problems, section properties; graphic, algebraic, and vector methods of problem solution. (2 lecture, 2 lab hours) (Former CE 20)

26. Engineering Graphics (3)
Prerequisite: Math 75 (or concurrently). Principles and applications of orthographic projection and descriptive geometry to the solution of engineering problems. (2 3-hour lecture labs)

31. Engineering Materials (3)

Prerequisite (or concurrently): Chem 8, Phys 5A. Fundamental nature and properties of engineering materials; structure of matter and its effect on mechanical, electrical, magnetic, and thermal properties. (Former ME 31)

70. FORTRAN IV Programming (2)
Prerequisite: Algebra, trigonometry. Flowcharting, program structure, computation and arithmetic functions, input-output, transfer of control, looping, subscripted variables, subprograms, file processing, printer plotting techniques, terminal and batch processing procedures.

90. Principles of Electrical Circuits (3)
Prerequisite: Engr 70, Phys 5B, Math 81 (or concurrently). Direct-current circuit analysis; circuit theorems; transient phenomena in RLC circuits; phasor concept; sinusoidal steady-state response; power and RMS calculations in single-phase and polyphase alternating-current circuits; principles of electrical instruments; computer solutions. (Former EE 110, Engr 110)

90L. Principles of Electrical Circuits Laboratory (1)
Prerequisite: Engr 26, Engr 90 (or concurrently). Experiments on direct- and alternating-current circuits, including single-phase and polyphase systems. Use of electrical instruments, development of laboratory techniques, and verification of basic principles. (3 lab hours) (Former EE 110L, Engr 110L)

100. Technology and Society (3)
Prerequisite: junior standing. Technological developments and their effects on society; ecology and environment; selected examples.

112. Engineering Mechanics: Dynamics (3)
Prerequisite: Engr 20. Development of principles of kinematics and kinetics in engineering. (Former ME 112)

116. Fluid Mechanics (3)
Prerequisite: Chem 1A, Engr 112 (or concurrently). Fundamentals of fluid mechanics as applied to engineering problems. (Former ME 116)

116L. Fluid Mechanics Laboratory (1)
Prerequisite: Engr 116 (or concurrently). Applications of experimental methods used in engineering practice to fluid systems. (3 lab hours) (Former ME 116L)

121. Mechanics of Materials (3)
Prerequisite: Engr 20. Application of principles of mechanics to find stresses and deformations in machine and structural members. (Former CE 121)

121L. Mechanics of Materials Laboratory (1)
Prerequisite: Engr 121 (or concurrently), Engr. 31. Application of the principles and methods of testing to verify theory and determine limitations of principles of mechanics of materials. (3 lab hours) (Former CE 121L)

122. Advanced Mechanics of Materials (3)
Prerequisite: Engr 121, Engr 70, Math 81. Advanced topics in mechanics of materials. (Former CE 122/ME 144)

136. Thermodynamics (3)
Prerequisite: Chem 8, Engr 112 (or concurrently). Fundamentals of thermodynamics, and heat transfer as applied to engineering problems. (Former ME 136)

136L. Thermodynamics Laboratory (1)
Prerequisite: ME 117, Engr 136 (or concurrently). Applications of experimental methods as used in engineering practice to thermofluid systems. (3 lab hours) (Former ME 136L)

160. Engineering Economy (2)
Prerequisite: upper division standing in engineering. Importance of economic analyses of problems in engineering and in management decision making; interest, depreciation, income tax, classification of costs, break-even and minimum cost points, economic comparisons of alternatives, economy of replacement.

161. Legal Aspects of Engineering (2)
Prerequisite: senior standing in engineering. Development of law, canons of ethics, torts, principles of contracts, contracting procedure and specifications, property, negotiable instruments, sales, agency and patents; preparation of reports.

173. Analog Computation (2)
Prerequisite: Phys 5B, Math 77 (or concurrently). Introduction to electronic analog computer programming.

182W. Engineering Writing (2)
Prerequisite: senior project (concurrently). Preparation of applications, forms, letters, reports, and specifications. Substance of final report: senior project investigation. Meets the upper division writing skills requirement for graduation.

191T. Topics in Engineering (1–4; max total 8)
Prerequisite: permission of instructor. Investigation of selected engineering subjects not in current courses.

192. E.I.T. Review (3)
Preparation for Engineer-in-Training Examination. Basic mathematics, chemistry, statics, dynamics, mechanics of materials, fluid mechanics, thermodynamics, electrical theory, materials science, economic analysis.

CIVIL ENGINEERING (C E)

85. Introduction to Civil Engineering (1)
Introduction to the Civil Engineering Profession.

120. Strength of Construction Materials (3)
Not open to civil engineering majors. Prerequisite: Phys 2A. Stress and deflections in steel and wood structures and in formwork for concrete structures.

120L. Strength of Construction Materials Laboratory (1)
Prerequisite: C E 120 (or concurrently). Application of testing procedures to determine and verify limitations on the use of construction materials. (3 lab hours)

123. Soil Mechanics (2)
Prerequisite: Engr 121. Physical and mechanical properties of soil as an engineering material; theoretical studies in permeability, compressibility, stress-deformation, and strength characteristics.

123L. Soil Mechanics Laboratory (1)
Prerequisite: Engr 121L, C E 123 (or concurrently). Experiments to illustrate and amplify the principles of soil mechanics. (3 lab hours; field trips required)

124. Concrete Laboratory (1)
Prerequisite: Engr 121L. Proportioning of concrete mixes; admixtures; workability tests; compressive, flexural, and tensile strength tests; reinforced concrete. (3 lab hours; field trips required)

130. Theory of Structures (3)
Prerequisite: Engr 121. Trusses and frames analyzed by algebraic and graphic procedures; influence lines and live loading analysis; rigid frames analyzed by slope deflection and moment distribution. Introduction to matrix methods.

131. Intermediate Theory of Structures (3)
Prerequisite: C E 130. Analysis of statically indeterminate beams, trusses, and frames; column analogy; advanced topics in slope deflection and moment distribution; matrix methods.

132. Reinforced Concrete Design (3)
Prerequisite: C E 130. Analysis and design of elements of concrete structures using working stress and the ultimate strength design methods. Introduction to prestressed concrete.

133. Steel and Timber Structures (4)
Prerequisite: C E 130. Design in steel and wood of members and systems for buildings under the AISC, NDS, and UBC Codes; columns, beam-columns, connections, shear walls, diaphragms, and trusses. (3 lecture, 3 lab hours)

134. Foundation Design (3)
Prerequisite: C E 123, 132 (or concurrently). Theory and design of footings, piles, retaining walls, and other structures combining the use of soil mechanics and structural analysis.

135. Reinforced and Prestressed Concrete Design (3)
Prerequisite: C E 132. Design of typical reinforced concrete and prestressed concrete structures. (2 lecture, 3 lab hours)

140. Hydrology (3)
Prerequisite: Engr 116. The Hydrologic cycle, atmospheric conditions, precipitation, infiltration, ground water, soil moisture, evaporation, runoff, streamflow, hydrographs, flood routing, hydrologic frequency analyses and their effects in water resource planning and management.

141. Water Resources Engineering (3)
Prerequisite: Engr 116. Planning, design, and engineering-economic evaluation of water resources projects. (Field trips required)

142. Water Supply and Wastewater Engineering (3)
Prerequisite: Engr 116. Introduction to water supply, urban water distribution, storm drainage, and sanitary sewer systems. Study of water purification methods and wastewater treatment processes.

142L. Water Quality Laboratory (1)
Prerequisite: C E 142 (or concurrently). Study and analysis of the physical, chemical and biological characteristics of raw and waste waters. (3 lab hours; field trips required)

143. Engineering Hydraulics (3)
Prerequisite: Engr 116. Theory and analysis of pressure-conduit and open-channel flow systems. Applications to hydraulic structures and control works, hydraulic power conversion, sediment transport, and channel stabilization.

144. Water Quality Control (3)
Prerequisite: C E 142 or senior-level chemical or biological science. Physical, chemical, and biological operations and processes in water quality control. Process and hydraulic design of water purification and wastewater treatment facilities. (Field trips required)

145. Unit Operations and Processes (3)
Prerequisite: C E 142L. Analysis of the unit operations and unit processes used in the physical, chemical and biological control of raw and waste waters quality. (2 lecture, 3 lab hours)

150. Transportation Planning and Design (3)
Prerequisite: S & P 12. Transportation as a multimode system; functions, development, elements, and characteristics. Transportation planning; design of geometric elements of route and terminal. (2 lecture, 3 lab hours)

151. Pavement and Drainage Design (2)
Prerequisite: C E 123 (or concurrently). Factors affecting drainage and load-bearing elements of transportation facilities. Capacity design of drainage facilities. Structural design of highway and airfield pavements.

152. Transportation Engineering Materials (2)
Prerequisite: C E 123. Soil stabilization with bitumen, lime, and portland cement for pavement construction; properties of bituminous road materials; properties, design, and testing of bituminous paving mixtures for pavement construction. (1 lecture, 3 lab hours; field trips required)

153. Traffic Operations and Control (2)
Prerequisite: C E 150 (or concurrently). Highway traffic characteristics and studies; regulation and control; administration. Air traffic control; railroad operation control.

161. Construction Engineering I (3)
Prerequisite: senior standing in civil engineering. Basics of civil engineering contracting, organization of construction firms, project planning and control, selection and use of construction equipment, safety procedures and practices, work method improvement, mathematical models. (Field trips required)

180. Senior Project (1)
Prerequisite: senior standing in civil engineering or in surveying and photogrammetry; approved subject; Engr 182W (or concurrently). Study of a problem under supervision of a faculty member; final typewritten report required. (Individual project except by special permission.)

185. Civil Engineering Practice (1)
Prerequisite: senior standing in Civil Engineering. Practice of Civil Engineering; opportunities in Civil Engineering; transition from student to professional engineer; technical communication. (2 hour lecture-lab, field trips required)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

191T. Topics in Civil Engineering (1–3; max total 6)
Prerequisite: permission of instructor. Investigation of selected civil engineering subjects not in current courses.

193. Internship in Civil Engineering (1–3; max total 3)
Prerequisite: senior standing in Civil Engineering. Supervised professional practice in a private firm or public agency.

ELECTRICAL ENGINEERING (E E)

Students may be expected to purchase supplementary materials for senior projects and special topic laboratory and activity classes.

1. Introduction to Electrical Engineering (1)
The electrical engineering profession and its career opportunities; engineering methods of experimentation; electronic components and calculators; fundamental concepts of engineering problem solving. Dimensional analysis, exponentials, logarithmic relations and time constants.

85. Logic Design and Microprocessors (3)
Prerequisite: Phys 5B (concurrently), Engr 70. Boolean algebra and number systems. Byte register arithmetic; realization of Boolean expressions and switching functions, Karnaugh maps. Practical TTL circuits; flip-flops, registers, counters. Roms for switching circuit realization. Register organization and machine language of a microprocessor; organization of a simple microcomputer. (2 lecture, 2 lab hours)

92. Electrical Engineering Laboratory Techniques (1; max total 8)
Prerequisite: permission of instructor. Individual laboratory work involving measurement, construction, or operation of electronic equipment or systems. Preparation of informal reports, procedures, and drawings as appropriate to the project. Student selected projects supplemented by instructor assignments.

104. Basic Electronics (3)
Not open to electrical engineering majors. Prerequisite: Math 75, Phys 2B. Basic concepts of electronic circuits, oscillators, and high-frequency transmitters and receivers, with applications to measurements in surveying. (2 lecture, 3 lab hours)

106. Switching Theory and Automata (3)
Prerequisite: Phys 2B or Phys 5B. Axiomatic development of Boolean algebra; switching functions; Quine-McCluskey minimization; finite state machines; push-down automata, and Turing machines. State assignments; binary sequential circuits. Applications to coding and decoding. Regular expressions and context free language acceptors.

107. Digital Data Handling (3)
Prerequisite: Engr 70, EE 85, EE 124. Data acquisition by computers; digital-analog conversion; data structures and processing algorithms. Symbol manipulation; sampled-data systems, fast Fourier Transforms, digital filtering, Z-Transforms, Special purpose signal processors.

114. Physical Electronics (3)
Prerequisite: Phys 5B, Engr 31. Electronic structure of metals, semiconductors, and insulators; crystal lattices; energy band structure; thermal, optical, dielectric and magnetic properties; transport properties; microscopic and macroscopic behavior.

121. Electromechanical Systems and Energy Conversion (3)
Prerequisite: Engr 90, 90L. Principles of direct- and alternating-current machinery and other energy-conversion devices and associated apparatus.

121L. Electromechanical Systems and Energy Conversion Laboratory (1)
Prerequisite: E E 121 (concurrently). Experiments and computations on direct- and alternating-current machinery and on other energy-conversion devices and associated apparatus. (3 lab hours)

124. Electrical Circuit Analysis (3)
Prerequisite: Engr 90, 90L. Introduction to the operational analysis of linear electric circuits and related systems; Laplace transformation; Fourier analysis; state-space representations; computer solutions.

126. Electromagnetic Theory and Applications I (3)
Prerequisite: Engr 90 (or concurrently). Electrostatic and magnetostatic fields, time-varying fields, Maxwell's equations, plane waves.

128. Electronics I (3)

Prerequisite: Engr 90 (or concurrently). Physical electronics, characteristics and properties of electronic devices, both thermionic and solid state; theory and analysis of electronic circuits.

128L. Electronics I Laboratory (1)

Prerequisite: E E 128 (concurrently). Experiments on static and dynamic characteristics of electron tubes and solid-state devices, and on electronic circuits. (3 lab hours)

133. Mini/Microcomputers as System Components (3)

Prerequisite: E E 85, E E 128 concurrently. Minicomputer architecture and peripheral equipment. Register structure and assembly language programming. Operating systems. Basic principles for the application of a small digital computer as a dedicated electronic system component for on-line and real-time measurement, control and computation. (2 lecture, 2 lab hours)

134. Information Transmission (3)

Prerequisite: E E 124. Mathematical modeling of signals and noise; information theory; modulation techniques; communications; information loss due to noise; digital communications; statistical communications theory.

136. Electromagnetic Theory and Applications II (3)

Prerequisite: E E 124, 126. Principles of transmission of electromagnetic energy over wires at power and communication frequencies and through wave guides and space at ultra-high frequencies, filter circuits and antennas; design of transmission systems; methods for computer solution.

136L. Electromagnetic Theory and Applications Laboratory (1)

E E 136 concurrently. Experiments on the transmission of electromagnetic energy through wires, wave guides, and space; filters and antennas; impedance matching; cross-over networks; location of faults on lines. (3 lab hours)

138. Electronics II (3)

Prerequisite: E E 128, 128L. Analysis and design of high frequency, power, and feedback amplifiers; dc and operational amplifiers; oscillators, modulators, and demodulators for communications and instrumentation. Emphasis on modern design methods, including applications of linear active integrated circuits.

138L. Electronics II Laboratory (1)

E E 138 concurrently. Design oriented experiments to study the characteristics and limitations of various circuits included in E E 138. (3 lab hours)

140. Pulse and Digital Circuits Design (3)

Prerequisite: E E 124 (or concurrently), 128, 128L. Design and analysis of wave-shaping, linear-sweep, electronic-gate, multistable, and negative-resistance circuits; Boolean algebra and digital logic design.

151. Electrical Power Systems (3)

Prerequisite: E E 121, 121L (or concurrently). Power system networks and equipment, steady-state operation, short-circuit analysis, power system stability analysis by digital computation, synchronous generator excitation and governor systems, system load representation, numerical analysis techniques.

155. Control Systems (3)

Prerequisite: EE 124. Analysis, design, and synthesis of linear feedback control systems; non-linear systems; sampled-data and optimal control systems; stability.

161. Network Synthesis (3)

Prerequisite: E E 124. Characteristics of linear, passive, lumped-parameter systems; modern synthesis procedures for realizing driving-point and transfer functions of one-, two-, and n-terminal networks.

166. Microwave Devices and Circuits Design (3)
Prerequisite: E E 136, 136L. Microwave theory and techniques, propagation, waveguides, cavities, circuits, S-parameters, microwave devices including klystrons, traveling-wave tubes, magnetrons, and solid state devices.

171. Quantum Electronics (3)
Prerequisite: E E 126. Review of wave properties; cavity mode theory; radiation laws; interaction of radiation and matter; laser amplifiers and oscillators; morphology of masers and lasers.

175. Design of Digital Systems (3)
Prerequisite: E E 128, E E 85. Logic and memory devices. Microprocessor architecture and peripheral devices. Operating systems, assembly language. Interfacing techniques and interrupts; computer networking methods; LSI and VLSI digital technology.

176. Computer-Aided Circuit Design (3)
Prerequisite: E E 124, 128, 128L. Digital computer methods in analysis and simulation of lumped parameter circuits; topological and matrix representation; modeling; time and frequency domain algorithms; optimization; worst-case and statistical analysis; use of problem oriented programs for circuit design. Introduction to system design.

180. Senior Project (1)
Prerequisite: senior standing in electrical engineering, Engr 182W (or concurrently), approved subject. Study of a problem under supervision of faculty member; final typewritten report required. (Individual project except by special permission)

183A. Electronic Circuits and Electrical Networks Laboratory (1)
Prerequisite: E E 124, 138, 138L. Signal measurement and analysis techniques for communication networks; discrete, hybrid, and integrated electronic circuit design and testing; analog and digital filter realization; computer-aided analysis and design of circuits and networks. (3 lab hours)

183B. Digital Devices and Systems Laboratory (1)
Prerequisite: E E 128, E E 85. Logic circuit measurement techniques; logic device characterization; combinational and sequential network realization; design, testing, and evaluation of digital subsystems for computation, memory, display, communications, etc.; interfacing to mini- and microcomputers for on-line and real-time applications. (3 lab hours)

183C. Physical Electronics and Electromagnetics Laboratory (1)
Prerequisite: EE 114, 128, 128L, 136, 136L. Solid state device design and characterization; rf component design with stripline and microstrip techniques; electromagnetic signal analysis; noise reduction techniques; antenna pattern measurements; radiation field and static electricity hazard determination; laser system design. (3 lab hours)

183D. Electrical Power and Control Systems Laboratory (1)
Prerequisite: EE 121, 121L, 155 (or concurrently). Measurement of characteristics and testing of power systems; computer-aided design and simulation of power and control systems; design and testing of feedback control systems; parametric study of control system implementations. (3 lab hours)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

191T. Topics in Electrical Engineering (1–3; max total 6)
Prerequisite: permission of instructor. Investigation of selected electrical engineering subjects not in current courses.

195. Electrical Engineering Cooperative Internship (3–4)
Prerequisite: permission of adviser. Engineering practice in an industrial or governmental installation over a period of about 7 months duration. Each period must span a summer-fall or spring-summer interval.

INDUSTRIAL ENGINEERING (I E)

75. Introduction to Industrial Engineering (1)

An overview of the field of Industrial Engineering. Brief discussion of plant layout, work measurement, engineering economy, quality control, production control, human factors, and operations research. A brief survey of the current status of Industrial Engineering. (Field trips required)

110. Statistical Analysis and Control (3)

Prerequisite: Math 76. Fundamentals of probability and statistics; general theory and practice of statistical quality control; sampling plans; introduction to statistical methods. (Field trips required)

111. Work Measurement (2)

General approach to the design process; application of design process to problem solving. Methods evaluation techniques: motion and time study, work sampling, and simulation. (2 2-hour lecture-labs; field trips required)

112. Statistical Design of Experiments (3)

Prerequisite: I E 110, Engr 70. Analysis of variance; regression and correlation; analysis of covariance; randomized blocks and Latin squares; design of experiments; response surface analysis and determination of optimum conditions.

113. Operations Analysis (3)

Prerequisite: I E 110, Engr 70, Math 81. Application of quantitative and numerical techniques for analysis of complex operational problems.

114. Facilities Engineering (2)

Value analysis, materials handling, packaging, layout of facilities, safety, location of facilities.

116. Fire Protection Engineering (2)

Basic theory of fire behavior; common fire hazards; classification of fires; sources of ignition; structural effects upon cause or control of fire; fire detection and alarm systems; extinguishment systems; codes and regulations; inspection methods.

118. Principles of Safety Engineering (3)

Prerequisite: junior standing. Principles of Safety Engineering with emphasis directed to industrial situations. Selected topics include: materials handling, machine guarding, lighting, noise, ventilation, personal protective equipment, instrumentation, plant inspection, accident investigation.

120. Systems Safety Engineering (3)

Prerequisite: Math 51. Principles of system safety engineering. Selected topics include: human factors engineering, key system interfaces, logic trees, fault and risk tree analyses, hazard identification and analysis, safety review system trees, statistical analysis, product safety.

125. Human Factors in Engineering and Design (2)

Fundamental issues in human performance, perceptual-motor processes, information processing. Anthropometry, workplace design and layout, arrangement of system components. Controls and displays. Work physiology. Industrial biomechanics, hand tool design. Environmental physiology, effects of noise, vibration, heat and illumination on human performance.

180. Senior Project (1)

Prerequisite: senior standing in industrial engineering, approved subject, Engr 182W (or concurrently). Study of a problem under supervision of a faculty member; final typewritten report required. (Individual project except by special permission)

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study.*

191T. Topics in Industrial Engineering (1–3; max total 6)
Prerequisite: permission of instructor. Investigation of selected industrial engineering subjects not in current courses.

193. Work Experience in Industrial Engineering (3–6)
Prerequisite: IE 111; Second semester junior standing and permission of supervising instructor. Supervised industrial engineering work experience in a private firm or a public agency. Six or more scheduled conferences with supervisor(s).

MECHANICAL ENGINEERING (M E)

11. Manufacturing Processes (2)
Processing techniques, including casting, welding, forming, and machining; capabilities and limitations of these techniques.

11L. Manufacturing Processes Laboratory (1)
Prerequisite: M E 11 (or concurrently). Examples of the application of manufacturing processes in industry. (3 lab hours; field trips required)

117. Instrumentation and Fluid Laboratory (2)
Prerequisite: Engr 116 (or concurrently). Study of instrumentation and experimental methods; applications; fluid mechanics laboratory. (2 3-hour labs)

131. Advanced Engineering Materials (3)
Prerequisite: M E 11, Engr 31, 121. Applications of the principles of materials science to the study of the mechanical behavior of metalic, polymeric, ceramic, and composite materials. Effects of stress and environmental variables. (2 lecture, 3 lab hours)

134. Dynamics in Machine Design (3)
Prerequisite: Engr 26, 112 (or concurrently), 121 (or concurrently), Math 81. Analytical and graphical solutions to design problems in machinery. Mechanisms, kinematics, dynamic forces, vibrations.

137. Pressure Flow and Turbomachinery (3)
Prerequisite: Engr 136, 136L (or concurrently). Applications of fluid mechanics and thermodynamics and rotor-fluid energy interchange. Steady flow problems; real fluids in pipes. Pumps, compressors, and turbines with incompressible and compressible fluids.

142. Mechanical Vibration (3)
Prerequisite: M E 134. Mathematical and physical basis of vibration theory with applications to engineering; design; transient and steady state phenomena; distributed and lumped parameters; coupled systems; computer solutions.

143. Mechanical Design Laboratory (1)
Prerequisite: M E 134. Theory and techniques of static and dynamic stress measurements. Experimental determination of dynamic strain, force, and displacement. Vibration analysis. Experimental stress analysis. (3 lab hours)

146. Air Conditioning (3)
Prerequisite: Engr 136 (or concurrently). Theory and practice in air conditioning including psychrometrics, load estimating, heating and cooling systems, fluid design and controls.

146L. Air Conditioning Laboratory (1)
Prerequisite: M E 146 (or concurrently). Practical laboratory work with commercial type units; test of components of air conditioning systems. (3 lab hours; field trips required)

151. Materials in Engineering Design (2)
Prerequisite: M E 131. Evaluation of design requirements, economic considerations. Techniques for selecting suitable materials for specific applications; optimization. Case studies.

154. Design of Machine Elements (3)
Prerequisite: Engr 122 (or concurrently), M E 11L, 134. Analytical study of principles of the design of machine components.

156. Advanced Thermodynamics—Fluid Mechanics (3)
Prerequisite: Engr 116, 136. Advanced topics in thermodynamics, fluid mechanics, and heat transfer as applied to engineering problems.

156L. Advanced Thermodynamics—Fluid Mechanics Laboratory (1)
Prerequisite: Engr 136L, 156 (or concurrently). Applications of advanced experimental methods used in engineering practice to thermo-fluid systems. (3 lab hours)

164. Machine Design (3)
Prerequisite: M E 154, Engr 116, 136, 160 (or concurrently). Design of several machines, with related theory as needed. (2–3 hour lecture-labs)

166. Energy Systems Design (3)
Prerequisite: Engr 116, 136. Design and performance characteristics of power generating systems—conversion of energy from primary sources; processes and machinery for extracting, upgrading and synthesizing fuels; utilization and storage. (Former ME 191T section)

180. Senior Project (1)
Prerequisite: senior standing in mechanical engineering, approved subject, Engr 182W (or concurrently). Study of a problem under supervision of a faculty member; final typewritten report required. (Individual project except by special permission)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

191T. Topics in Mechanical Engineering (1–3; max total 6)
Prerequisite: permission of instructor. Investigation of selected mechanical engineering subjects not in current courses.

SURVEYING AND PHOTOGRAMMETRY (S & P)

11. Plane Surveying (2)
Prerequisite: Math 5. Familiarization with surveying instruments; calculations; stadia surveying. (Former C E 1)

11L. Plane Surveying Laboratory (1)
Prerequisite: S & P 11 (or concurrently). Field practice in measurements of distance and use of level, transit, and plane table in solution of practical problems. (3 lab hours; field trips required) (Former C E 1L)

12. Advanced Plane Surveying (2)
Prerequisite: S & P 11L. Theory and computations covering land surveying; engineering astronomy; introduction to route surveying. (Foremer C E 2)

12L Advanced Plane Surveying Laboratory (1)
Prerequisite: S & P 12 (or concurrently). Field practice in land surveying, astronomy, earthwork and route layout. (3 lab hours; field trips required) (Former C E 2L)

21. Photographic Processes in Engineering (3)
Use of photographic process in engineering drawing. Annotated photo-drawings. Use of special films in engineering reproduction. Use of microfilm in engineering drawings, storage and reproduction. (2 lecture, 3 lab hours). (Former C E 6)

23. Photogrammetry (2)
Prerequisite: S & P 11, 23L (concurrently). Fundamental characteristics of metrical photography and photogrammetric equipment; extraction of metrical photography and photogrammetric equipment; extraction of metrical data from single and overlapping photographs; flight planning and control considerations for photogrammetric mapping; accuracy and economy. (Former C E 3)

23L. Photogrammetry Laboratory (1)
Prerequisite: S & P 23 (concurrently). Application of radial line plots, mosaic design, modeling of flight plans, orientation and use of stereoplotters. (3 lab hours; field trips required)

34. Survey Computations (3)
Prerequisite: S & P 12, Math 76, Engr 70 (or concurrently). Probability, error theory, adjustment of simple survey nets and matrix methods; programmable calculator and digital computer solutions of surveying problems. (Former CE 4)

41. Route Surveying (2)
Prerequisite: S & P 12L. Computation and field work covering surveys for highway, irrigation, construction and other kinds of engineering projects. (1 lecture, 3 lab hours; field trips required) (Former C E 101)

41L. Route Surveying Laboratory (1)
Prerequisite: S & P 41 (or concurrently). Survey for highway location, stakeout of roads and intersections from plans. (3 lab hours) (Former C E 101L)

102. Geodetic Surveying (2)
Prerequisite: S & P 12L, Math 76. Triangulation; adjustment of geodetic figures; base line measurement; map projection; plane coordinates; precise leveling. (Field trips required) (Former C E 102)

102L Geodetic Surveying Laboratory (1)
Prerequisite: S & P 102 (or concurrently). Field applications of high precision instruments for triangulation, base lines, and leveling. (3 lab hours) (Former C E 102L)

108. Geodesy (3)
Prerequisite: S & P 34, 102. Analytic geometry, three-dimensional coordinate system; introduction to geometric geodesy, geodetic astronomy, gravimetric geodesy and satellite geodesy; deviation of the vertical and Laplace stations. (Former C E 108)

123. Photogrammetric Instrumentation (3)
Prerequisite: S & P 23, 34 (or concurrently). Applications of theory of optics to photogrammetric and surveying instruments. Theory of stereo-orientation; theory of optical and optical-mechanical plotting instruments; calibration and maintenance of plotting instruments; mapping with stereo-plotting instruments, orthophoto mapping. (1 lecture, 2 3-hour labs) (Former C E 5)

125. Advanced Photogrammetry (3)
Prerequisite: S & P 123, 135. Introduction to analytical photogrammetry; analog strip triangulation, independent model triangulation, block triangulation; analytical plotters. (1 lecture, 2 3-hour labs) (Former C E 103)

126. Map Design and Reproduction (3)
Prerequisite: S & P 21, 23. Cartographic color separation, scribing; line and half-tone copy, theory of photographic processes, photographic optics, emulsions, developers, lenses; offset lithographic process, single- and multicolor photolithographic reproduction; modern edge enhancement and photo-tone techniques. (2 lecture, 3 lab hours) (Former C E 106)

135. Advanced Survey Computations (3)
Prerequisite: S & P 34, 102 (or concurrently). Statistics, propagation of errors, theory of least squares, observation and condition equations. Adjustments of traverse, level nets, triangulation, and trilateration; simultaneous block adjustment. (2 lecture, 3 lab hours) (Former C E 105)

147. Electronic Distance Measurements (3)
Prerequisite: S & P 102, E E 104. Introduction to electronic surveying systems. Analysis of main elements in electronic surveying instruments; geometrical concepts in electronic measurements. Use of electronic distance measurements in surveying, traverse and trilateration. Use of airborne systems. (2 lecture, 3 lab hours; field trips required) (Former C E 107)

151. Boundary Control and Legal Principles (3)
Prerequisite: S & P 12. Legal principles that control the boundary location of real property. (Former C E 104)

159. Subdivision Preparation (2)
Prerequisite: S & P 151. Subdivision Map Act, title search, zoning study. Tentative and final subdivision layout, map drafting; environmental impact study. (1 lecture, 3 lab hours) (Former C E 109)

180. Senior Project (1)
Prerequisite: senior standing in Surveying and Photogrammetry; approved subject; Engr 182W (or concurrently). Study of a problem under supervision of a faculty member; final typewritten report required. (Individual project except by special permission.)

186. Surveying Practice (1)
Prerequisite: Senior standing in Surveying and Photogrammetry. Application of various surveying and photogrammetric methods. (Former C E 186)

190. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

191T. Topics in Surveying and Photogrammetry (1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected surveying and photogrammetry subjects not in current courses.

193. Internship in Surveying and Photogrammetry (1-3; max total 3)
Prerequisite: senior standing in Surveying and Photogrammetry. Supervised professional practice in a private firm or public agency.

GRADUATE COURSES (Engr)

(See *Course Numbering Systems—Definitions and Eligibility*)

204. Engineering Planning and Operations (3)
Planning, scheduling and allocation of resources for engineering processes, including long-range planning, work breakdown structures, network analysis, computer modeling and engineering communications. (2 lecture, 3 lab hours)

205. Computing in Engineering Analysis (3)
Prerequisite: Graduate status in engineering. Solution of engineering problems using digital computation. Modeling of engineering systems for numerical analysis.

206. Engineering Environmental Impact (3)
Identification and environmental impacts due to engineering projects. The incorporation of environmental considerations into engineering design. Alternative solutions to engineering problems. Case histories of selected engineering projects. Special design problems are assigned relating to the student's field of interest.

290. Independent Study (1–3; max total 3)
Prerequisite: Graduate status in engineering. See General Information, CSUF Catalog, Independent Study.

291T. Topics in Civil Engineering (3; max total 6)
Prerequisite: Permission of instructor. Investigation of selected Civil Engineering topics.

298. Project (6; max total 6)

Prerequisite: Graduate status in engineering. See thesis, project and thesis alternative. Independent investigation of advanced character as the culminating requirement for the master's degree.

299. Thesis (6; max total 6)

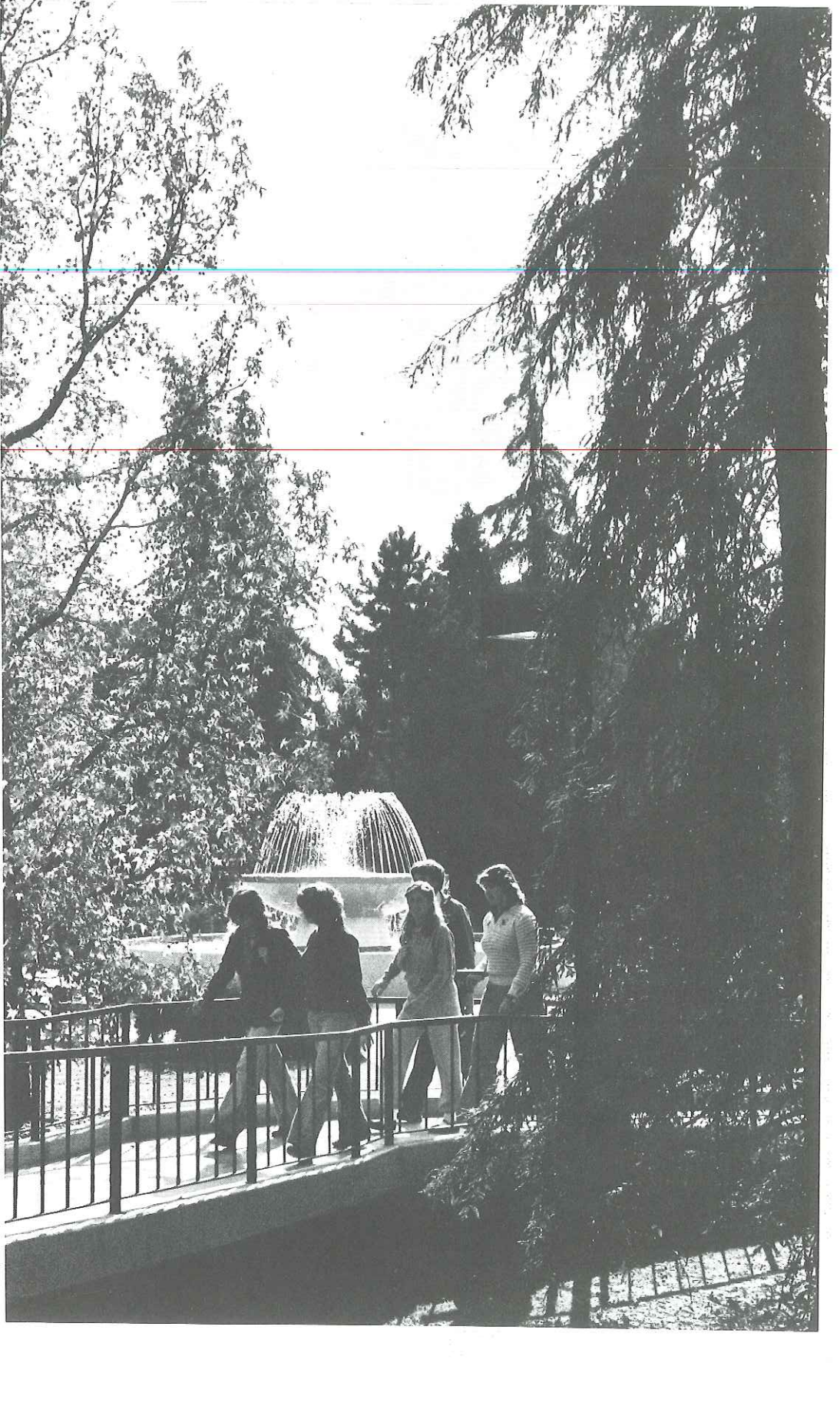
Prerequisite: See Master's Degree—Thesis Requirements. Preparation, completion, and submission of an acceptable thesis for Master's Degree.

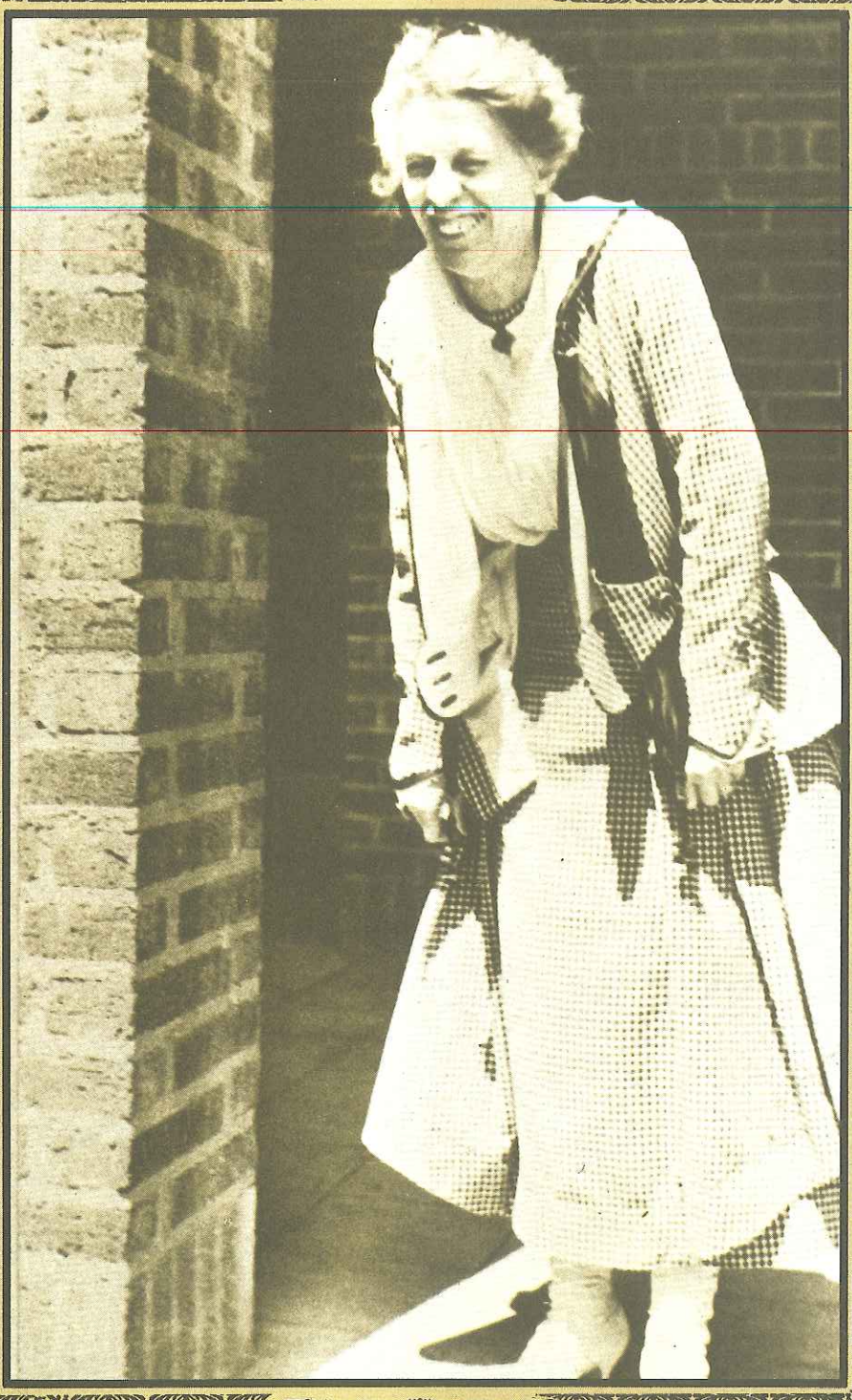
IN-SERVICE COURSES

(See *Course Numbering System*)

311. Professional Examination Review (2; may be repeated in different fields)

321. Professional Engineering Seminar (1–3; may be repeated in different fields)





SCHOOL OF HEALTH AND SOCIAL WORK

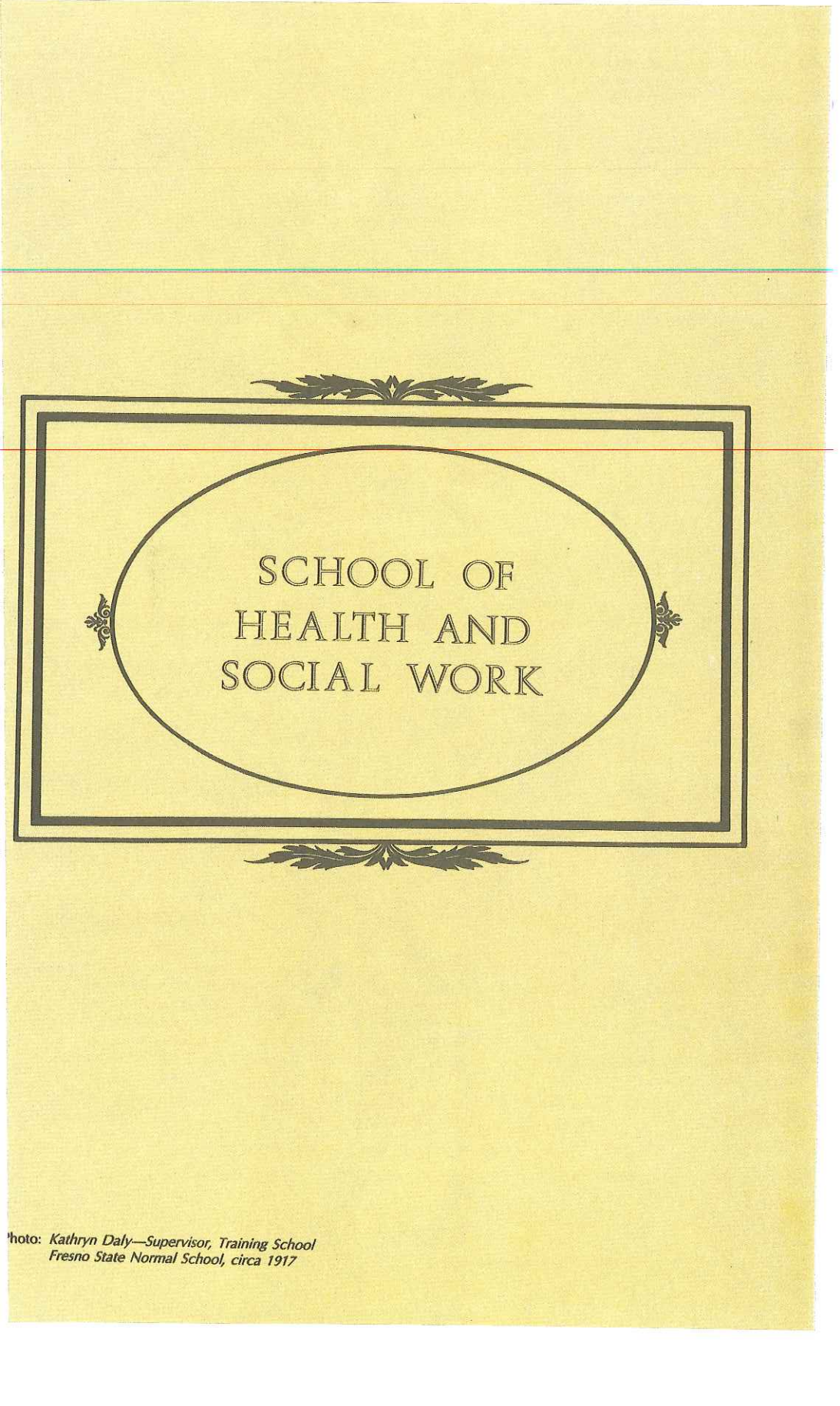
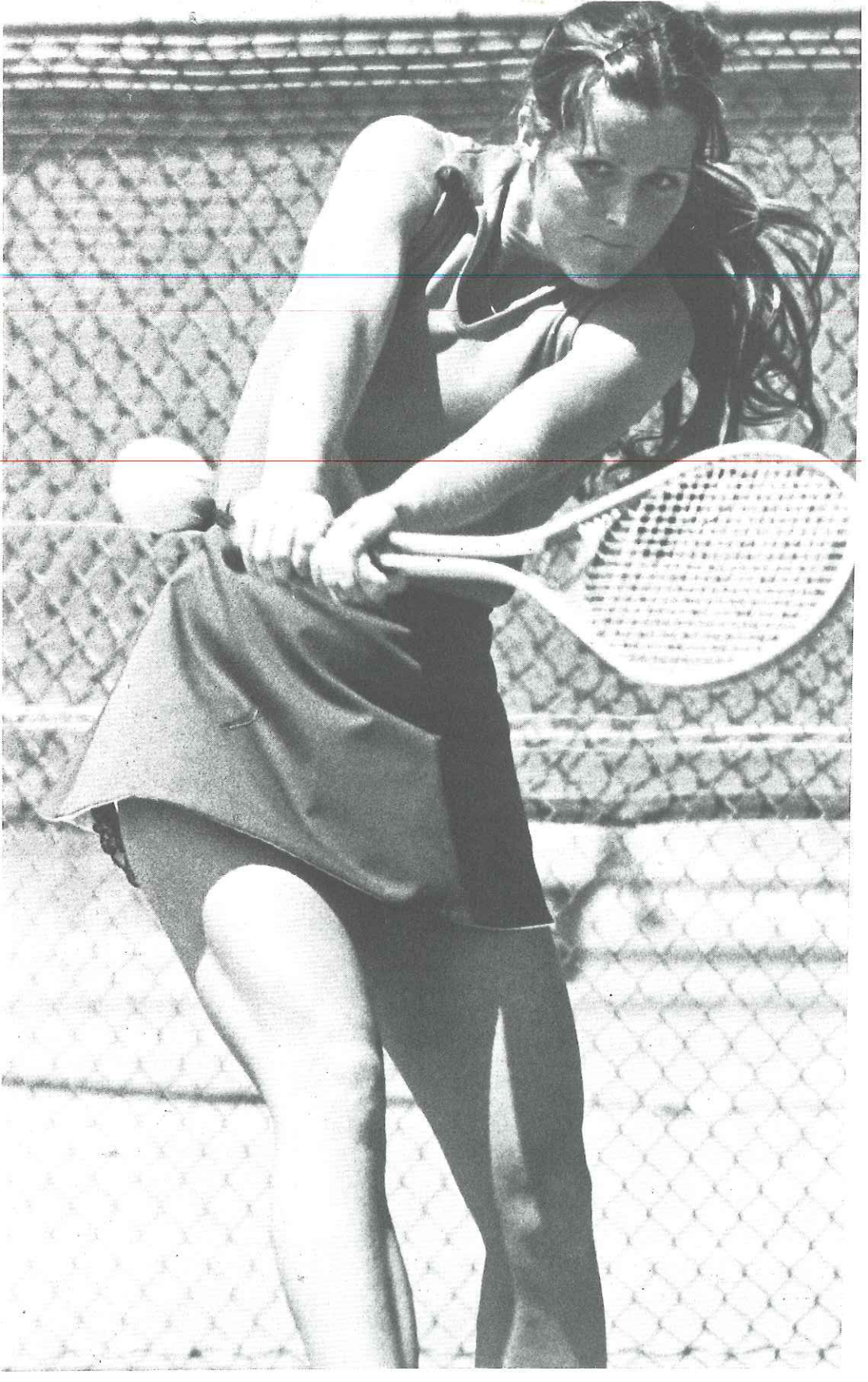


Photo: *Kathryn Daly—Supervisor, Training School*
Fresno State Normal School, circa 1917



SCHOOL OF HEALTH AND SOCIAL WORK

Richard D. Ford, Dean

Department or Program	*Chairman or Coordinator*
Athletics	F. Russell Sloan
Communicative Disorders	Steven D. Wadsworth
Health Science	(Acting) Wayne N. Clark
Nursing	Patricia D. Kissell
Physical Education/Recreation	Pat Thomson
Physical Therapy Program	(Coordinator) Darlene L. Stewart
Rehabilitation Counseling Program	(Coordinator) Everett W. Stude
Social Welfare Program	(Coordinator) Catherine Woodcock
Social Work Program	(Coordinator) John E. Lindberg

SCHOOL PROGRAMS

The School of Health and Social Work is comprised of the former Division of Health Professions, the School of Social Work, and the Departments of Recreation and Physical Education.

The departments of the School provide programs leading to the bachelor of arts, the bachelor of science, the master of arts, the master of social work, and the master of science degrees. Preparation is offered for professional careers in the specialized areas of physical therapy; rehabilitation counseling; communicative disorders with options in speech and language pathology, audiology, and education of the deaf; health science with options in environmental health science, occupational health and safety, and school and community health; nursing; Physical Education and Recreation; and Social Work; and in the general areas of teaching, business, public, or governmental service.

The continuing education program seeks to serve professionally trained professionals, other workers, and aides employed by supplementing professional education and in-service training in order to improve the level of effectiveness in practice and to provide learning opportunities for those persons desirous of career programs.

INTERDISCIPLINARY HEALTH PROFESSIONS (HP)

The school offers the following interdisciplinary health course as a general elective open to all students.

100T. Selected Topics in the Health Professions (1–3)

Interdisciplinary topics of current interest covering subject matter that is appropriate for all health professional disciplines. Topics are rotated each semester. Field assignments may be required.

ATHLETICS

FACULTY

F. Russell Sloan, Chairman

Ronald G. Adams, Jon Anabo, Bob G. Bennett, Kenneth F. Blue, Edward L. Ferreira, Robert E. Fraley, J. Boyd Grant, Michael P. Hill, Diane Milutinovich, William Jay Robinson, Michael L. Rupcich, Paul M. Schechter, William Stewart, James J. Sweeney, James D. Thrash, L. Michael Watney, Del R. Wight.

DEPARTMENTAL PROGRAMS:

California State University, Fresno is a Division I-A member of the National Collegiate Athletic Association, Pacific Coast Athletic Association, Northern California Baseball Association, Pacific Soccer Conference North, Association of Intercollegiate Athletics for Women, and Northern California Athletic Conference. Participation in intercollegiate athletics in the sports of baseball, basketball, cross country, football, golf, soccer, swimming, tennis, track, water polo, and wrestling is offered for men, while basketball, gymnastics, softball, swimming/diving, tennis, and volleyball are offered for women. Badminton is fielded as a coeducational sport. Participation offers opportunities for student athletes to pursue and improve athletic talent under a professional coaching staff, experience disciplined team membership, travel with team to away contests, and excel to the height of his/her ability.

COURSES

Intercollegiate (PE IC)
(Courses may be repeated)

175. Badminton (2) (Former CPES 2)

176. Baseball (2) (Former MPES 12)
Men only.

177. Basketball (2) (Former MPES 13)
Men only.

178. Basketball (2) (Former WPES 3)
Women only.

180. Cross Country (2) (Former MPES 14)

182. Football (2) (Former MPES 15)

183. Golf (2) (Former MPES 16)

184. Gymnastics (2) (Former WPES 8)

186. Soccer (2) (Former MPES 23)

187. Softball (2)
Women only.

188. Swimming (2) (Former MPES 19)
Men only.

189. Swimming (2) (Former WPES 6)
Women only.

191. Tennis (2) (Former MPES 20)
Men only.

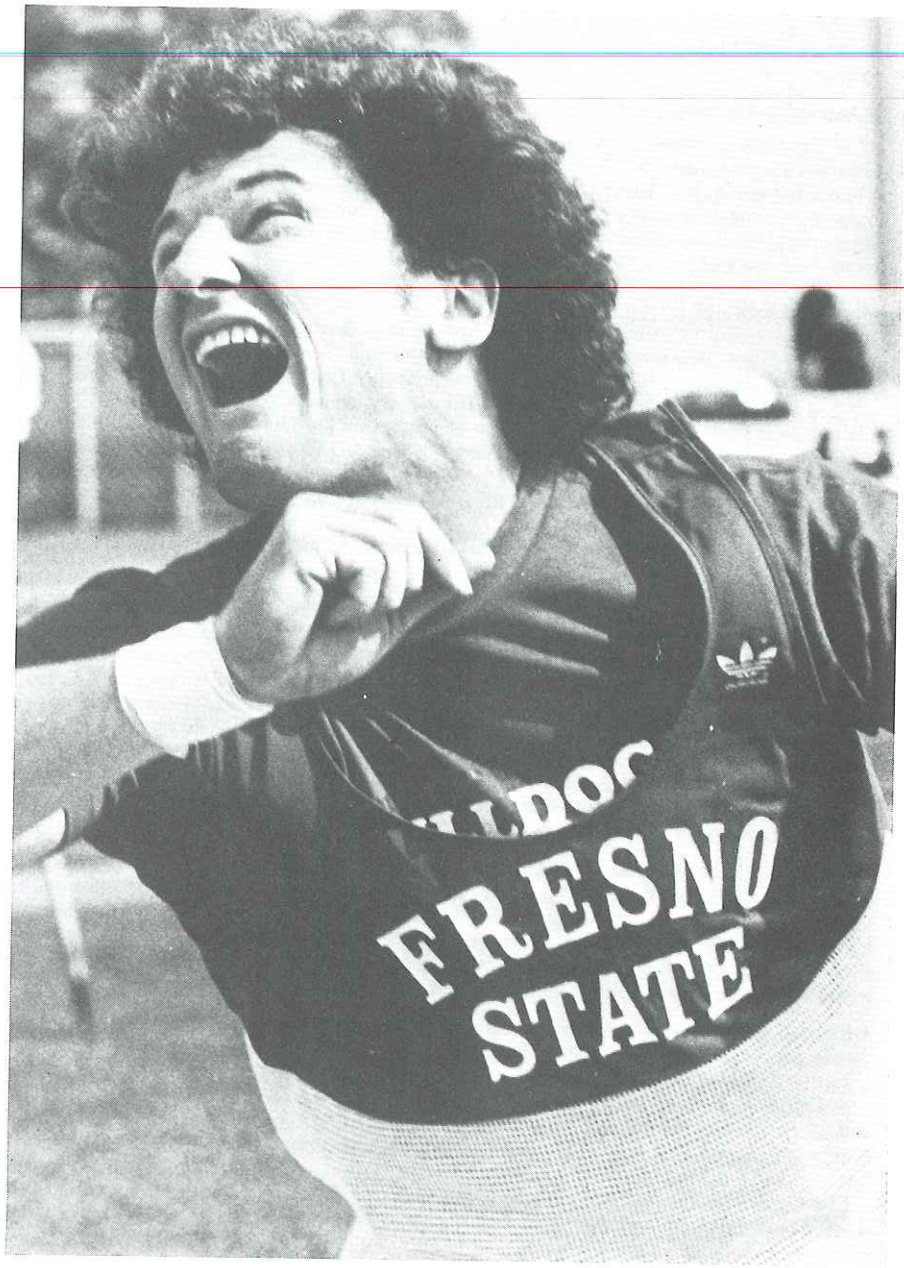
192. Tennis (2) (Former WPES 7)
Women only.

193. Track and Field (2) (Former MPES 21)

196. Volleyball (2) (Former WPES 9)

197. Water Polo (2) (Former MPES 24)

199. Wrestling (2) (Former MPES 25)



COMMUNICATIVE DISORDERS

FACULTY

Steven D. Wadsworth, Department Chairman

Bette J. Baldis, Mahabalagiri Hegde, Karen M. Jensen, Ben R. Kelly, Marion D. Meyerson, Paul W. Ogden, Susan J. Shanks, Kenneth Shipley

DEGREES OFFERED: BA, MA
Minor

DEPARTMENTAL PROGRAMS

The department offers a bachelor of arts degree program with a major and minor in communicative disorders providing for emphasis in speech and language pathology, audiology, or education of the deaf. The major is designed to provide a broad and basic understanding of language, hearing, and speech disorders. The program provides a foundation for the master of arts degree in this field, which is required for certification by the American Speech and Hearing Association and the Council on Education of the Deaf.

UNDERGRADUATE PROGRAM

Admission to the Department of Communicative Disorders will be granted to all interested students seeking a BA in the major. Those students who seek BA only and do not intend to pursue graduate professional study and training in Communicative Disorders can adjust their programs with the assistance of an adviser in the Department of Communicative Disorders.

Admittance to the clinical program will be contingent on the student's earning a 3.0 GPA in 18 units of selected core courses. These courses include: CD 100, 101, 121, 104, 114, 131, T Ed 130, 140, and Ling 134. The student may be allowed to complete a BA without the clinical program but will be unable to continue in the post-baccalaureate professional sequence without the clinical component.

Each student will be requested to complete a departmental information sheet before entering the clinical program.

Speech and Language Pathology: The baccalaureate curriculum with emphasis in speech and language pathology and a fifth year of prescribed study may be followed to satisfy requirements for a Multiple Subjects Teaching Credential, a Special Education Specialist Credential —Communication Handicapped, Clinical-Rehabilitative Services Credential (Language, Speech and Hearing Services), Licensure as Speech Pathologist by the State of California Board of Medical Quality Assurance, and the Certificate of Clinical Competence in Speech Pathology awarded by the American Speech and Hearing Association. Upon the completion of the graduate requirements, a student is qualified for a position in public or private schools, colleges, universities, hospitals, community or private clinics, and extended care facilities. (Certified and Licensed graduates may also enter private practice.)

Audiology: The baccalaureate curriculum with emphasis in audiology plus a two-year MA in audiology may be completed to: 1) satisfy requirements for licensure as an audiologist by the State of California Board of Medical Quality Assurance awarded by the American Speech Language and Hearing Association. Upon the completion of the graduate requirements, a student is qualified for a position in colleges, universities, hospitals, community or private clinics, and extended care facilities. (Certified and Licensed graduates may also enter private practice.)

Education of the Deaf: The baccalaureate curriculum with emphasis in education of the deaf and a fifth year of prescribed study may be followed to satisfy requirements for a Multiple Subjects Teaching Credential, a Special Education Specialist Credential—Communication Handicapped, and basic certification of the National Council on Education of the Deaf, and for the master of arts degree. Positions are available in public, private and residential schools. Undergraduate curriculum is also relevant for other health professionals offering services to the deaf.

The Communicative Disorders Department conducts a Language, Hearing, and Speech Clinic as part of its program. Any regular student may take advantage of its services without charge.

BACHELOR OF ARTS DEGREE REQUIREMENTS

The communicative disorders major consists of 49 units. To complete the requirements for the BA degree, a student must complete the major as outlined, meet the General Education requirement, special course requirements, and electives, which may include a minor (75 units), totaling at least 124 units.

	Units
C D 100, 102, 103, 107 (1 unit), 121, 128 (1 unit), 108 (1 unit); 131, 132, 136	25
Elect one area	15
Speech and Language Pathology: C D 101, 105, 110, 112, 133	
Audiology: CD 101, 105, 110, 112, 133	
Education of the Deaf: C D 114, 133, 162, 163, 164	
Approved Electives	8
T Ed 130, 140; Ling 134; C D 111, 116, 130, 137, 260, additional communicative disorders courses and other approved nondepartmental electives.	
	49

COMMUNICATIVE DISORDERS MINOR

	Units
C D 100, 102, 131, Spch 160 or Ling 134	12
Elect one area:	9–10
Speech and Language Pathology: C D 101, 105, 121	
Audiology: C D 101, 132, 133	
Education of the Deaf: C D 132, 136, 137	
	21–22

GRADUATE PROGRAM

The master of arts degree program in communicative disorders is designed to extend the competency of persons engaged in speech and language pathology, audiology, or education of the deaf. The program also provides the first graduate degree for students anticipating advanced graduate study in these areas.

An applicant to the graduate program in Communicative Disorders (Master of Arts Degree) must follow these procedures:

(1) File a University application, including the Supplemental Application for Graduate Admission and required transcripts, with the CSUF Admissions Office prior to the departmental application deadlines.
(2) File a supplemental application to the program with the Graduate Coordinator, Communicative Disorders Department.
   (a) For Fall registration, file prior to March 1.
   (b) For Spring registration, file prior to November 1.
(3) Acceptance into the departmental program with full classified standing is contingent upon the following:
   (a) a completed application, including transcripts and letters of recommendation for transfer students
   (b) undergraduate preparation equivalent to the CSUF baccalaureate degree with a major in Communicative Disorders
   (c) a grade point average of 3.0 (B) in the last 60 units attempted
   (d) a passing score on GRE (450 Verbal or 430 Quantitative)

(See also *Admission to Master's Degree Programs, Division of Graduate Studies and Research*)

The master of arts degree prepares the candidate to work in private practice and in many professional settings such as industry, hospitals, rehabilitation centers, community centers, medical groups, county and state health departments, state institutions, educational facilities, and many more. Appropriate certification and licensure is necessary.

MASTER OF ARTS DEGREE REQUIREMENTS

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed according to one of the following plans:

Plan A—Thesis Program

	Units
Courses in communicative disorders (See *specific requirements*)	15
Approved electives in communicative disorders or related fields	9–12
Thesis or research project	3–6
Total (including at least 15 units in 200-series)	30

Specific Requirements: A course in statistics; CD 298 or 299. Select a minimum of 15 units from one of the areas of concentration listed below.

Plan B—Non-Thesis Program

	Units
Courses in communicative disorders (See *specific requirements*)	15
Approved electives in communicative disorders or related fields	15
Total (including at least 15 units in 200-series)	30

Specific Requirements: A course in statistics. Comprehensive written and/or oral examination. CD 133 required of students in Education of the Deaf. Select a minimum of 15 units from one of the areas of concentration listed below.

Areas of Concentration

Audiology: CD 231, 232, 233, 234, 250, 270, 290, HS 262T, 280, Phys 135 and other electives approved by the department.

Education of the Deaf: CD 211, 232, 233, 262, 263, 264, 266, 268.

Speech and Language Pathology: CD 204, 205, 206, 207, 209, 210, 211, 212, 213, 214, 215, 220, 232.

CREDENTIAL PROGRAM

The Special Education Specialist—Communication Handicapped Credential Program is administered jointly by the Department of Communicative Disorders and the Special Education Program in the School of Education and Human Development. See School of Education and Human Development for other Special Education Specialist credentials. Information about the Special Education Specialist: Communication Handicapped Credential and the Clinical Rehabilitative Services Credential (Language, Speech and Hearing Services) is available by writing to the Department of Communicative Disorders.

For credential candidates. See *Admissions—Undergraduate Application Procedures,* and *School of Education and Human Development—Admission to the Credential Programs.*

The following schedule of courses described below was developed according to the Ryan Act Guidelines (1973). The curriculum also provides undergraduate preparation for the master of arts degree with emphasis in communicative disorders. Additional information may be obtained from the departmental credential advisors in each area of specialty.

SPECIAL EDUCATION SPECIALIST: COMMUNICATION HANDICAPPED CREDENTIAL PROGRAM

Deaf and Severely Hard of Hearing

	Units
Core courses: CD 100, 102, 103, 107, 108, 121, 128 and 131 (concurrently), 132, 136	25
Ed Deaf core: CD 137, 162, 163, 164, 211, 232, 262, 263, 264, 266	31
Clinical core: CD 160 or 260; AS 164B (4–9); CD 268 (6 units)	12–17
Generic core: CD 114, 116; T Ed 130, 140, 156, 160 A, B (5 units)	20
Education core: T Ed 150, 160 (6 units) *	10
Approved electives: CD 111, 133; Ling 134	12
	110–115

Speech and Hearing

	Units
Core courses: CD 100, 102, 103, 107, 108, 121, 128 and 131 (concurrently), 132, 136	25
Spch and Hearing core: CD 101, 105, 110, 112, 205, 206, 207, 210, 213, 214, 215, 220	36
Clinical core: CD 130 (1–6 units), 209 (1 unit), 230 (1–6 units), 250 (2 units); AS 164A (4–9 units)	12–21
Generic core: CD 114, 116; T Ed 130, 140, 156, 160 A, B (5 units) *	20
Education core: T Ed 150, 160 A, B (5 units) *	9
Approved electives: CD 133, 204, 211, 212, 232; Psych 177	15
	117–126

Aphasic/Severe Oral Language Handicapped

	Units
Core courses: CD 100, 102, 103, 107, 108, 121, 128 and 131 (concurrently), 132, 136	25
Aphasic/Severe Oral Lang core: CD 101, 105, 110, 111, 112, 205, 207, 212, 214, 220, 232	33
Clinical core: CD 130 (1–6 units), 209 (1 unit), 230 (1–6 units), 250 (2 units), AS 164A (4–9 units)	12–21
Generic core: CD 114, 116; T Ed 130, 140, 156, 160 (5 units)*	20
Education core: T Ed 150, 160 (5 units) *	9
Approved electives: CD 133, 211, 212, 213; AS 245; Ling 243; Psych 169, 177	
	99–108

CLINICAL REHABILITATIVE SERVICES CREDENTIAL (LANGUAGE, SPEECH AND HEARING SERVICES) PROGRAM

	Units
Generic Courses: CD 100, 101, 102, 103, 105, 107, 108, 110, 111, 112, 114, 116, 121, 128, 131, 132, 205; Psych 101, 136	52
Advanced Specialization in Language, Speech, and Hearing: Ling 134, CD 204, 206, 207, 209, 210, 213, 214, 215, 220	28
Clinic Core: CD 130 (3 units), 230 (6–9 units), AS 164-A (4–9 units), CD 250 (2 units)	15–21
Approved Electives: T Ed 156, 150, 120MA, CD 133, 232, 211, 212, PE 146, CD 104L	
	98–101

* See requirements for the student teaching multiple subjects credential—School of Education and Human Development.

COURSES

COMMUNICATIVE DISORDERS (C D)

100. Principles of Communicative Disorders (3)
The bases of normal communication; acquisition and disorders; evaluation and remediation in the fields of audiology, education of the deaf, and speech pathology.

101. Phonetics of American English (3)
Perceptual and physiological characteristics of speech sounds of American English; application of phonetics to the study of normal and aberrant speech patterns and to American regional dialects.

102. Speech Science I: Anatomy and Physiology (3)
Physical, physiological, and neurological basis of speech and hearing mechanisms and pathology.

103. Speech Science II: Acoustics (3)
Acoustic aspects of speech and hearing, and the anatomy and physiology of the ear.

104L. Physiology and Anatomy Laboratory (1)
Prerequisite: C D 102 (or concurrently). Laboratory study of anatomy and physiology of speech and language; cadaver dissection.

105. Voice and Articulation Disorders (3)
Prerequisite: C D 100, 101, 102, 121. Seminar in prognostic and therapeutic procedures related to voice and articulation disorders of children.

107. Field Experience in Communicative Disorders: Speech Pathology (1–3; max total 3)
Observation of diagnostic evaluations, parent counseling and clinical services in Language, Hearing and Speech Clinic, in the public/private schools, and related clinical settings. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

108. Field Experience in Communicative Disorders: Education of the Deaf (1–3; max total 3)
Observation of diagnostic evaluations, parent counseling and educational/clinical services at clinical sites on campus, in public and/or private schools, and at residential schools for the deaf. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

110. Diagnostic Procedures (3)
CD 105, 112, concurrently with CD 130 or 230 during first semester of clinic. Seminar in selection and use of various speech, language, voice and prosody tasks and procedures used in the diagnostic process. Team approach concepts.

111. Neurological and Physiological Basis of Speech (3)
Prerequisite: C D 102. Neuroanatomy and physiology in relation to the processes of speech and language.

112. Management of Language Disorders in Children (3)
Prerequisite: C D 100, 101, 102, 103, 121. Seminar in determination of rationale for selection from various approaches to therapy; preparation to administer language programs; evaluation of language therapy with children; observation in public and/or private schools. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction. (2 lecture, 2 lab hours)

114. Education of Exceptional Children (3) (Former A S 160) (See A S 114)

116. Prescriptive and Individualized Instruction (3) (See A S 116)

121. Language Acquisition (3)

Prerequisite: C D 100, Ling 134. Analysis of research in the details of normal speech and language acquisition; observation and research, normal language acquisition in children; compilation of a detailed outline of specific milestones in language acquisition.

128. Observation in Communicative Disorders: Audiology (1-3; max total 3)

C D 131 concurrently. Observation of diagnostic evaluations of hearing disorders in Language, Hearing and Speech Clinic or other clinical settings. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

130. Clinical Practice in Speech and Hearing Therapy (1-3; max total 6)

Prerequisite: C D 100, 101, 102, 103, 105, 112, 121. C D110 may be taken concurrently during first semester of clinic only. Supervised clinical practice in speech and hearing therapy; diagnosis of speech deficiencies, referral procedures, parent counseling, case records. Clinical sites on campus, satellite centers, public and/or private schools. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

131. Principles of Audiology (3)

CD 128 concurrently. Anatomy, physiology, and neurology of the hearing mechanism; medical aspects of deafness and surgical treatment of hearing loss; psychological and social factors.

132. Aural Rehabilitation (4)

Prerequisite: C D 131. Techniques employed in selecting amplification supplemented by speech reading and audition in the communication process; physics of sound and application of all sensory modalities. Observation of hearing aid evaluations and participation in therapy related to visual-auditory training.

133. Audiometry (3)

Prerequisite: CD 128/131. Concepts of perception of speech; testing procedures utilized in detection and evaluation of hearing loss; application of testing procedures for diagnostic and rehabilitative purposes.

136. Manual Communication for the Deaf (3)

Prerequisite: permission of instructor. Development of skills necessary to communicate with deaf adults and children

137. History, Education and Psychology of Deafness (4)

History of the education of the deaf; research studies related to psychology, social adjustments and learning problems of deaf; psychological implications and effects of deafness on families, cultural and social aspects of deafness; school records and testing procedures. (May include lab hrs.)

138. American Sign Language (3)

Prerequisite: CD 136 and permission of instructor. The study of American Sign Language, its syntax and grammar. Advanced techniques in the use of sign language with deaf adults. (Former C D 188T section)

139. Instructional Techniques with the Multihandicapped Deaf (3)

Prerequisite: permission of instructor. Adapting instruction for the multihandicapped deaf child. Includes individualized learning stations and other personalized approaches. (Former C D 188T section)

140. Behavior Modification for the Multihandicapped Deaf (3)

Prerequisite: permission of instructor. Techniques of adapting behavior modification principles with multihandicapped deaf children. Includes contingency contracting, positive reinforcement, charting behavior, and videotaped observations. (Former C D 188T section)

160. Clinical Practice in Education of the Deaf (2; max total 6)
Prerequisite: C D 132, 136, 162, 163, 164. Supervised clinical participation and practice in clinical/classroom teaching of persons who are deaf and severely hard of hearing; parent counseling. Therapy planning and implementation; clinical sites on campus and public and/or private schools. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

162. Speech for the Deaf (3)
Seminar in techniques employed in the development of speech with deaf children. Yale charts and diacritical marking systems. Devices for developing all English sounds. Includes observation, demonstration, and practice with deaf children.

163. Language for the Deaf (3)
Seminar in techniques employed in the development of language with deaf children; systems of teaching techniques, construction of English sentences and grammar; methods of correcting language mistakes of the deaf child. Includes observation and demonstration.

164. Elementary School Subjects for the Deaf (3)
Prerequisite: permission of instructor. Seminar in detailed study of the process of teaching reading to deaf children. Investigation of classroom procedure and presentation of content areas (math, science, social studies); integration with visual instructional materials. Includes observation and demonstration.

188T. Topics in Communicative Disorders (1-3; max total 6)
Speech pathology, audiology, education of the deaf, speech and hearing science, language disorders.

190. Independent Study (1-3; max total 6)
See *Academic Placement—Independent Study.*

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

204. Seminar in Stuttering (3)
Prerequisite: permission of instructor. In-depth study of specific characteristics, causes, and therapeutic approaches to remediating stuttering.

205. Advanced Diagnostic Procedures (3)
Prerequisite: C D 105, 110, 112, one semester of clinical practicum. Seminar in clinical approaches and diagnostic procedures used to identify various speech, language-learning disorders of children. The diagnostic team approach will be used. Seminar in clinical approaches to understanding functional aspects of speech and language disorders of children. Emphasis given to parent counseling, parent-child interaction, and child-centered therapy.

206. Communication Disorders Articulation (Phonemic) (3)
Prerequisite: C D 101, 110, 105. Seminar in the nature of articulatory process; symptomatology; etiology in relation to diagnosis and appraisal of articulatory problems. Comparisons of therapy approaches; planning and conducting therapy; critical review of recent research trends in articulation.

207. Dysphasia in Adults (3)
Prerequisite: CD 111. Seminar in the history of dysphasia; neurological concepts needed for understanding this disorder; application of linguistic theory to testing and therapy; formulation of programs for dysphasics.

209. Speech-Hearing in Public School Environment (1)
Prerequisite: C D 110; concurrent enrollment in A S 164A. Seminar in selection, application, and interpretation of diagnostic tests for public school children; demonstration and application of therapy for children with a variety of language, hearing, or speech disorders; organization and administration of school speech and hearing program.

210. Seminar in Structural Speech Disorders (3)
Prerequisite: permission of instructor. Theories, etiologies, and habilitative processes. Emphasis given to orofacial growth and cleft palate.

211. Programmed Instruction (3)
Prerequisite: C D 130, 160, A S 164A or B, and permission of instructor. Seminar in the integration of theory; techniques and methods for developing individualized instruction utilizing programmed procedures; development of sophisticated materials for use with hearing, language, and speech clients.

212. Management of Severe Language Disorders (3)
Prerequisite: C D 112 and permission of instructor. Seminar in incorporating clinical speech and language approaches to meet individual needs of severe language handicapped children in the classroom. Causation, assessment and remediation of phonological, semantic, morphemic, and syntactic disorders. Parent counseling. Travel to off-campus settings for observation at student expense. (Former C D 188T section)

213. Seminar in Neurological Speech Disorders (3)
Prerequisite: C D 104, CD 111. Symptomatology, etiology, habilitative, and rehabilitative processes related to neurological speech disorders of children and adults.

214. Seminar in Language Disorders of Children (3)
Prerequisite: C D 112, 121. Etiology, symptomatology, assessment, and habilitation of language disorders in children. Practical experience includes diagnosis and management of a child's language disorder. Clinic sites on campus and in public and/or private schools. Travel to off-campus settings at student expense.

215. Seminar in Voice Disorders (3)
Prerequisite: C D 104, 105. Nature of normal and deviant vocal production. Symptomatic assessment and voice therapy.

220. Communicative Disorders of Second Language Usage (3)
Prerequisite: Ling 134 or 136. Seminar in clinical approaches to speech and language therapy for those for whom standard English is a second language; emphasis on U. S. minority groups.

230. Advanced Clinical Practice in Speech and Hearing Therapy (1–3; max total 6)
Prerequisite: C D 105, 106, 112, 130. Supervised clinical practice in diagnosis/treatment of complex speech and hearing problems; causative factors; outlining therapy; parent counseling; referrals. Clinic sites on campus, satellite centers, and public and/or private schools. Travel to off-campus settings at student expense.

231. Seminar in Audiology (3; max total 6)
Prerequisite: C D 131. Projects in library research or experimentation.

232. Seminar in Differential Diagnosis of Auditory Disorders in Children (3)
Procedures for differentiating children who may have hearing deficits, mental retardation, emotional disturbances, or brain disfunction. Syndromes characteristic of these disorders.

233. Seminar in Analysis of Hearing Aids (3)
Prerequisite: C D 131, 133, 231. Study in depth of current hearing aids, body, post-auricle, and insert types; specific application to conductive and sensory-neural hearing losses. Analysis of frequency response and harmonic distortion of various instruments; theory of sloped amplification.

234. Seminar in Industrial Audiology (2)
Prerequisite: permission of instructor. Principles of industrial hearing conservation and the design of a comprehensive plan for a specific industry.

250. Advanced Clinical Practice, Audiology (2; max total 6)
Prerequisite: C D 130, 131, 132, 133. Supervised clinical practice in diagnosis and treatment of complex hearing problems; causative factors, counseling parents, therapy planning, etc.

260. Advanced Clinical Practice, Education of the Deaf (2; max total 6)
Prerequisite: C D 132, 136, 162, 163, 164. Supervised clinical participation and practice in clinical/classroom teaching of persons who are deaf and severely hard of hearing; parent counseling. Therapy planning and implementation. Clinical sites on campus and in public and/or private schools. Travel to off-campus settings at student expense.

262. Seminar in Speech for the Deaf (3)
Prerequisite: C D 162, permission of instructor; and successful completion of the NTE Commons Branch Exam or Single or Multiple Subjects Credential. Development of oral communication for deaf child. Detailed study of essentials of good speech and methods to build or correct speech of the deaf. Projects in library research or experimentation. Includes demonstration and off-campus practicum. Travel at student expense.

263. Seminar in Language for the Deaf (3)
Prerequisite: C D 163, permission of instructor; and successful completion of the NTE Commons Branch Exam or a Single or Multiple Subjects Credential. Investigation of language errors of the deaf. Comparative study of various language curricula. Techniques with older deaf students. Includes demonstration and off-campus practicum with deaf students. Travel at student expense.

264. Seminar in Elementary School Subjects for the Deaf (3)
Prerequisite: C D 164 and successful completion of the NTE Commons Section or a Single or Multiple Subjects Credential. Special problems and techniques of adjusting the elementary school curriculum to the needs of deaf children; innovations and research in curriculum development. Project required. Includes demonstration and practice.

266. Instructional Strategy and Technology for the Deaf (3)
Prerequisite: C D 162, 163, 164 and successful completion of the NTE Commons Section or a Single or Multiple Subjects Credential. Seminar in the development of techniques for organizing instruction for the deaf. Specialized equipment and production of visual materials used in classrooms for the deaf.

268. Internship with the Deaf (6)
Prerequisite: C D 136, 262, 263, 264, 266, A S 164B, and successful completion of the NTE Commons Section or a Single or Multiple Subjects Credential. Supervised internship in a residential school for the deaf. Full time in residence for 8 weeks.

270. Seminar in Organization and Management of Audiology Clinics (3)
Prerequisite: C D 131, 133. Establishing, organizing, and maintaining audiology clinics in colleges and universities, hospitals, and private organizational settings. Project required.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

298. Individual or Group Research Project (1–6; max total 6)
Prerequisite: consent of advisory committee. Utilization of communication research principles and techniques to select study design, determine data collection techniques, collect and process data, interpret findings, and prepare final written report. Same standards as for thesis.

299. Thesis (1–6; max total 6)
Prerequisite: see Master's Degrees—Thesis requirement. Preparation, completion and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES
(See *Course Numbering System*)

300T. Selected Topics in Communicative Disorders for Continuing Education (1–3)

HEALTH SCIENCE

FACULTY

Wayne N. Clark, Acting Chairman

Sanford M. Brown, Donald G. Casperson, James A. Fikes, Henry F. Fricker, John G. Hardgrave, Nathan E. Liskey, Ronald C. Schultz

DEGREES OFFERED: BS, MS, Minor

Options

Environmental Health Science
Occupational Safety and Health
School and Community Health

DEPARTMENTAL PROGRAMS

The Department of Health Science offers curricula leading to a bachelor of science degree, including a major and minor in health science with options in environmental health science, occupational safety and health, school and community health.

These programs are designed to provide basic education for employment in environmental health programs, community health programs, occupational safety and health programs, public health programs, voluntary health agencies, and the allied health professions.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

A major in health science consists of a minimum of 36 units. To complete the major for the BS degree, students must complete the health science core (15), one of the options outlined below (21–31), and any additional requirements in related fields as specified.

The General Education requirement, special course requirements, and electives, which may include a minor, complete the 78–88 units, totaling at least 124 units required for the BS degree. Consult the department adviser for recommended sequence of major and general education courses.

Health Science majors may not apply credit-no-credit grading toward major requirements for a baccalaureate degree.

Health Science Core	*Units*
H S 90, 100, 102* 105, 109	15
Elect one option below	21–31

Options

Environmental Health Science Option

H S 161, 162, 163, 165, 167, 168, 169
Additional requirements: Biol 10, 105, Chem 2A–B, Math 5, Phy 33

Registration as a Sanitarian: Students who desire to take the *State Examination for Registration as a Sanitarian* must complete H S 185F, Ent 107 or H S 166T Vector Control, F Sci 170, and must include among their electives and general education selections the following courses: Micro 20, Chem 8, Phys 2A-B, Engl 1, Spch 3, and 3 units upper division behavioral science. Consult the departmental adviser concerning substitutions and additions. (Accredited by the State Department of Health.)

Occupational Safety and Health Option

H S 113, 143, 168, 169, M E 11, 11L, I E 110, 116, 118, 120, Engr 26, 160, 161
Additional requirements: Biol 10, 105, Chem 2A–B, Math 5, Phy 33

Students who desire to meet the recommendations for the Safety Professional must complete among their electives and general education selections the following courses: B A 8, 18, Fin 143, Mgt 110A, Engr 70, Engl 1, Phys 2A-B, Psych 176, H S 152T, Ind A 133, 162, Econ 1A, and Spch 3.

* Students completing the occupational safety and health option may substitute IE 110 for H S 102 in the required core.

School and Community Health Option

H S 104, 110, 113, 123, 124

Elect from: H S 111, 112, 115, 117, 129, 141, 143, 152T, 161, 163, 168, Agri 161, CFS 131, La R 117, Psych 171

Additional requirements: Biol 10 or 105, Chem 2A, 2C, Math 5 or 70, Phy 33

Field assignments may be required for which students are expected to defray travel and personal expenses.

HEALTH SCIENCE MINOR

The minor in health science consists of 20 units composed of the health science core requirement and 5 units from the courses required in any one option. Consult the department adviser for assistance in program planning.

GRADUATE PROGRAM

The master of science degree in health science is designed to provide advanced study for teachers of health in the high schools and junior colleges, public health personnel, community health agency personnel, and for other professionals who wish to pursue graduate study in the general area of health science. Concentrations have been designed to provide in-depth study in environmental health (approved by the State of California Department of Health), administration and supervision, and teaching.

Admission: The MS program is open to students with health science or related undergraduate degrees who have demonstrated the ability to perform at an advanced level. Evidence of such ability is required by: (1) a satisfactory undergraduate grade point average (2.50 overall and 3.00 in the major or on the last 60 units); (2) a minimum Graduate Record Examination Score (Q-430, V-450); (3) passing successfully the department examination; (4) completion of all prerequisites.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

MASTER OF SCIENCE DEGREE REQUIREMENTS

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
Core courses in health science (See *specific requirements*)	10
Courses in health science concentration	14–17
Approved electives	3– 6
Total (including 18 units in 200-series)	30

Specific Requirements: Health Science 102, 280, 298 or 299.

COURSES

HEALTH SCIENCE (H S)

90. Health Science (3)

Meets general education requirements. Significance of basic health problems applicable to the young adult and to society. Field assignments may be required.

100. Community Health (3)

Prerequisite: H S 90. Public health services as they affect the community; investigation and analysis of community health problems. Field assignments may be required.

102. Public Health Statistics (3)

Public health statistics and principles of epidemiology; methods of investigating epidemics, collecting of data, analysis and reports. Field assignments may be required.

104. International Health (3)

Prerequisite: H S 90. History and evaluation of programs of international health organizations; health problems on a world scale. Field assignments may be required.

105. Environmental Safety (3)
The physical environment as it relates to accidents and safety; investigation and analysis of factors involved in the areas of home, school, industry, recreation, and traffic; human factors; accidents by type, age groups, and occupations. Field assignments may be required.

109. Epidemiology of Disease (3)
Prerequisite: H S 102. Modern concepts and principles of epidemiology; interaction of all agents, host, and environmental factors of communicable and noncommunicable diseases; problems of the aged. Field assignments may be required. (Former H S 155)

110. Habit Forming Substances (3)
Problems of tobacco, depressants, and stimulants including hallucinogens; use and effects on adolescents and adults. Field assignments may be required.

111. Alcohol and Alcoholism (3)
Physical, mental, and social factors related to the consumption of alcoholic beverages; the development of alcohol dependence. Field assignments may be required. (Former H S 152T section)

112. Consumer Health (3)
Consumer health as it relates to selection of health care products and services; how to differentiate fact from fiction in health matters. Field assignments may be required.

113. Advanced First Aid and Emergency Care (3)
American Red Cross Advanced First Aid and Emergency Care course; safety factors in daily living; disaster preparedness programs, emergency treatment for various types of injuries; including cardiopulmonary resuscitation (CPR); control of bleeding, artificial respiration, transportation, splinting, and bandaging. Also includes emergency childbirth, water and auto extrication. Certificates issued when requirements are met. Field assignments may be required. (2 lecture, 2 lab hours)

114. Public Health Science (2)
Open to all students. Required for Nursing students; prerequisite or concurrent with second semester in Nursing major. Trends in public health administration, organization, functions; national, state, local, public, voluntary agencies; interpretation and use of vital statistics; environmental health and epidemiology. Field assignments may be required. (Former Nurs 114)

115. Health Problems of Aging (3)
Health problems of the aged population including basic principles and concepts of the aging process, both physical and emotional. Field assignments may be required.

117. Holistic Health (3)
Includes the discovery and integration of the individual into all levels of being: body, mind and spirit. Total approach will be investigated in terms of preventive health practices. Field assignments may be required. (Former H S 152T section)

120. Elementary School Health Science Education (3)
Designed for the multiple subjects teacher credential candidate (non-health science major) to meet current California legislative requirements. Focus upon the methods, processes, and content used in the elementary schools for the teaching of health science. Student evaluation based on expected competencies. Field assignments are required.

121. Secondary School Health Science Education (2)
Designed for the single subject teacher credential candidate (non-health science major) to meet current California legislative requirements. Focus upon the methods, processes, and content used in the secondary schools for the teaching of health science. Student evaluations based on expected competencies. Field assignments are required.

123. School Health Programs (3)
Health science in the public school curriculum, with emphasis on current health problems; the determining factors in teaching content; school health programs. Field assignments may be required.

124. Human Sexuality (3)
Factors relating to the significance of sexuality as a function of being human. Field assignments may be required.

125. Perspectives in Sexuality for Health Professionals (3)
Prerequisite: H S 124. Designed specifically for upper division students in Health Professions. Focus on those individual sexual problems leading to the service of physical therapists, rehabilitation counselors, nurses or other helping professions. Field assignments may be required. (Former H S 152T section)

126. Female Sexuality (3) (Same as W S 127)
Studies on female sexuality which include past and present sexual roles, female sexual response patterns, and discussion of common problems encountered by women functioning as sexual beings. Field assignments may be required.

129. Rural Health (3)
Health problems of rural areas including community medical services, medical facilities, federal, state, and local legislation and administrative problems. Field assignments may be required.

141. Driver and Traffic Safety Education (3)
Prerequisite: H S 105, senior standing, valid California driver's license. Materials, equipment, and procedures for driver education and training including training with simulators. Field assignments may be required. (2 lecture, 2 lab hours)

143. Occupational and Industrial Safety (3)
Application of safety and accident prevention measures that provide a basis for insight into the hazards of occupational and industrial situations. Field assignments may be required.

152T. Topics in Health (1-3; max total 12)
Analysis and investigation of selected areas in school and community health, public health, and health and safety with some topics including laboratory experiences. Field assignments may be required.

161. Environmental Health I (3)
Basic principles and concepts of environmental health with a particular emphasis on health hazards. Environmental health organizations; communicable disease and environment; contamination control, water, air, solid waste, and noise. Field assignments may be required.

162. Environmental Health II (3)
Basic principles and concepts of environmental health with a particular emphasis on health hazards. Radiation, food, rodent control, managing special environments, planned environments, value systems, and community organizations. Field assignments may be required.

163. Public Health Administration (3)
Principles of public health administration; fundamentals of organization and administration in public health. Field assignments may be required.

165. Directed Group Study in Environmental Health (3)
Prerequisite: H S 161, 162. Problems of environmental health studied through field trips, observations, demonstrations, and seminars. (2 lecture, 2 lab hours)

166T. Topics in Environmental Health (1–3; max total 12)
Analysis and investigation of selected areas in environmental health with some topics including laboratory experiences. Field assignments may be required.

167. Public Health Laboratory Techniques (3)

Designed to provide training in the use of laboratory procedures and techniques of adjusting and operating monitoring equipment used in water quality, air pollution, noise pollution, food sanitation, radiological health and toxic substances. Field assignments may be required. (2 lecture, 2 lab hours) (Former H S 152T section)

168. Occupational and Industrial Health (3)

Prerequisite: H S 161 or 162. Concepts of occupational health as they pertain to appraising and controlling environmental health hazards; occupational diseases, chemical, biological, and physical agents that produce organic or systemic damage. Problems in toxicology, measurement instruments, and evaluating health hazards. Field assignments may be required.

169. Radiological Health and Safety (3)

Prerequisite: Phys 2A–B. Problems with ionizing radiation in the work environment. Biological effects of exposure, radiation monitoring, data interpretation, and radiation protection. Field assignments may be required.

185F. Field Work in Health (1–3; max see below)

Repeatable to 3 units in any one area, maximum total 6. Prerequisite: completion of 24 units of the health science major. Provides practical experience in a community work setting.

190. Independent Study (1–3; max see reference.)

See *Academic Placement—Independent Study.*

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

203. Seminar in Community Health Organization (3)

Prerequisite: H S 100 and 123. Individual research, analysis, and evaluation in relation to educational aspects of community health programs; group procedures; community organizations; selection, development, and use of media. Field assignments are required.

205. Seminar in Safety Problems and Programs (3)

Prerequisite: H S 105. Development, organization, and administration of safety programs; individual research, analysis, and evaluation of pertinent problems. Field assignments are required.

210. Seminar in Administration of the Health Science Program (3)

Prerequisite: H S 123. Individual research, analysis, and evaluation of the organization, administration, and legal aspects of the health science program. Field assignments are required.

222T. Seminar in School and Community Health (1–3; max total 15)

Individual research, analysis, and evaluation of current topics in school health education and community health education programs such as family life education, consumer health problems, substance abuse, and chronic disease. Field assignments may be required.

223. Seminar in Health Science Education (3)

Prerequisite: H S 123; teaching experience. Individual research, critical analysis and evaluation of the health science program; curriculum materials, and special techniques relating to instruction, services, and environment. Field assignments are required.

242T. Seminar in Occupational Safety and Health (1–3; max total 15)

Prerequisite: H S 105 and 143. Individual research, analysis, and evaluation of current topics such as loss control, product safety laws, and governmental occupational standards. Field assignments may be required.

262T. Seminar in Environmental Health (1–3; max total 15)

Individual research, analysis, and evaluation of current topics: air, water, housing, vector control and other selected environmental health problems. Field assignments may be required.

280. Seminar in Techniques of Health Research (3)
Research methodology, identification of health research problems, use of library resources, data gathering and processing, writing a research report.

285F. Field Work in Health (1–4; max total 10)
Planning, implementation, participation, evaluation in selected areas: safety, school health, community health, physical handicaps, occupational health, and environmental health.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

298. Directed Research (2–4; max total 4)
Prerequisite: advancement to candidacy for MS degree in health science. Individual research projects in health science; weekly independent and group conferences.

299. Thesis or project (2–4; max total 4)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES

(See *Course Numbering System)*

302. Selected Topics in Health (1–3; repeatable with different topics)

NURSING DEPARTMENT

FACULTY

Patricia D. Kissell, Department Chairman

Carol L. Avent, Mary J. Banigan, John Bergey, Martha A. Davis, Joan Fiorello, M. Ursula Guthormsen, Marie N. Haddad, Patricia E. Kasmarik, Dolores J. Kindell, Fred C. Krell, Myrthel S. Nelson, Karen H. Nishio, Emperatriz N. Rabago, Eleanor M. Stittich, Margaret C. Thorburn

DEGREES OFFERED: BS, MS

DEPARTMENTAL PROGRAMS

The Nursing Department offers a bachelor of science degree program with a major in nursing. The student upon completion of the junior year will have the option to take the examination required by the California Board of Registered Nursing for licensure to practice as a registered nurse. The senior year of the program offers a course in Community Health Nursing and a selected senior focus in nursing. Students will be eligible for the California certificate in public health nursing upon graduation. The program also provides the foundation for graduate study. The program is accredited by the National League for Nursing and the California Board of Registered Nursing.

COOPERATING HOSPITALS AND AGENCIES

The Nursing Department utilizes resources such as Fresno Community Hospital, St. Agnes Medical Center, Valley Children's Hospital, Veteran's Administration Medical Center, Kings View Community Mental Health Services, Valley Medical Center, Fresno County Health Department, Madera County Health Department, and Kings County Health Department. These facilities are used for clinical nursing experience.

ADVANCED PLACEMENT IN THE NURSING MAJOR

Students seeking advanced placement must meet the following criteria: evidence of graduation from an accredited program in nursing; current licensure to practice in California; GPA of 2.5 in prerequisite sciences, nutrition, general psychology, and growth and development—each course must be completed with minimum grade of a C—credit grades (CR) are not acceptable for prerequisite courses; admission to the University; and admission to the major (see undergraduate program). Registered nurses with AA or AS degree or the equivalency may articulate at the junior level in the major. Diploma registered nurses and licensed vocational nurses may seek advanced placement through credit by examination (see University policy and Department regulations). The bachelor of science degree in nursing consists of 130 units, 61 of which are in the nursing major.

UNDERGRADUATE PROGRAM

An application for admission to the university must be completed to determine the student's eligibility for admission to the institution. A separate nursing application must be submitted to the University Admissions Office during (or after) the semester in which the student is completing at least two of the natural science prerequisites to the major (Chemistry 2A and 2B or Chemistry 2A and 2C or Chemistry 1A and 8, Physiology 64 and 65 and Microbiology 20 or equivalent courses). CFS 39 or Psych 101 (Growth and Development) and F ScN 52 or 54 (Nutrition) must be completed prior to entrance into the major.

Applications to the major will be screened by the University Admissions Office. Students are admitted Fall and Spring semesters. Non-resident and foreign resident applicants are not eligible for the nursing major. To qualify for admission, applicants must be determined to be California residents for admission and tuition purposes.

Considerations for admission to the major as a generic student will be a 2.8 GPA in the required natural science prerequisites. Each prerequisite and required course must be completed with a minimum grade of C. Credit/No Credit grades are not acceptable for prerequisite or required courses. High school and college transcripts must be submitted and specific health criteria must be met. Recommended foundation courses are high school chemistry, algebra 1 and 2, college mathematics, English courses, and foreign language.

A student transferring from a community college who meets the criteria will be considered

on the same basis as a CSUF student applying for admission to the major. Basic applicants will be selected in rank order according to the GPA earned in prerequisites in the natural sciences as recorded on transcripts filed by document deadlines.

Criteria for retention and progression in the program include a minimum grade of C in each nursing course and all courses required by the major. (Credit/No Credit grades are not acceptable except in courses as designated by Nursing Department.) Refer to the department for complete admission, progression, and retention policy as stated in the Student Nurses Handbook.

Students must carry malpractice insurance, possess a current CPR certification, and must provide for their transportation for clinical experiences. They are requested to carry 12 or more units while in the nursing major. Completion of requirements for the nursing major may take more than four years. For application form and further admissions information write to the Office of Admissions, California State University, Fresno. For further information regarding curricula, write to the Department of Nursing, California State University, Fresno.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

NURSING MAJOR

	Units
Nurs 1, 1L, 100, 100L, 101, 101L, 102, 102L, 103, 103L, 104, 104L, 105A, 105B, 106, 106L, 125, 128A, 128AL, 128B, 128BL	61

Additional Requirements: Complete prior to entrance into major—Micro 20; Chem 2A and 2B or 2A and 2C or 1A and 8; Phy 64 and 65; Psych 101 or CFS 39; FScN 52 or 54. Complete prior to graduation—Speech 3 or 4 or 5 or 7 or 8 or 103 or Soc Wel 124; Engl 1; H S 114; Psych 10 or 60T (minimum 3 units); Soc 1 or 2 or Anth 2; minimum 3 units Statistics (suggestions—H S 102, Soc 25, Math 11, Educ 153); six units clinical support courses approved by Department; minimum 3 units Ethnic Studies (suggestions—As Am 15, Bl S 135, NAS 50, La R 5).

The nursing major is responsible for 61 units as outlined. The completion of additional requirements, General Education courses, special course requirements, and electives (69 units), total 130 units required for the BS degree.

Transfer students will be required to have a minimum of 6 units for the Chem (Inorganic and either Organic or Biochemistry) course sequence; 6–8 units including lab for the Anat-Physio course sequence, and 4 units including lab for Micro.

HEALTH SERVICES CREDENTIAL AUTHORIZING SERVICES AS A SCHOOL NURSE

This post baccalaureate program is designed to prepare nurses as school nurse clinicians. Requirements for admission include (1) graduation from an accredited baccalaureate program with an upper division major in a health related field, (2) a grade point average of 2.5 in the last 60 semester units or 90 quarter units, (3) registered nurse licensure in California, (4) public health nursing certificate or one year of experience in school nursing or community health nursing, (5) three letters of reference, (6) interview, and (7) application to the program. Eligibility for the credential will be certified by the university upon successful completion of the program within five years.

The following course requirements for the credential are:

			Units
CD	128	Observation in Communicative Disorders: Audiology	1
CD	131	Principles of Audiology	3
CD	133	Audiometry	3
(An Audiometrist Certificate is accepted in lieu of CD 128, 131, 133)			
Nurs	136	Physical Assessment	3
HS	102	Public Health Statistics	3
CD	114, AS 114 or Psych 168	Exceptional Children	3
AS	224	Seminar in Counseling Techniques	3
Nurs	220	Instruction in Nursing	2
Nurs	185	School Nurse Seminar	3
Nurs	186	School Nurse Practicum	3
Nurs	187	School Nurse Internship	3
Nurs	125	Introduction to Research for Health Professions	3
			33

All clinical practice courses require 5 hours of lab per unit of credit.

GRADUATE PROGRAM

The master of science degree in nursing is designed to prepare competent clinicians in selected advanced specialty areas: Adult/Child, Community-Mental Health, Community Health Nursing. In addition, students elect the functional role of clinical specialist, educator or administrator. Such preparation is consistent with employment opportunities available both currently and in the predicted future.

The requirements for entrance into the masters program are: (1) admission to CSUF Division of Graduate Studies and Research; (2) a bachelor of science degree in nursing from an NLN accredited program; (3) a course in basic statistics; (4) overall GPA of 2.5 with 3.0 in nursing; (5) current licensure as an RN in California; (6) GRE score of 450 (verbal) and 430 (quantitative); (7) malpractice insurance; (8) one year of clinical practice; (9) three letters of reference; (10) introductory course in Research; and (11) Physical Assessment.

MASTER OF SCIENCE DEGREE REQUIREMENTS

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, and Thesis and Thesis Alternatives.*)

Under the direction of the graduate adviser, each student prepares and submits an individually designed program within the following framework:

	Units
Core courses in Nursing: Nus 220, 223, 224	7
Approved electives in cognate areas:	
a. Family (dynamics, counseling)	3
b. Advanced Growth and Development	3
Area of specialization (see below)	14
Thesis	3
Total	30

Areas of Specialization (options)

Teaching
Required: Nurs 222, 231, 261, 264
Choose from: Nurs 255, 256 *or* 257, 258 *or* 259, 260

Administration Supervision
Required: Bus 214, Nurs 261, 262
Choose from: Nurs 255, 256 or 257, 258 or 259, 260

Clinical
Required: Nurs 261, 263
Choose from: Nurs 255, 256 *or* 257, 258 *or* 259, 260

All practicum courses require three (3) hours of lab per unit of credit as a minimum to meet course objectives.

A qualifying examination is required after completion of Nurs 224 and the first semester of clinical seminar and practicum for advancement to candidacy.

All graduate students are responsible for policies and regulations of the Division of Graduate Studies and Research and those specified in the graduate program in nursing brochure.

COURSES

NURSING (Nurs)

1. Fundamental Nursing Theories and Concepts (3)
Nurs 1L, 105A, 105B concurrently. Socialization to the professional role and introduction to foundational practice.

1L. Foundational Nursing Practice (3)
Nurs 1 concurrently. Application of basic skills under controlled conditions in a variety of settings to develop a holistic approach to health care. (9 clinical hours)

100. Nursing of Children (3)
Prerequisite: Nurs 1, 1L, 105A, 105B; Nurs 100L, 101, 101L, concurrently; H S 114 prior or concurrent. Application of nursing theories and concepts to children relative to health maintenance, promotion and restoration, and prevention of illness.

100L. Clinical Practice in Nursing of Children (3)

Nurs 100 concurrently. Application of special knowledge and skills in nursing care of children from birth through adolescence at various stages in the health-illness continuum. (9 clinical hours)

101. Nursing the Expanding Family (3)

Prerequisite: Nurs 1, 1L, 105A, 105B; Nurs 101L, 100, 100L concurrently; H S 114 prior or concurrent. Application of current theories and concepts to family centered maternity nursing with emphasis on health promotion, maintenance, and restoration related to the neonate and the child-bearing years.

101L. Clinical Practice in Nursing the Expanding Family (3)

Nurs 101 concurrently. Application of knowledge and special skills in nursing the child-bearing mother and the neonate with emphasis on the family as a unit. (9 clinical hours)

102. Nursing of Adults I (3)

Prerequisite: Nurs 100, 100L, 101, 101L; Nurs 102L, 104, 104L concurrently. Nursing processes in health maintenance for the adult; biophysiologic health problems; assessment and interventive processes to facilitate adaptive resources and health promotion/restoration.

102L. Clinical Practice in Nursing of Adults I (3)

Prerequisite: Nurs 102 concurrently. Application of nursing process in the care of adults throughout the health-illness continuum. (9 clinical hours)

103. Nursing of Adults II (3)

Prerequisite: Nurs 102, 102L, 104, 104L; Nurs 103L, 106, 106L concurrently. Nursing processes in health maintenance for the adult; continuation of concepts, principles, and processes of Nurs 102.

103L. Clinical Practice in Nursing of Adults II (3)

Nurs 103 concurrently. Application of nursing process in the care of adults throughout the health-illness continuum. (9 clinical hours)

104. Community Mental Health Nursing (3)

Prerequisite: Nurs 100, 100L, 101, 101L; Nurs 102, 102L, 104L concurrently. Eclectic presentation of theories and concepts as they apply to the dynamic treatment of patients suffering from mental illness.

104L. Clinical Practice in Community Mental Health Nursing (3)

Prerequsite: Nurs 104 concurrenty. Application of nursing theory in caring for patients clients with major mental health problems with special focus on interpersonal skills and the nurse's role in current treatment modalities. (9 clinical hours)

105A. Biopsychosocial Dysfunction (3)

Nurs 1, 1L, 105B concurrently. Theories of stress and causation related pathologies and therapeutics. Homeostatic adaptive mechanism in preserving integrity of function; pathologic processes and effects. Principles of therapy to restore balance of function capacity.

105B. Medical Therapeutics (3)

Nurs 1, 1L, and 105A concurrently. Nature of the drug action and interactions; physiologic effects of pharmacologic agents; clinical uses, indications, and precautions in drug therapy; assessment of patient responses and implications for nursing interventions.

106. Principles of Leadership and Management in Nursing (2)

Prerequisite: Nurs 102, 102L, 104, 104L; Nurs 103, 103L, 106L concurrently. Application of organizational theories and concepts in the delivery of nursing care in a variety of settings.

106L. Clinical Practice of Leadership and Management in Nursing (3)

Prerequisite: Nurs 106 concurrently. Application of special skills in orgaization, delegation, coordination and evaluation in the delivery of nursing care in a variety of settings. (9 clinical hours)

125. Introduction to Research for Health Professions (3)
Prerequisite: Statistics. Basic concepts of research and evaluation and application of research findings in health practice. Open to any major in the Health Professions.

128A. Concepts in Community Health Nursing (3)
Prerequisite: senior standing in the major, H S 114; Nurs 128AL concurrently and clinical support course prior to or concurrently. Systems and developmental theories and concepts as they apply to community health nursing. Emphasis on interrelatedness of biopsychosocial and environmental forces affecting consumer health and rehabilitation.

128AL. Clinical Practice in Community Health (3)
Prerequisite: Nurs 128A concurrently. Application of systems and developmental theories; concepts of families, groups and communities. Students are expected to function relatively autonomously and to develop their decisionmaking capabilities in this experience. (9 clinical hours)

128B. Senior Clinical Focus (2)
Prerequisite: Nurs 128A, 128AL; Nurs 128BL concurrently and clinical support course prior to or concurrently. Designed to strengthen core concepts which are inherent in all areas of nursing. Students and instructor plan the course content together around such concepts as pain, wellness, spirituality, and transcultural nursing

128BL. Practicum in Senior Clinical Focus (3)

Prerequisite: Nurs 128B concurrently. Utilizing the preceptor model, the student applies core concepts of Nurs 128B to clients/families/communities which he/she selects in rural/urban health settings. Students develop individualized learning objectives. (9 clinical hours)

136. Physical Assessment (3)
Physical assessment integrates psychosocial and pathophysiological processes. It includes techniques of history taking and health assessment in nursing practice and knowledge of normal findings as well as common deviations.

180T. Topics in Nursing (1–3 units; max total 12 if no topic repeated)
Selected topics such as aging, assertiveness training for nurses, psychosocial aspects of nursing, etc. Some topics may have clinical.

185. School Nurse Seminar (3)
Prerequisite: Admission to the Health Services Credential Program. Role of the school nurse in the school health program; current school health practices; legal and administrative parameters; environmental health and safety; effective use of resources.

186. School Nurse Practicum (3)
Prerequisite: Completion of at least 21 units of Health Services Credential course work or approval of instructor. Experience in public school health services under supervision of a master school nurse at the kindergarten through grade 12 levels; minimum 225 hours. Scheduled conferences with program coordinator and supervising nurse.

187. School Nurse Internship (3)
Prerequisite: Nurs 186. Experience in public school health services under supervision of a master school nurse at the kindergarten through grade 12 levels; minimum 225 hours. Scheduled conferences with program coordinator and supervising nurse.

190. Independent Study. (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES
(*See Course Numbering System—Definitions and Eligibility*)

220. Individual/Small Group Instruction in the Nursing Process (2)

Prerequisite: Admission to the Graduate Program in Nursing. Analysis of theories and principles of teaching-learning in the nursing process, synthesis of instructional strategies for individual and small group, such as clinical and patient teaching, application of evaluative process to the teaching-learning situation. (Former Nurs 249)

222. Curriculum in Nursing (2)

Prerequisite: Admission to Graduate Program in Nursing. Analysis of planning, developing, implementing, and evaluating of curriculum designs in nursing education.

223. Advanced Research Methodology in Nursing (3)

Prerequisite: Advancement to candidacy for master of science degree in nursing. In-depth study of research principles and techniques. A major requirement is the completion and submission of a research paper.

224. Theories in Nursing (2)

Prerequisite: Admission to Master's Degree Program in Nursing. Analysis of current theoretical models in nursing; process of theory construction and evaluation of theories; application of a current theory into nursing practice emphasizing research techniques.

231. Didactic Instruction in the Nursing Process (1)

Prerequisite: Nurs 220 concurrently. Analysis of teaching-learning strategies utilizing formal classroom setting, incorporating clinical models and integration of concepts from the biological and social sciences in the nursing process. Synthesis of goals and objectives for classroom experience. Evaluation of classroom teaching-learning process. (Former Nurs 249)

255. Seminar in Adult/Child Health Nursing (2)

Prerequisite: Nurs 220, 224 prior to or concurrently; Nurs 256 concurrently. Synthesis and application of advanced knowledge in Adult/Child Health Nursing. Development of clinical base for subsequent role implementation. (Former Nurs 245T)

256. Practicum in Adult/Child Health Nursing (3)

Prerequisite: Nurs 255 concurrently. Assignment for field experience to a variety of health agencies to advance the student's knowledges and skills in applying the nursing process in the care of clients in an adult/child health setting. (Former Nurs 250T section)

257. Seminar in Community Health Nursing (2)

Prerequisite: Nurs 220, 224 prior to or concurrently; Nurs 258 concurrently. Synthesis and application of advanced knowledge in Community Health Nursing. Development of clinical base for subsequent role implementation. (Former Nurs 245T section)

258. Practicum in Community Health Nursing (3)

Prerequisite: Nurs 257 concurrently. Assignment for field experience to a variety of health agencies to advance the student's knowledges and skills in applying the nursing process in the care of clients in the community health setting. (Former Nurs 250T section)

259. Seminar in Community Mental Health Nursing (2)

Prerequisite: Nurs 220, 224 prior to or concurrently; Nurs 260 concurrently. Synthesis and application of advanced knowledge in Community Mental Health Nursing. Development of clinical base for subsequent role implemention. (Former Nurs 245T section)

260. Practicum in Community Mental Health Nursing (3)

Prerequisite: Nurs 259 concurrently. Assignment for field experience to a variety of health agencies to advance the student's knowledges and skills in apply the nursing process in the care of clients in a community mental health setting. (Former Nurs 250T section)

261. Seminar in Nursing Roles (2)

Prerequisite: Nurs 255, 256, or Nurs 257, 258, or Nurs 259, 260; Nurs 262, 263, 264 concurrently. Integration of chosen functional role and clinical area. Analysis of commonalities and differences in the various roles in nursing. (Former Nurs 245T section)

262. Practicum in Nursing Administration (4)

Prerequisite: H S 210 or Bus 214; Nurs 261 concurrently. The student is offered the opportunity to analyze, synthesize, and practice a nursing administrator role for which he/she is preparing. Student will be given an understanding of the concepts of management and leadership in the health care system.

263. Practicum in Clinical Specialization (4)

Prerequisite: Approved clinical support course; Nurs 261 concurrently. The student is afforded the opportunity to analyze, synthesize, and practice a clinical specialist role for which he/she is preparing. Student will gain an understanding of the concepts of management and leadership in the health care system. (Former Nurs 250T section)

264. Practicum in Nursing Education (4)

Prerequisite: Nurs 222, 231; Nurs 261 concurrently. The student is afforded the opportunity to analyze, synthesize, and practice a nurse educator role for which he/she is preparing. Student will gain an understanding of the concepts of management and leadership in an educational setting. (Former Nurs 252)

290. Independent Study (1–3; max total 3)

See *Academic Placement—Independent Study.*

299. Project or Thesis (3)

Prerequisite: See *Master's Degree—Thesis Requirement; Nurs 223.* Preparation, completion, and submission of an acceptable project or thesis, based on an approved proposal, for the master's degree.

IN-SERVICE COURSES

(See *Course Numbering System*)

302T. Selected Topics in Nursing (1–6; repeatable with different topics)

PHYSICAL EDUCATION AND RECREATION

FACULTY

Patricia L. Thomson, Interim Department Chairman

Sally L. Ayer, O. Duane Ballard, Jr., Bonnie Jo Bevans, Gene L. Estes, Audrey M. Fagnani (Coordinator of Recreation), Rhita Flake, Richard W. Francis, Eddie J. Gregory, Ara Hairabedian, Melva E. Irvin, Birger L. Johnson, Rose M. Lyon, David N. Miller, Mary L. Mott, Leilani Overstreet, Lola B. Owensby, Laurence A. Pape, Donna Rae Pickel, Billie L. Poston, Joanne W. Schroll, Robert B. Van Galder, R. Jack Wilcox

DEGREES OFFERED: BA and MA (Physical Education) BS (Recreation Administration)
Minor (Recreation Administration)

DEPARTMENTAL PROGRAMS

The Physical Education-Recreation Department offers major programs preparing students for careers in teaching, coaching, athletic training, and recreation. The Department also provides activity courses for all students (see *Degrees and Credentials—General Education Requirements*). Advanced degree programs are available in physical education and recreation.

ATHLETIC TRAINING PROGRAM

The Physical Education-Recreation Department offers students interested in becoming certified athletic trainers an apprenticeship program which is accepted by the National Athletic Trainers Association. Students interested in this program must consult the head trainer in the Physical Education-Recreation Department.

CREDENTIAL PROGRAM

The Single Subject waiver program in Physical Education consists of the Bachelor of Arts degree major. Consult department chairman for teacher education.

ACTIVITIES

Physical education courses will count as lower division credit prior to completion of 45 units; for other provisions see *Courses—Note.* Students majoring in physical education may count a maximum of twelve units of activity courses toward the total units required for the bachelor's degree; other students may apply a maximum of eight units to the total degree requirement.

BACHELOR OF ARTS DEGREE REQUIREMENTS

With the assistance of a departmental adviser, students may choose a sequence of courses which will prepare them for working with specific age groups or special populations, as well as coaching or teaching physical education.

To complete the major or to be admitted to the credential program, each student must pass a series of physical performance tests administered by the department.

Prerequisite skill tests are required for the following courses: PE 115D; 135H; 145A, B, D.

	Units
PE 30, 31, 108, 152A, 153, 156A-B, 157A, and 159A	26
6 courses from PE 106A; 115K or 135B; 145A; 145B; 115A or 145D or Dance 160; 115D; 125C	18
2 courses from PE 125A, B, D; 135E, F, H	6
Total	50

Additional requirements: Physiology 33, Home Economics 54, Health Science 113.

Students wishing to prepare for working with special populations or specific age groups may, upon departmental approval, substitute the following courses for certain of the above requirements: PE 147, 150, 152B or 157B, and 159B.

GRADUATE PROGRAM

The master of arts degree program in physical education is designed to provide advanced study and research for the purpose of extending the competence of teachers in the area of physical education, and to provide the first graduate degree for persons anticipating advanced graduate study related to the field of physical education. An option in recreation administration is available for students wishing an emphasis in this area of specialization. For information about this option,

consult the departmental adviser.

The master of arts degree program in physical education assumes undergraduate preparation equivalent to a CSUF major in physical education.

MASTER OF ARTS DEGREE REQUIREMENTS

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements* and *Thesis and Thesis Alternative.*)

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
Courses in physical education (See Graduate Courses below). See also *specific requirements*	24
Courses in other fields (At least one approved course must be selected from each of 2 specific groups, and one of those selected must be in the 200-series; see graduate adviser)	6
Total	30

Specific Requirements: Plan A (Thesis Program), PE 299 (6 units). Plan B (Non-Thesis Program), comprehensive examination in the area of physical education taken after advancement to candidacy. All students, depending upon their qualifications, take a departmental screening or qualifying examination before advancement to candidacy. The University writing skills requirement is included in either the screening or qualifying examiniation.

Option in Recreation Administration

	Units
Courses in recreation administration	12–18
Courses in physical education	6– 9
Courses outside the field	6– 9
Total	30

Specific Requirements: Rec 231. Plan A, Rec 299 (6 units). Plan B, comprehensive oral examination.

COURSES

Note: With the 1976–77 catalog, there has been an extensive renumbering of activity courses. Activity courses may be repeated for credit except as noted. All PE activity courses are scheduled with upper division numbers only. However, a student who has completed fewer than 45 units at the time of enrollment will receive lower division credit. All courses are coeducational in nature unless designated: Men only or Women only.

Aquatics (PE AC)

(A, B, C, or D in course number refers to level of ability with A representing beginning and D the most advanced skill level.)

101. Advanced Lifesaving (2)
Prerequisite: 500 yard swim in 10 minutes or less. The course is designed to prepare students to take care of themselves and others in aquatic emergencies, and to certify through the American Red Cross those who successfully complete the course. (Former C5)

102. Skin Diving (1; not repeatable for credit)
Prerequisite: Intermediate swimming ability. Basic techniques of skin diving. (Former C42)

103. Swim for Fitness (1) (Former C7)

104. Swimming for Beginners (1)

105. Synchronized Swimming (1)
Prerequisite: intermediate swimming skills. (Former C4)

106. Synchronized Swim Show Production (2; max total 8)
Prerequisite: synchronized swimming experience. (Former C80)

107. Water Safety Instructor Course (2; not repeatable for credit)
Prerequisite: current lifesaving certificate; 450 yd. timed swim with maximum time of 9:00. (Former C6)

Recreational Dance (PE AC)

(A, B, C, or D in course number refers to level of ability with A representing beginning and D the most advanced skill level.)

111A. Folk Dance (1; not repeatable for credit) (Former C11, C11A)

111B. Folk Dance (1) (Former C12, C11B)

112A. Social Dance (1) (Former C14, C14A)

112B. Social Dance (1) (Former C15, C14B)

~~**113A. Square Dance (1; not repeatable for credit) (Former PE AC113)**~~

113B. Square Dance (1)
Prerequisite: PE AC 113A.

Individual Activities (PE AC)

(A, B, C, or D in course number refers to level of ability with A representing beginning and D the most advanced skill level.)

116. Adapted Body Mechanics (1)
May be repeated with permission of instructor. Medical referrals. (Former C1)

117A. Archery (1) (Former C21, C21A)

117B. Archery (1) (Former C22, C21B)

119A. Badminton (1) (Former C31, C31A)

119B. Badminton (1) (Former C32, C31B)

119C. Badminton (1) (Former C31C)

120. Bicycling (2)
Introduction to bicycling as a lifetime sport. Bicycle selection, care, and maintenance. Traffic laws and bicycle safety. Student must provide his own ten-speed bicycle. Two all-day rides on Saturday. Medical clearance required. (Former C84)

121. Body Building (1) (Former M40, M40A)

122A. Bowling (1) (Former C24, C24A)
(Lane rental)

122B. Bowling (1) (Former C25, C24B)
(Lane rental)

124. Conditioning Exercises and Figure Control (1) (Former W26)

127A. Fencing (1) (Former C45, C45A)

127B. Fencing (1) (Former C45B)

130A. Golf (1) (Former C37A)
(Greens charge)

130B. Golf (2) (Former C37, C37B)
(Greens charge)

131A. Gymnastics (1) (Former C9, C9A)
Men's Events

131B. Gymnastics (1) (Former C9B, C10)
Men's Events

132A. Gymnastics (1) (Former C9, C9A)
Women's Events

132B. Gymnastics (1) (Former C9B or W10B)
Women's Events

134. Handball (1) (Former M22, M22A)

137A. Ice Skating (1) (Former C27, C27A)
(Skate and rink rental)

137B. Ice Skating (1) (Former C27B, C28)
(Skate and rink rental)

139. Jogging (1) (Former C39)

141. Mountaineering-Basic (2; not repeatable for credit) (Former EXP 102, C85)
(Equipment and trip charge)

146A. Racquetball (1) (Former M29, M29A or W29)

146B. Racquetball (1) (Former M29B)

148. Sailing (2) (Former C41)
(Boat rental)

150. Self Defense (1) (Former M45)
Men only.

151. Self Defense for Women (1) (Former EXP 39, W39)
Women only.

152. Skiing (2) (Former C40)
(Resort rental) Limited to novice skiers.

154A. Tennis (1) (Former C8A)

154B. Tennis (1) (Former C8B)

154C. Tennis (1) (Former C8C)

154D. Tennis (1) (Former C8D)

157. Western Riding (1) (Former C43, C43A)
(Stable charge per semester) Limited to novice riders.

158. Wrestling (1) (Former M16, M16A)

160. Yoga-Hatha (1; not repeatable for credit) (Former EXP 185, C82)

Team Activities (PE AC)

(A, B, C, or D in course number refers to level of ability with A representing beginning and D the most advanced skill level.)

165. Basketball (1) (Former M7)

168. Soccer (1) (Former M3)

169. Soccer, Hockey, or Flag Football (1) (Former W46)
Women only.

171A. Volleyball (1) (Former C67, C67A)

171B. Volleyball (1) (Former C67B)

171C. Volleyball (1)
USVBA rules will be followed.

173. Volleyball, Basketball, or Softball (1) (Former W48)

Physical Education (PE)

30. History and Foundations of Physical Education (3)
History, foundations and legal aspects of the physical education program in secondary schools; personal, social, and professional requirements; demands on the physical education teacher and athletic coach.

31. Concepts of Human Movement (3)
Experiencing and studying concepts in selected aspects of human motor performance. Topics include fundamental movements, mechanical principles, perceptual theory, cultural effects, physiological factors and learning theory as they affect human movement. (2 hours lecture, 2 hours lab)

106A. Care and Prevention of Athletic Injuries (3)
Designed for prospective coaches, trainers, health and physical educators; to aid in the recognition, evaluation, and care of athletic injuries. Techniques in taping, prevention, and rehabilitation of injuries.

106B. Advanced Care and Prevention of Athletic Injuries (3)
Prerequisite: PE 106A, Physiology 33, PE 156A, 156B. Designed for certification of athletic trainers. Advanced study in all phases of athletic training.

107. Field Work in Care and Prevention of Athletic Injuries (1–2; max total 6)
Prerequisite: PE 106A. May be taken concurrently with 106B. Practical experience in the field of athletic training.

108. Organization of Intramural Sports-Recreational Games (2)
For physical education and recreation administration majors. Organization, administration, and motivation of a program of intramural activities in secondary schools.

110. Women in Sport (3) (Same as WS 110)
Role of women in athletics with emphasis on history and current events; inquiry into the development and perpetuation of female stereotypes in sport.

112B. Officiating Basketball (1)
Prerequisite: experience in basketball, PE 115H, or PE 125B. Analysis and interpretation of rules for basketball; procedures, mechanics, and practice of officiating. (1 2-hour lecture-lab)

112C. Officiating Track and Field (1)
Prerequisite: experience in track or PE 125C. Analysis and interpretation of rules for track; procedures, mechanics, and practice in officiating. (1 2-hour lecture-lab)

112D. Officiating Baseball or Softball (1)
Prerequisite: experience in baseball or softball, PE 115J or PE 125D. Analysis and interpretation of rules for baseball or softball; procedures, mechanics, and practice in officiating. (1 2-hour lecture-lab)

112E. Officiating Volleyball (1)
Prerequisite: experience in volleyball. Rules, officiating techniques and practice in class and off campus. Fee involved for examination. (2 1-hour lecture-labs) (Former PE 11A, 111A)

115A. Theory and Analysis of Modern Dance (3)
Prerequisite: Dance 116. Practice and analysis of body movement in dance, rhythmic, space and quality elements. Practice in planning and presenting teaching techniques, movement progressions, and group studies; elementary composition; brief history of dance; introduction to aesthetics. (2 hours lecture, 2 hours lab.)

115D. Theory and Analysis of Gymnastics (3)
Prerequisite: gymnastics skill tests. Analysis of skill performance, theory of progressions, class organization, spotting techniques, development of routines, legal aspects and safety. (2 hours lecture, 2 hours lab.)

115K. Theory and Analysis of Fitness, Figure Control and Personal Defense for Women (3)
Study and practice of the skills, knowledge, and techniques involved in the development of programs of fitness, figure control, and personal defense. (2 hours lecture, 2 hours lab)

125A. Coaching Football (3)
Principles underlying participation in competitive interscholastic football.

125B. Coaching Basketball (3)
Principles underlying participation in competitive interscholastic basketball.

125C. Coaching Track and Field (3)

Principles underlying participation in competitive interscholastic track and field.

125D. Coaching Baseball (3)
Principles underlying participation in competitive interscholastic baseball.

135B. Theory and Analysis of Wrestling and Combative Activities (3)
Rules, philosophy, scoring, training, skill analysis and progression in wrestling and other combative activities. Analysis and practice of skills. (2 hours lecture, 2 hours lab) (Former PE 35B)

135D. Theory and Analysis of Conditioning (2)
Prerequisite: Phy 33. Study, practice, and analysis of conditioning apparatus and exercise programs. (2 2-hour lecture-labs).

135E. Theory and Analysis of Basketball/Softball (3)
Analysis and performance of skills and strategies. Theory of skill progressions, class organization, officiating and evaluation. (2 hours lecture, 2 hours lab)

135F. Theory and Analysis of Flag Football/Field Hockey (3)
Analysis and performance of skills and strategies. Theory of skill progressions, class organization, officiating and evaluation. (2 hours lecture, 2 hours lab)

135H. Theory and Analysis of Soccer/Volleyball (3)
Prerequisite: volleyball skill test. Analysis and performance of skills and strategies. Theory of skill progressions, class organization, officiating and evaluation. (2 hours lecture, 2 hours lab)

144. Instructional Laboratory (1)
Limited to major students. Designed to provide an opportunity to work in an instructional situation.

145A. Theory and Analysis of Aquatics (3)
Prerequisite: aquatics skill test. Study and practice of varied levels of swim strokes; elements of diving; skills basic to lifesaving; skill progression; water polo, scuba diving, synchronized swimming, training for competition, basic elements of adapted aquatics. (2 hours lecture, 2 hours lab) (Former PE 45A)

145B. Theory and Analysis of Tennis/Badminton (3)
Prerequisite: tennis skill test. Study and practice of strokes and tactics; rules; history; skill progression for various levels. (2 hours lecture, 2 hours lab) (Former PE 45B)

145C. Theory and Analysis of Golf/Archery (2)
Study and practice of values and fundamentals in golf and archery; organization and conduct in the secondary school physical education program. (2 2-hour lecture-labs) (Former PE 45C)

145D. Theory and Analysis of Folk, Square and Social Dance (3)
Prerequisite: folk dance skill test. Analysis and practice of basic skills of folk, square and social dance. Development of understanding and appreciation of these forms of dance in various cultures. Study and practice of leadership skills in recreational dance. (2 hours lecture, 2 hours lab) (Former PE 45D)

146. Movement Education Clinic for Educationally Handicapped Children (3; max total 9; repeatable for credit)
Prerequisite: permission of instructor. Clinical experience in diagnosis and evaluation of movement skills and needs of educationally handicapped children followed by individual prescriptive program development and instruction. Experience to include program planning, execution and ongoing evaluation.

147. Physical Growth and Development (3)
Prerequisite: Phy 33. Physical growth and development from prenatal period through old age with emphasis on motor development.

150. Perceptual Motor Development (3) (Same as Rec 150)
Prerequisite: PE 147. The study of perceptual motor development, with consideration of the organization and integration of sensory information and motor response and the theoretical approaches to developmental programs.

152A. Physical Education for Children (3)
Theory, analysis and study of movement experiences, skills, and materials, appropriate for children. (2 hours lecture, 2 hours lab) (Former PE 152)

152B. Development of Movement Program for Children (3)
Prerequisites: PE 152A, Dance 160. Development and administration of movement program for children, assessment of these programs, application of teaching strategies through internship experiences, class organization, intramural and special activities and playground planning. (2 hours lecture, 2 hours lab) (Former PE 151B)

153. Principles of Physical Education: Philosophical, Psychological, and Sociological (3)
Prerequisites: PE 30, 31. Principles basic to purposeful use of sport, dance, exercise and game experiences; appraisal of pertinent philosophical, psychological and sociological concepts.

156A. Kinesiology (3)
Prerequisite: Phy 33, PE 31. Human movement: biological and mechanical bases, application of skeleto-muscular considerations and principles of mechanics to human movements.

156B. Physiology of Exercise (3)
Prerequisites: Phy 33, PE 31, and FScN 54. Physiologic bases of movement, work and exercise; physiologic concepts related to such processes as respiration, circulation, muscle function, metabolism, heat regulation, and to their roles in physical activity.

157A. Adapted Physical Education (3)
Prerequisites: Phy 33, PE 156A. An introduction to the nature and needs of the handicapped, legislative mandates for education, evaluation of psychomotor performance levels and development of suitable movement experiences. (2 hours lecture, 2 hours lab) (Former PE 156C)

157B. Prescriptive Teaching in Adapted Physical Education (2)
Prerequisites: PE 157A, PE 159B. The design, implementation and evaluation of individually prescribed adapted physical education programs for the handicapped in school and special settings. (1 hour lecture, 2 hours lab)

159A. Measurement and Evaluation in Physical Education (3)
Prerequisite: PE 30. The study of selection, construction, and administration of both norm referenced and criterion referenced tests for evaluating motor and sports skills, physical and motor fitness and knowledge; emphasis on statistical applications for interpretation of results. (Former PE 159)

159B. Sensory Motor Evaluation (2)
Prerequisites: PE 150, PE 159A. The study of evaluation methods and tests used to appraise sensory-motor functioning, and the application or adaptation of these devices to fit specific populations.

162. Coaching Concepts (3)
Current problems of coaches in the school setting; techniques of motivation, organization and public relations.

180T. Topics in Physical Education and Sport (1–3; max total 12)
Topics relating to analysis, performance, theory, current trends, and research in human movement specific to motor learning in programs of physical education and sport not available through current curricula offerings for the undergraduate or graduate student.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

199. Supervised Work Experience (1–2; max total 4)
Prerequisite: upper division status, GPA 2.5 last 30 units, consent of department coordinator and instructor.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

221. Body Mechanics (3)
Prerequisite: PE 156A. Analysis of posture and body mechanics; methods and techniques for the examination and treatment of faulty body mechanics and other anomalies; and exercises for achieving and maintaining correct body mechanics.

222. Analysis of Athletic Performance (3)
Prerequisites: PE 156A and 156B. Consideration of the factors affecting performance in various sports. Application of laws of physics, principles of exercise, physiological, and psychological considerations to human performance. Intensive research in the analysis of sports skills.

223. Scientific Basis of Motor Learning (3)
Seminar in the study of human movement from a physio-psychological perspective. Emphasis on learning theories, motor educability, and kinesthetic awareness in human movement via sport, dance, and games.

230. Statistical Inference in Physical Education (3)
Theory and nature of statistical inference; seminar in the study of statistical methodology relating to the selection of the most appropriate statistical method, the correct application of the statistical technique, and the interpretation of findings.

231. Research in Physical Education and Recreation (3) (Same as Rec 231)
Seminar in research methodology; identification of researchable problems in physical education and related areas; use of library resources, data gathering and analyses, critiquing of recorded research, writing of research reports.

232. Quantitative Measurement in Exercise Physiology (3)
Prerequisite: PE 156A. Use of instruments and devices for measuring physiological factors related to exercise. Measurement of these factors under experimental conditions in the human performance laboratory.

240. Facilities and Equipment in Physical Education (3)
Functional planning of indoor and outdoor facilities for schools and recreation centers. Design and layout of school physical education-athletic facilities. Evaluation of school plants in the Fresno and valley area. Budget considerations in planning for the purchase of equipment.

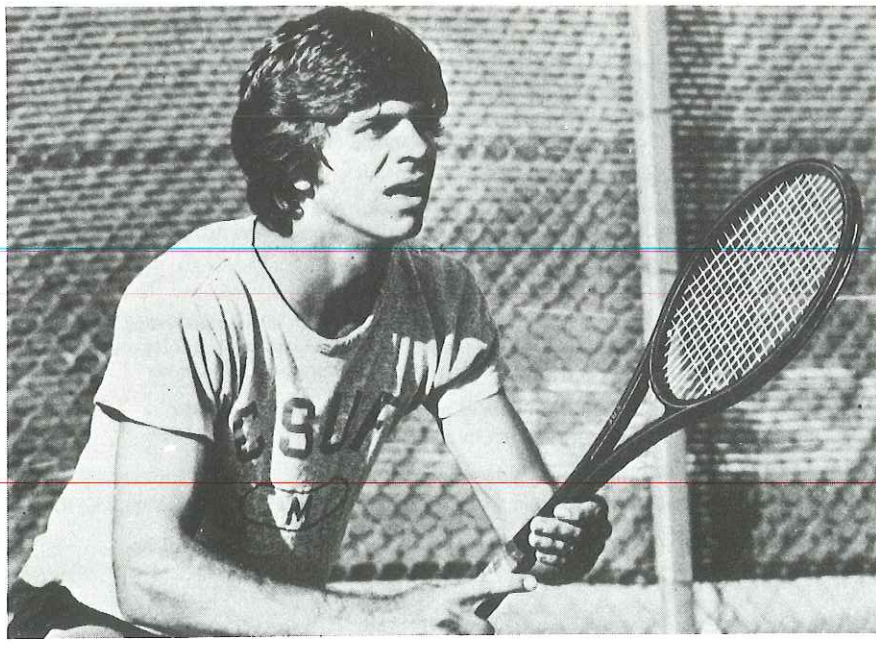
241. Administration in Physical Education (3)
Examination of innovative ideas in the fields of education and physical education which relate to physical education administration. Emphasis on discovering ways to incorporate recent information to establish programs.

242. Program Development in Physical Education (3)
Study of the current education scene to provide students with an understanding of the role that school physical education plays in today's education. Identification of sound procedure and practice in organizing and conducting relevant programs of physical education.

250T. Topics in Physical Education (3; max total 6 if no topic repeated)
Advanced studies in theoretical research in selected topics.

260. Historical Concepts of Physical Education (3)
Interpretation of exercise and sport in western thought and practice, from 3000 B.C. to the present.





261. Philosophical Concepts in Physical Education (3)
Exposure to philosophical thought as conceived by traditional and contemporary philosophers. Exploration of the techniques utilized to bring specific philosophical positions to action; examination of relationships between individual philosophies and philosophies from which current practices and problems in the field of physical education emerge.

262. Psycho-Socio Implications of Sport (3)
Investigation of the nature of man, the player; cultural factors leading to the development of the symbolic field of sport; and sport as an agent of change.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis or Project (2–6)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES
(See *Course Numbering System*)

310. Analysis of Team Activities (1–3; max total 12 if no area repeated)

320. Analysis of Individual Activities (1–3; max total 12 if no area repeated)

RECREATION ADMINISTRATION

Audrey M. Fagnani, Coordinator

The Physical Education and Recreation Department offers a bachelor of science degree with a major in recreation administration for students who are preparing for leadership and supervisory responsibilities in recreation service. The undergraduate curriculum is designed to prepare students for possible careers as follows: hospital recreation therapists; nursing home activity coordinators; recreation therapists in handicapped centers; recreation directors in detention centers and Youth Conservation Corps; city recreation leader, supervisor, general supervisor or speciality supervisor; city and county recreation and park manager; state recreation specialist; state recreation consultant; manager or assistant manager of resort area; hotel social director; cruise lines recreation director; church recreation director; industrial recreation director; school recreation director; program director in youth agencies; camp director; recreation director in community agencies and private clubs; armed forces recreation specialist; and others. The curriculum offers each student an opportunity to select course material in public, private, and therapeutic settings. Curriculum experiences are designed to serve as a foundation for graduate education in recreation administration.

BACHELOR OF SCIENCE DEGREE

The bachelor of science degree with a major in recreation is granted upon completion of 128 units including the courses listed below. The general degree regulations and general education requirements must also be fulfilled.

RECREATION MAJOR

CORE PROGRAM ***(Required of majors in both options)*** *Units*

Rec 55, 73, 73L, 168, 171, 173 and 173L or 174 and 174L, 179 21

GENERAL OPTION (Private-Public)

Rec 95, 160, 167 or 169, 177, 185 or 188 24
Recreation elective. Elect from: Rec 80, 159 3
Elect from: Acct 3; Art 60, 70; B A 18; Crim 120, 121, 132 133; Drama 136, 137, 138; H S 113; Ind A 60, 133, 162; Ind R 150; Jour 113; Mgt 110A; Music 9, 36–136, 39–139; O Ad 105; P E 108, 152A; PE AC 111A, 112A; Plant 15, 25, 55; Pl Si 181; Psych 101; Rec 80, 159, 167, 169; Educ 135; Spch 167; S Wel 124 12
Total (Including Core) 60

THERAPEUTIC OPTION

Rec 165, 166, 187 18
Psych 166 and Crim 134 6
Recreation elective. Elect from: Rec 159, 160, or 167 3
Elect from: Art 70; A S 170; C D 100, 136, 137; Crim 120, 146; Drama 136; CS 117; H S 110, 113, 115, 125; P E 157A; PE AC 101, 107, 111A; Ph Th 50; Psych 101, 102, 103, 155, 167, 169; Rec 150, 159, 160, 167; Soc 143, 147, 181 6
Phy 33 and P E 146 8
Total (Including Core) 62

RECREATION MINOR

The minor in recreation for the bachelor of science degree consists of 24–26 units of which 6 must be upper division and permits, with guidance, a selection of courses to satisfy special interests and needs. The recreation minor offers training in activities suitable for use in recreation programs of communities, schools, youth agencies, and clubs.

Units

Rec 55, 73, 73L, 171, 173 and 173L or 174 and 174L 15
Recommended electives: PE 108; Art 70; Music 9; Drama 137;
Rec 80, 95, 159, 160, 165, 166, 167, 168, 169, 177 9–11

24–26

MASTER OF ARTS DEGREE

(See Master of Arts Degree, Option in Recreation Administration, under Physical Education.)

The graduate program for the master of arts degree in physical education with an option in recreation administration is based upon undergraduate work in recreation administration. At least 12 of the 30 units required for the degree must be in graduate courses in recreation administration. For specific requirements, consult the recreation coordinator or the graduate committee; for general requirements, see *Division of Graduate Studies and Research.*

COURSES

RECREATION (Rec)

55. Principles of Recreation (3)

Recreation majors only. Philosophical, theoretical, and historical base for recreation service in contemporary American society; development of a personal philosophy of recreation through education information, and stimulation.

73. Leadership in Recreation Service (2)

Prerequisite: Rec 55. Theoretical and philosophical basis for leadership. Social dynamics of leading recreative activities.

73L. Leadership in Recreation Service Laboratory (2)

Concurrent with Rec 73. Practical leadership experience in supervised recreation settings.

80. Outdoor Recreation (3)

History, development, and trends of organized camping; nature and conservation; outdoor recreation. Practical skills in camp counseling, firecraft, outdoor cooking, and back packing. Laboratory and field trips, including camping and hiking activities. (field trips; approximately $20 camp trip expense).

95. Recreation Services Integrating Special Populations (3)

Introduction to the recreation and leisure needs of special populations, and in the integration process in a community recreation setting.

150. Perceptual Motor Development (3) (See PE 150)

159. Volunteer Coordination (3)

Prerequisite: Rec 55. Analysis of the role of volunteer program coordinators, basic skills of organizing and administering a volunteer program, methods of developing and channeling voluntary effort and identifying resources.

160. Camp Management (3)

Prerequisite: Rec 55, 73, 73L. Organization, supervision, and management of various types of camps. (2 field trips; approximately $20 camp trip expenses).

165. Foundations of Therapeutic Recreation Service (3)

Prerequisite: Rec 55, Phy 33. Historical review of therapeutic recreation; identification of special populations including the study of etiology, characteristics, terminology and support systems; field trips to settings serving the mentally and physically handicapped, the developmentally disabled, the aged, the convalescent and the socially deviant.

166. Methods in Therapeutic Recreation (3)

Prerequisite: Rec 165. Analysis and application of therapeutic recreation techniques, adaptive games and activities for atypical populations, appliances, testing, charting, narrative writing and leisure counseling; field experiences providing exposure to contemporary practices in the field of therapeutic recreation.

167. Private Recreation Resources (3)

Prerequisite: Rec 55. Organizational and administrative aspects of non-profit agencies including recreational, health and social service programs; legal aspects of establishing a non-profit corporation; overview of funding resources, board relationships, contemporary programs and community development. (field trips may be required)

168. Legal and Financial Aspects of Recreation Service (3)

Prerequisite: Rec 171. Legal and financial aspects of recreation service; budget analysis, legal terminology, and their role in recreation administration.

169. Development and Management of Commercial Recreation (3)

Prerequisite: Rec 55. Evaluations of commercial recreation enterprises; problems include the establishment, organization, and management of commercial recreation agencies. (field trips may be required)

171. Community Recreation (3)

Prerequisite: Rec 55. Analysis of community agencies offering recreation services. Emphasis on assessing community recreation and leisure preferences. (field trips may be required)

173. Programs of Recreation (3)

Not open to students with credit in Rec 174. Prerequisite: Rec 55, 73, 73L. Principles and procedures of planning programs for various age groups and settings; selected field experiences providing the opportunity for program analysis and evaluation.

173L. Programs of Recreation Laboratory (2)

Not open to students with credit in Rec 174L. Rec 173 concurrently. Practical program experience in supervised recreation settings.

174. Programs of Therapeutic Recreation (3)

Not open to students with credit in Rec 173. Prerequisites: Rec 73, 73L, 166. Principles and procedures of planning programs for various disability groups and treatment settings; selected field experiences providing the opportunity for program analysis and evauation.

174L. Programs of Therapeutic Recreation Laboratory (2)

Not open to students with credit in Rec 173L. Rec 174 concurrently. Practical program experience in supervised therapeutic recreation settings.

177. Analysis of Leisure and Park Resources (3)

Prerequisite: Rec 55. Concentrated study of park planning, designs, maintenance and operation of resources for recreation purposes. Group or individual projects in the area of special interest: public, private, or therapeutic.

179. Organization and Administration of Leisure Services (3)

Prerequisite: Rec 168. Preparation for the role of administrator of recreation and leisure services; administrative practices, the provision of sites and facilities, and management of personnel. (Former Rec 172)

185. Internship in Private Recreation (12)

Prerequisite: completion of core and option requirements. Directed supervisory experience with a private recreation agency. Individual development in administration, supervision, program planning, and community and public relations; supervised, directed full-time experience in the field of private recreation, reports and conferences required. (It is recommended before internship registration that a student have the equivalent of 1,000 hours of recreation related experience either paid or volunteer, in the field of recreation service.)

186. Internship in Public Recreation (12)

Prerequisite: completion of core and option requirements. Directed supervisory experience with a public recreation agency. Individual development in administration, supervision, program planning, community and public relations; supervised, directed full-time experience in the field of public recreation, reports and conferences required. (It is recommended before internship registration that a student have the equivalent of 1,000 hours of recreation related experience either paid or volunteer, in the field of recreation service.)

187. Internship in Therapeutic Recreation (12)
Prerequisite: completion of core and option requirements. Supervised, directed full-time experience in the field of therapeutic recreation; reports and conferences required. (It is recommended before internship registration that a student have the equivalent of 1,000 hours of recreation related experience, either paid or volunteer in the field of recreation service.)

188. Internship in Commercial Recreation (12)
Prerequisite: completion of core and option requirements. Supervised, directed full-time experience in the field of commercial recreation; reports and conferences required. (It is recommended before internship registration that a student have the equivalent of 1,000 hours of recreation related experience, either paid or volunteer in the field of recreation service.)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

192T. Topics in Recreation Administration (1–3; max total 6 if no topic repeated)
Prerequisite: permission of instructor. Investigation of selected topics related to: administration, supervision, and leadership in public recreation; therapeutic recreation; camping, and, workshops related to skills in leisure oriented activities.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

201. Trends and Issues in Recreation Administration (3)
Prerequisite: permission of instructor. Investigation and analysis of current trends, issues, and problems in related areas of municipal, county, and state Recreation and Park Services.

203. Construction and Design of Recreation Facilities (3)
Prerequisite: permission of instructor. Standards for site selection, development, facilities and equipment; operation and maintenance of buildings and grounds.

204. Seminar in Recreation Supervision (3)
Prerequisite: permission of instructor. Investigation and analysis of supervisory techniques in modern recreation programs: relationship, department and agency organizations, policies, regulations, and related problems. Special emphasis on major staff responsibilities such as those of the department head, administrator, and business manager.

205. Recreation for Special Groups (3)
Prerequisite: permission of instructor. Analysis of therapeutic recreation settings for special groups such as the handicapped and the aging. Examination of regular programs in convalescent homes, senior citizen centers, retirement villages, day treatment centers, and rehabilitation centers: study of program results. (Former Rec 205T)

231. Research in Physical Education and Recreation (3) (See PE 231)

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis or Project (2–6; max total 6)
Prerequisite: see *Master's Degree—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES

(See *Course Numbering System*)

313. Recreation Activities (1–3; max total 6, may be repeated for credit)

330T. Topics in Recreation (1–3; max total 6, may be repeated for credit)

PHYSICAL THERAPY PROGRAM

FACULTY

Darlene L. Stewart, Coordinator

Sondra E. Dunkle, Helen G. James, E. Joan Turnquist

DEGREE OFFERED: BS

THE PROGRAM:

The Physical Therapy Program leads to a bachelor of science degree with a major in physical therapy and a certificate in Physical Therapy. It is a four-year curriculum plus a post-baccalaureate clinical internship to meet requirements of certification. Completion of the degree and certification are required to sit for the State examination to be licensed. The program prepares students for professional careers in hospitals, schools for crippled children, clinics, and other facilities where physical therapists are needed. It is accredited by the American Physical Therapy Association. It is a four-year curriculum, plus a clinical internship at the end of the last year.

An application for admission to the University must be completed to determine the student's eligibility. Graduate students are not eligible for the program. A separate application must be submitted to the Admissions Office on or before February 1 of the year the student wishes to enter the program. All required prerequisites must be completed by the end of the spring semester prior to entering the major. A very limited number of students are admitted to the program each fall. Applications to the Physical Therapy Program will be screened during the spring semester.

The following admissions criteria will be reviewed by the screening committee.

(1) The student must apply to the University prior to November 30.

(2) Completion of the required units as listed below.

(3) A grade of B or better in each of the required courses.

(4) Completion of 60 units including all University requirements.

(5) Evidence of knowledge of physical therapy through employment, volunteering or observation in a physical therapy department for a minimum of 100 hours. Fifty hours should be in a general acute care setting, 50 hours may be in a special area of practice.

(6) Evidence of knowledge of content of the prerequisite courses by passing a written comprehensive examination. The top 50 students will proceed to the next step of admissions considerations, the personal interview.

(7) Participation in a personal interview.

Recommended foundation courses are high school chemistry, physics, algebra, geometry and biology.

Meeting the above criteria does not guarantee acceptance into the major.

Students transferring from community colleges and other colleges or universities who meet the above criteria will be considered on the same basis as California State University, Fresno, students applying for admission to the major.

Criteria for retention and progression in the program include a grade of C or better in each physical therapy course and completion of all courses in the major.

Students must carry malpractice insurance and must provide their own transportation to hospitals and clinics for off campus classes and clinical laboratories. Students must also provide for all expenses while taking the post-baccalaureate certificate clinical internship at the end of the senior year. Expenses include tuition through summer school extension, housing, meals and travel. For supplemental application form write to the Admissions Office, California State University, Fresno, Fresno, California 93740 and include a self-addressed legal size envelope for requested return information.

COOPERATING INSTITUTIONS

The resources of institutions including Fresno Community Hospital, Valley Medical Center of Fresno, Saint Agnes Hospital, Sierra Hospital, U.S. Veterans Administration Hospital, and other hospitals and clinics throughout the State will be utilized to provide clinical laboratory experience. In addition, schools within the Fresno City Unified District, Fresno County Schools, and other agencies which deal with the physically handicapped will be involved. As the program expands, additional resources will be used.

PHYSICAL THERAPY

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

The bachelor of science degree curriculum in physical therapy consists of 132 units of which 69 are in the physical therapy major. The candidate for the BS degree is required to complete the General Education requirements and special course requirements.

	Units
Ph Th 100, 105, 115, 116, 120, 121, 122, 123, 130, 131, 132, 133, 143, 144, 151, 152, 153	51
Electives	5
Phy 155, 160, Nurs 125, HP100T	13
Prerequisite requirements (Prephysical Therapy Preparation) Chem 1A-B or 2A-B, Psych 10, Zool 10, Phy 64, 65, Phys 1A or 2A or Phys 1, Psych elective, or HP 100T, HEc 39, H Sci 102	34
Recommended Courses Engl 20, Soc 1, Spch 3, Psych 101, Psych 166, CD 100	19
Other Electives	10
	132
Post-baccalaureate Certification Requirement (units not applicable to degree) Ph Th 175	8

COURSES

PHYSICAL THERAPY (Ph Th)

100. Principles in the Practice of Physical Therapy (2)

Prerequisite: Ph Th 50 or concurrent. Introduction to the profession; role of the physical therapist in helping the patient who suffers from disabilities. Investigation and discussion of basic concepts, code of ethics, and governing bodies of the physical therapy profession.

105. Introduction to Medical Terminology (2)

Required for Physical Therapy majors. Open to all health professions students. May be taken concurrently with Ph Th 100. Introduction to common medical conditions and terminology by anatomical systems. (Former Ph Th 50)

115. Applied Anatomy and Kinesiology (5)

Prerequisite: Physiology 64, 65. Mechanical laws and movement of the locomotor system of the human body as applied to the advanced anatomical study of the skeletal, circulatory, neuromuscular and respiratory systems with special emphasis on the skeletal and upper and lower extremities. (3 lecture, 6 dissection lab hours)

116. Advanced Applied Anatomy and Kinesiology (5)

Prerequisite: Ph Th 115. Mechanical laws and movements of the locomotor system of the human body applied to the advanced anatomical study of the skeletal, circulatory, neuromuscular, and respiratory systems of the trunk. (3 lecture, 6 dissection lab hours)

120. Procedures in Physical Therapy I (4)

Principles and clinical application of hydrotherapy, cryotherapy, radiant heat, electrotherapy, and massage: rationale and techniques to restore function. Lecture, demonstration, and student practice in application of modalities used in physical therapy. (2 lecture, 6 lab hours)

121. Procedures in Physical Therapy II (4)

Prerequisite: Ph Th 120. Introduction to the theory and practice of exercise as it relates to posture, muscle reeducation, coordination, stretching, ambulation, strengthening, and special routines. (2 lecture, 6 lab hours)

122. Procedures in Physical Therapy III (4)

Prerequisite: Ph Th 121. Principles and techniques of range of motion, joint measurements and muscle testing as it applies to evaluation for treatment planning. (2 lecture, 6 lab hours)

123. Procedures in Physical Therapy IV (3)
Prerequisite: Ph Th 122. Presentation of special exercise techniques as related to specific medical disease entities including neuromuscular facilitation, Bobath method, sensory-motor perception, and respiration. (2 lecture, 3 lab hours)

130. Medical Science I (3)
Prerequisite: Ph Th 115. Presentation of pathology and medical-surgical management of common orthopedic conditions and physical therapy procedures for the rehabilitation of patients with these conditions.

131. Medical Science II (3)
Prerequisite: Ph Th 130. Presentation of pathology and medical-surgical management of common disorders of the vascular, respiratory, endocrine and digestive systems to include the application of physical therapy procedures for treatment and restoration of function.

132. Medical Science III (3)
Prerequisite: Ph Th 131. Presentation of pathology and medical-surgical management of common disorders of the central nervous systems, introduction to common psychiatric disorders, psychosomatic implications and special problems of children.

133. Physical Medicine and Rehabilitation (3)
Prerequisite: Ph Th 121. Techniques of rehabilitating patients in a clinical setting through lectures, demonstrations, conferences, and ward rounds.

143. Administration and Supervision (3)
Prerequisite: Ph Th 100. Techniques of supervision and management of a physical therapy department including planning a new physical therapy department, carrying out personnel policies, developing a budget, purchasing equipment, and filling out governmental and insurance forms.

144. Accessing the Health Care System (2)
Prerequisite: Ph Th 143. Exploration of trends in the health care delivery system and their impact on contemporary physical therapy practice. Methods and resources for assisting consumer access to the health care delivery system are explored.

151. Clinical Laboratory (1)
Prerequisite: Ph Th 120. Clinical participation under supervision of a registered physical therapist in local hospitals and clinics. Must be taken CR-NC grade only.

152. Intermediate Clinical Laboratory (2)
Prerequisite: Ph Th 121, 151. Clinical practice of the techniques learned in Ph Th 120 and 121. Observation of outpatient clinics relating to the practice of physical therapy. Must be taken CR-NC grade only.

153. Advanced Clinical Laboratory (2)
Prerequisite: Ph Th 122, 152. Clinical practice of techniques learned in Ph Th 120, 121, and 122. Clinical observation. Must be taken CR-NC grade only.

175. Post-baccalaureate Clinical Internship (8)
Prerequisite: Ph Th 153. Summer offering only as final experience for majors. The internship is 18 weeks of clinical experience at selected facilities throughout the state. Certification of completion of internship is required before the graduate can sit for the state examination to be licensed. Must be taken CR/NC.

180T. Topics in Physical Therapy (1–3; max total 12 if no topic repeated)
Prerequisite: permission of instructor. Advanced techniques in physical therapy and new trends relating to the care of patients.

190. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

IN-SERVICE COURSES

(See *Course Numbering System*)

302T. Selected Topics in Physical Therapy (1–6; repeatable with different topics)
Selected topics in Physical Therapy for practicing clinician in the health fields.

REHABILITATION COUNSELING PROGRAM

FACULTY

Everett W. Stude, Coordinator

J. L. Townsend

DEGREE OFFERED: MA

GRADUATE PROGRAM

The graduate program in rehabilitation counseling, accredited by the Council on Rehabilitation Education, prepares prospective rehabilitation counselors for employment in State and federal vocational rehabilitation programs, public, and private agencies. These include rehabilitation units in mental hospitals, correctional institutions, public schools, rehabilitation agencies and centers, sheltered workshops, adjustment centers, social service agencies, and other organizations serving persons who are mentally, emotionally, socially, or physically handicapped for employment. The program also provides advanced training for persons presently employed in agencies and facilities offering services to handicapped individuals.

Emphasis is placed upon professional education for developing the skills and knowledge necessary for effective rehabilitation counseling of handicapped persons. The variety of activities performed by rehabilitation counselors necessitates a program highly diversified in character and interdisciplinary in nature. In addition to the development of a broad understanding of human behavior, techniques of individual and group counseling, interprofessional relations, vocational appraisal and adjustment, and use of community resources in facilitating rehabilitation of mentally, emotionally, socially, and physically handicapped persons are stressed.

The graduate program of study leads to the degree of master of arts in rehabilitation counseling. The program meets the professional employment requirements of state and federal rehabilitation programs throughout the United States. No teaching credential is required or awarded upon completion of the program. Graduates of this program are eligible to take the Certified Rehabilitation Counselor Examination.

The Rehabilitation Counseling Program at CSUF is accredited by the Council on Rehabilitation Education (CORE). CORE is recognized by the Council on Post Secondary Accreditation as the accreditary body for master's degree programs in rehabilitation counseling education. This national recognition of the CSUF rehabilitation programs enhances the career opportunities of our graduates.

INTERNSHIP

The internship in rehabilitation counseling is required of all students who have had no previous rehabilitation agency experience. In addition, observation of and participation in clinical procedures with selected clients is an integral part of the academic course content. The internship provides an opportunity for students to develop techniques and skills in connection with the total rehabilitation process. It gives students an opportunity for application of theory in the practice of rehabilitation counseling and case management in a rehabilitation setting. The internship is provided under the direction of the rehabilitation counseling program and the immediate supervision of qualified personnel in approved and cooperating rehabilitation agencies or facilities. Enrollment in the internship constitutes full-time study for the semester and is permitted for only those students who have demonstrated their readiness to undertake the experience.

COOPERATING INSTITUTIONS

Rehabilitation facilities and agencies throughout California participate in the rehabilitation counseling program by providing field experience and observation. These include offices of the California Department of Rehabilitation, Community College Enabler Programs, County Mental Health Units, Goodwill Industries of America, Fresno Community Hospital, and Kelso School and Activity Center. Other agencies are added as relationships are established. Other cooperating agencies include out-of-state rehabilitation programs which have demonstrated effective and innovative approaches to the rehabilitation of the disabled.

MASTER OF ARTS DEGREE REQUIREMENTS

The master of arts degree program in rehabilitation counseling prepares prospective rehabilitation counselors for employment in state and federal vocational rehabilitation programs as well as in public and private agencies. It also provides advanced training for persons presently

employed in agencies offering services to handicapped and/or disabled individuals. The program is highly diversified and interdisciplinary in scope and contributes to the development of a broad understanding of human behavior.

The master of arts degree in rehabilitation counseling assumes undergraduate preparation in psychology or counseling or a closely related area. A baccalaureate degree in an unrelated area is acceptable provided that the student has a working knowledge of the behavioral sciences. A knowledge of elementary statistics is also expected. Admission to classified standing is dependent upon an evaluation of the student's background by the rehabilitation counseling faculty.

(See also *Admission to Graduate Standing, Advancement to Candidacy* and *Program Requirements.*)

The degree requires 60 units of credit and is designed to cover two years' full-time course work, including a full semester of internship. A thesis is not required; however, the student must demonstrate proficiency by the satisfactory completion of a comprehensive examination in addition to fulfillment of all other specified degree requirements.

Under the direction of the graduate adviser, each student prepares and submits an individually designed program within the following framework:

Required Core Courses: R C 201, 203, 211, 212, 221, 251T, 296	31
Courses in supporting curriculum (at least 18 units in 200 series courses)	
Counseling Courses: A S 224, 231, 228, or Psy 262	
Testing Course: A S 227	
Behavioral Dynamics Courses: Psy 154 or 250T and 166	20
Electives: As approved by advisor	9
Total	60

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

REHABILITATION COUNSELING (R C)

201. Seminar in Rehabilitation Counseling (3)

Seminar in the fundamental concepts of rehabilitation counseling and vocational rehabilitation including examination and analysis of historical, philosophical, organizational and functional principles. Community rehabilitation agency or orientation visits.

203. Job Placement in the Rehabilitation Process (3)

An experiential seminar concerning the attitudes, skills, and abilities necessary to provide effective vocational and job placement services with the disabled, including vocational diagnosis, job development, placement techniques, job analysis, affirmative action, and appropriate legislation. (2 seminar, 2 lab hours)

211. Medical Aspects of Disability (3)

Seminar in the treatment of disabling conditions including etiology, functional limitations, and vocational implications. Student presentation of case studies.

212. Psychological and Social Aspects of Disability (3)

Seminar in psychological and sociological effects of physical and mental disability and the dynamics of adjusting to disabling conditions. Student presentation of case studies.

221. Case Practices in Rehabilitation Counseling (4)

Prerequisites: RC 201, 211. Seminar in methods for facilitating client rehabilitation including: interviewing, case recording, plan development, ethical practices; field placement in a community rehabilitation agency; and student case presentations. (2 class hours, 6 lab hours)

251T. Selected Topics in Rehabilitation (3; max total 12)

Prerequisites: RC 201, 203, 211, 212, 221. Topics seminar rotated each semester to include subjects such as principles and techniques of supervision and administration, rehabilitation program evaluation, rehabilitation research, current professional issues in rehabilitation counseling, work evalation procedures, rehabilitation of the severely disabled, and the industrially injured worker.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

296. Internship in Rehabilitation Counseling (12)
Prerequisites: RC 201, 203, 211, 212, 221, 251T, permission of instructor. Full-time, supervised field placement in one of a variety of settings including case responsibilities.

299. Thesis or Project (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES
(See *Course Numbering System*)

303. Human Interaction in Rehabilitation (1–3)

333T Topics in Rehabilitation (1–3)



SOCIAL WELFARE PROGRAM

FACULTY

Catherine Woodcock, Coordinator

Patricia M. Baumann, Thomas M. Brigham, David L. Ellis, Marie A. Emmal, Paul L. Haire, Nobuo Mori, Patricia R. Pickford, Wynn C. Tabbert

DEGREES OFFERED: BA

The Social Welfare Program offers a major in Social Welfare. The bachelor of arts degree program is accredited by the Council on Social Work Education for the first professional practice level degree and to prepare students to be eligible for consideration for admission to master's degree programs. Students generally find employment in the human service occupations, especially public welfare, voluntary community and group services, poverty programs, mental hygiene, services for children, the handicapped, the aged and other special population groups, Peace Corps, VISTA, social rehabilitation, and human resources development.

BACHELOR OF ARTS DEGREE REQUIREMENTS

Units

S Wel 20, 123, 130, 135, 140, 141, 170, 175, 176, 181 (10 units), 185 41

Additional Requirements: (24 units) URP 100, Introduction to Urban and Regional Planning (3); nine units of ethnic content, three of which must be from approved La Raza courses, three of which can be chosen from approved ethnic studies courses, and three of which must be from designated social welfare courses in Social Welfare 122T which have ethnic content within a social work frame of reference; one three-unit course from approved courses in at least two of the following areas: anthropology, economics, philosophy, political science, psychology, social welfare, sociology, women's studies (18 units total, at least 12 upper division). Two additional electives from the foregoing areas or from criminology or urban and regional planning (6 units upper division). It is strongly recommended that students majoring in social welfare who have prior knowledge of Spanish but lack fluency, enroll in a conversational Spanish course.

COURSES

SOCIAL WELFARE (S Wel)

20. Introduction to Social Welfare (3)

Social, economic, political, historical, and philosophic components in development of social welfare and social work in western society.

122T. Topics in Social Welfare (3; max total 15)

Topics in fields of social work practice, basic social work theories and social work methods.

123. Seminar in Social Welfare Policies and Programs (3)

Open only to Social Welfare majors. Prerequisite: S Wel 20. Basic policies and major programs in contemporary social welfare; consumption, income supports, job provision, housing, health, civil rights, consumer advocacy, population control, environmental standards; principles of social security, administration of social services, roles of government and citizen participation.

124. Proseminar in Interviewing (3)

Seminar in principles of interviewing. Conduct, analysis and presentation of interviews, and case studies.

128. Child Welfare (3)

History, development and provision of child welfare services in the United States. (Former S Wel 122T section)

130. Seminar in Social Work Processes (3)

Open only to Social Welfare majors. Prerequisite: S Wel 20. Introduction to social work intervention.

135. Human Behavior and the Social Environment (3)
Open only to Social Welfare majors. A general systems approach focused on the interaction of biological, psychological and cultural phenomena with individuals, small groups, complex organizations and communities. (Former S Wel 122T section)

140. Seminar in Micro Practice (4)
Open only to senior Social Welfare majors. Prerequisite: Social Welfare 130. Cannot be taken concurrently with Social Welfare 141. Seminar emphasizing integration of human behavior and social environment theories with principles of beginning social work practice with individuals, families, and small groups.

141. Seminar in Macro Practice (4)
Open only to senior Social Welfare majors. Prerequisite: Social Welfare 130. Cannot be taken concurrently with Social Welfare 140. Analysis of and interventive strategies in large groups, organizations, and the community.

170. Field Observation (2)
Open only to Social Welfare majors. Prerequisite: junior standing and permission of instructor. Introduction to field practice with emphasis on observation and beginning social work practice in various community settings.

175. Seminar in Social Work Research (3)
Open only to Social Welfare majors. Prerequisite: S Wel 20. Research design in social work; sampling, instruments for data collection.

176. Seminar in Data Analysis and Presentation (3)
Open only to Social Welfare majors. Prerequisite: S Wel 20, 175. Introduction to statistical methods and computer utilization. Application of research methods to problems of program development and evaluation with a focus on analysis and interpretation of data.

180. Training in Public Services (1–2; max total 5)
Prerequisite: S Wel 20. Planned and supervised experience or study in a field of occupational specialization.

181. Field Instruction (5; max total 10)
Open only to senior Social Welfare majors. Prerequisite: Social Welfare 170. Five units to be taken in conjunction with Social Welfare 140; 5 units in conjunction with Social Welfare 141. Guided social work practice experience with individuals, groups, families and organizations in the community.

185. Capstone Seminar (3)
Open only to Social Welfare majors. Prerequisite: senior standing, five units of Social Welfare 181. Culminating senior seminar integrating theory and practice of social work, current trends in the profession.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

SOCIAL WORK PROGRAM

FACULTY

John E. Lindberg, Coordinator

Andrew A. Alvarado, Clifford V. Bonham, Robert L. Hatmaker, Sudarshan Kapoor, Joyce Kerchaw, Aleanor R. Merrifield, Erving C. Ruhl, Barbara K. Varley, Ganesha Visweswaran, James W. Whitehead

MASTER OF SOCIAL WORK DEGREE

The Master of Social Work Degree prepares social workers for clinical social work, social planning, social administration, social work with groups, marriage and family therapy in such areas as mental health, physical health, family service, schools, child welfare, medical and hospital programs, social work in correctional programs, public welfare, social work education, rehabilitative social work, programs for the aging, social work in minority communities, rural social work, drug abuse and alcoholism programs, manpower training, income maintenance.

The graduate program normally requires two years of full-time enrollment. A limited number of students, however, may enter the program on a part-time basis; for such students a full-time schedule may be necessary during the field placement period. All students take required courses in social welfare policy, human behavior and social environment, and research, in addition electing a practice emphasis in either micro practice (clinical), which deals with small social systems (individual, family, small groups), or macro practice (social planning and administration), which deals with large social systems (formal organization, community), with opportunity to crossover between these two as well as to take other electives. In the second and third semesters, a four-day-a-week practicum is scheduled at a social agency within the university's service area. All students are required to complete an individual thesis or project (299) or a thesis alternative involving individual or group research (297).

Eligibility for admission to the program is based upon an acceptable score in the Graduate Record Examination Aptitude test, specified grade point average at the undergraduate level, academic and personal suitability for the field as determined by the social work faculty, and completion of a bachelor's degree in social welfare *or a related discipline.* Non-social welfare majors may be required to complete prerequisite courses prior to entering the program or during the first semester of graduate studies.

For further information, consult the Coordinator, Social Work Program. For general requirements, see *Division of Graduate Studies and Research.*

COOPERATING AGENCIES

Social agencies throughout the San Joaquin Valley participate in the social welfare and social work training programs by providing field experience and instruction: Atascadero State Hospital; Big Brothers of Fresno; California State: Department of Corrections, Human Resources Development, Social Welfare, Youth Authority; California State University, Fresno; Educational Opportunity Program, Clovis Unified School District; Fresno City Unified School District; Fresno City College EOP/SS and Women's Center; Fresno Community Council; Fresno Community Hospital; Fresno County: Family court, Mental Health Department, Probation Department, Welfare Department, Valley Medical Center; Infant of Prague; Kings View Mental Health Services; Madera County Welfare Department; Merced County Welfare Department; National Association of Social Workers; National Organization of Women; Parlier Community Center; Pastoral Counseling Service; Planned Parenthood of Fresno; private convalescent hospitals; St. Agnes Hospital; Valley Children's Hospital and Child Guidance Clinic; Veterans Administration Hospital; The Associated Center for Therapy; Commission on Aging; Gerontology programs; Rural Social Work programs; Rural Health Clinics; Fresno City Government; Westside Rural Health Council; Economic Opportunity Commission; Merced County Mental Health and Human Services; Tulare County Executive Office and Mental Health Department; Stanislaus County Mental Health Department; Fresno Employment and Training Commission; Central Valley Regional Center; Health Systems Corporation. In addition, other agencies cooperate in the program.

SEQUENCE OF GRADUATE COURSES FOR MASTER OF SOCIAL WORK DEGREE

Semester	*SWrk Coursework*	*Units*
1	Required: 200, 211, 212	
	Choose: 210, 223, *or* 233, 293	16
2	Required: 250 (8 units), 292	
	Choose: 228 *or* 234	14
3	Required: 251 (8 units)	
	Choose: 236 *or* either of 226, 227	
	Choose: 299 (3 units) and 290 (one unit)	
	or 297 (2 units) and 290 (2 units)	15
4	Required: 203	
	Choose: 229 *or* 235	
	Choose: 299 (3 units) and electives* (6 units)	
	or 297 (2 units) and electives* (7 units)	15
	Total	60

SOCIAL WORK (S Wrk)

Note: Admission to the MSW program is prerequisite to all graduate courses. Exceptions may be authorized by the Coordinator.

200. Social Welfare Policy I (3)

Analysis of major social welfare policies; includes consideration of legislative history, social, political and economic factors, court decisions and administrative implementation. Comparison of various policy analysis frameworks; the legislative process and involvement of social workers therein.

203. Social Welfare Policy II (3)

Prerequisite: S Wrk 200. Analysis of social agency policy. Board and administrative policy; internal and external influences on development; role of staff, particularly direct-service practitioners, in policy development and revision; impact of policy decisions on service delivery system.

210. Seminar in Behavioral and Environmental Concepts (3)

Concepts of health and disease in a bio-psycho-social and environmental context for social work practice with small systems; emphasis on theories of deviance and pathology.

211. Seminar in Social and Cultural Factors in Social Work (3)

Ethnic, racial, socio-economic class and gender influences on behavior and their implications for social work practice.

212. Seminar in Small Group Behavior (3)

Analysis of structural properties, interactional dynamics and developmental processes of small groups in social work practice.

223. Seminar in Clinical Social Work Practice (4)

Historical development of dominant theories of social work practice. Primary focus on short-term and crisis intervention with individuals.

226. Seminar in CSW Group Therapy (3)

Analysis of the theories, practice, principles and techniques of clinical social work practice with small groups.

227. Seminar in CSW Marriage and Family Therapy (3)

Analysis of theories, practice, principles and techniques of clinical social work practice with couples and families.

* Electives may be selected from SWrk 271T, 272T, or from other departments, subject to approval.

GRADUATE COURSES

228. Seminar in Advanced Clinical Social Work Practice (3)
Prerequisite: S Wrk 223. Advanced study of theories of psychotherapy and social work practice for intensive treatment.

229. Seminar in CSW Alternate Methods (3)
Prerequisite: S Wrk 223. Analysis of alternate methods affecting clinical social work practice.

233. Social Planning and Administration I (4)
Historical context of social welfare administration; administrative theories and their relevance to social welfare organizations; managerial functions performed in social welfare agencies. Instruction balanced between theory and experiential exercises.

234. Social Planning and Administration II (3)
Prerequisite: S Wrk 233. Organizational analysis in social welfare. Analysis of social service organizations, theories of organization and their application to human service agencies as differentiated from other organizations; emphasis upon organizational change.

235. Social Planning and Administration III (3)
Prerequisite: S Wrk 233. Social welfare planning. Planning for the agency program and the community, based on needs assessment; sectoral, comprehensive and systems approaches to social planning; application of specific techniques of planning to community and organizational settings; selected case studies and analysis of plans in areas such as aging, health, alcoholism, criminal justice.

236. Social Planning and Administration IV (3)
Interpersonal elements in social welfare administration. Knowledge and skills in human relations essential to social welfare administration; application to personnel management, interpersonal and public relations, involvement of citizen participation in the agency program.

250. Field Instructed Practice (4–8; maximum total 8)
Advanced field instructed practice experience in work with individuals, groups, families, formal organizations and communities; applying the theories and concepts of social work practice.

251. Field Instructed Practice (4–8; maximum total 8)
Prerequisite: S Wrk 250. Continued advanced field instructed practice experiences in work with individuals, groups and families, formal organizations and communities, applying the theories and concepts of social work practice.

271T. Seminar in Social Work Specializations (3)
In depth study of specific treatment modalities or methods, e.g., community organization, community development, crisis intervention, personality adjustment.

272T. Seminar in Areas of Social Work (2)
Theories and developments in the areas of mental health, public health, administration of justice, child welfare, family welfare, income maintenance, schools, international social work, social gerontology, social rehabilitation.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

292. Evaluative Research (3)
A course designed to expose students to a variety of design strategies applicable to assessing the outcome of social services intervention. Review and critique of existing evaluative literature as well as the development of an evaluation plan for a specific social service will form the basis of the course.

293. Research Project Design (3)
A course designed to prepare students to develop potentially fundable grant proposals in the social services and to expose them to a variety of potential funding services and approach strategies. Preparation and evaluation of grant proposals will constitute the basis of the course.

297. Thesis Alternative: Directed Research in Social Work (2–4; max total 4)

Prerequisite: S Wrk 292. Group or individual research having direct applicability to social work practice and/or issues. Individual and/or group conferences with research committee. Submission of an acceptable research proposal and completed document required.

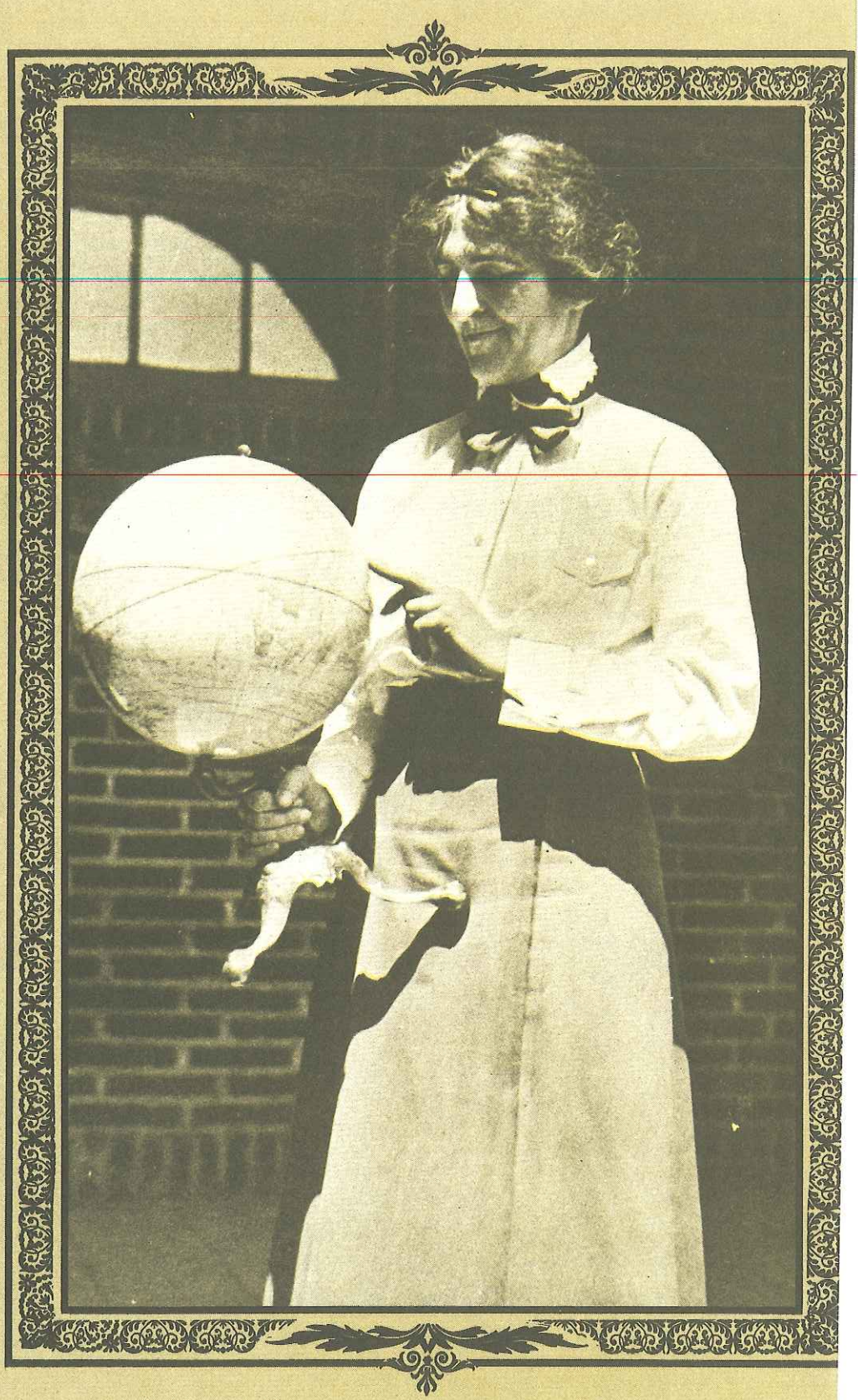
299. Thesis or Project (3–6; max total 6)

Prerequisite: S Wrk 292. See *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES

(See *Course Numbering system.*)

301. Seminar in Social Work Topics (1–3)



SCHOOL OF NATURAL SCIENCES

Photo: *Marian Powell—Supervisor, Training School*
Fresno State Normal School, circa 1917



SCHOOL OF NATURAL SCIENCES

Brandt Kehoe, Dean

Department	*Chairman*
Biology	Jerrome Mangan
Chemistry	Stanley M. Ziegler
Geology	Robert D. Merrill
Mathematics	Anthony E. Labarre, Jr.
Physics	Floyd L. Judd
Psychology	William C. Coe

SCHOOL PROGRAMS

The School of Natural Sciences provides for study in the disciplines of Biology, Chemistry, Geology, Mathematics, Physics, and Psychology.

Instruction in these disciplines is designed to accomplish either of two objectives. The first is to provide enough professional training, at either the undergraduate or graduate level, to serve as a foundation for a career in the discipline or for continued study at the graduate level in pursuit of advanced degrees. The second is to provide a means for all university students to gain an understanding of the world of science and to give students specific skills for use in related disciplines.

Interdisciplinary Study. The School also offers the opportunity for interdisciplinary science study in courses designed to meet student interest in such areas as environmental studies and ecology, science for public school teachers, and science for health professions.

Students interested in developing an interdisciplinary degree program through the Special Major should contact the Dean.

Man and the Natural Environment *(17 unit thematic cluster)*

This cluster of intensive field courses is presented at the introductory level. Concurrent registration in the four courses listed below is required. Involves approximately one month in the field. Expenses for transportation and food in the field of approximately $100 should be anticipated. For further information, contact Dean, School of Natural Sciences.

N Sci 15 Environmental Science:.An Integrative Course (2)
Anth 15 Man's Place in the Natural Environment (5)
Biol 15 An Ecological Approach to Life Science (5)
Geol 15 The Earth and Its History (5)

COURSES

NATURAL SCIENCE (N Sci)

1. The Art of Medicine (1; max total 4)

Primarily for prehealth-care students. Delivery of health care today. Concepts of the art of medicine presented by community physicians and specialists.

15. Environmental Science: An Integrative Course (2)

Concurrent enrollment in Anth 15, Biol 15, Geol 15 required. Portion of *Man and the Natural Environment* Cluster. A study of the interrelationships among the anthropological, biological and geological aspects of man and the natural environment. Team taught.

37. Math Confidence (2) (Same as W S 37)

Concurrent enrollment in a math class commensurate with the student's math achievement level is recommended but not required. This course is designed to increase confidence in math-related problem solving situations and to increase the student's potential for participation in math-related courses and/or careers. (May include lab hours) (Former EXP 37, W S 55T section)

40T. Topics in Natural Sciences (1–4; max total 12)
Prerequisite: permission of instructor. Interdisciplinary topics covering such subject matter areas as environmental studies and the impact of science on society.

110A. Practicum in Medicine I (2)
Prerequisite: permission of instructor. Offered in association with the UC Medical Education Program. Pre-med students assigned in teams to varied clinical settings in the community with an emphasis on medical-social issues of health care: administration, assessment of health needs, delivery settings.

110B. Practicum in Medicine II (2)
Prerequisite: permission of instructor. Offered in association with the UC Medical Education Program. Pre-medical students assigned on an individually arranged basis in one or more clinical settings in the community. Emphasis on in-depth association with health professionals for clinical observation and understanding of selected health career opportunities.

140T. Topics in Natural Sciences (1–6; max total 12)
Prerequisite: permission of instructor. Interdisciplinary topics covering such subject matter areas as medical technology and ecology. (May include lab hours)

141. Chemistry and the Consumer (2)
Prerequisite: Chem 2C, 8 or 28. A course designed to give the student an appreciation of the impact of chemistry on society. May include discussions of petrochemistry and the source of chemicals, foods as chemicals, food additives, drugs, agricultural chemicals, chemical ethics, and current topics of interest. (Former Chem 140T section)

240T. Topics in Natural Sciences (1–4; max total 8)
Prerequisite: permission of instructor. Interdisciplinary topics in the natural sciences at the graduate level covering such subjects as advanced techniques. Sample topics are *Radiation Techniques in Biology and the Physical Sciences* and *Recent Advances in Psychophysiology.* (May include lab hours)

NEXA Courses. See *Special Programs.*

BIOLOGY

FACULTY

Jerrome Mangan, Department Chairman

Gina Arce, Donald J. Burdick, Gregor M. Cailliet, John H. Carr, S. Fai Cheuk, David L. Chesemore, Corinne Clay, William K. Collin, Stephen H. Ervin, Ronald L. Evans, David E. Grubbs, Richard Haas, Ethelynda E. Harding, Wallace M. Harmon, Howard L. Latimer, Thomas E. Mallory, J. Robert McClintic, Ronald W. Meyer, Frederick E. Schreiber, Richard A. Spieler, Keith M. Standing, Bert A. Tribbey, Vivian A. Vidoli, Lorraine Wiley, Keith H. Woodwick

DEGREES OFFERED BA in Biology; BS in Microbiology; MA in Biology and Microbiology; MS in Marine Sciences; Minor in Biology

Options (under the BA degree in Biology)
- Biological Science
- Botany
- Environmental Biology
- Functional Biology
- Microbiology
- Zoology

DEPARTMENTAL PROGRAMS

The Biology Department provides a diversified but integrated program encompassing avenues of preparation for a wide variety of careers in professional areas such as medicine, nursing, dentistry, veterinary medicine, medical technology, and many other allied health sciences fields, for teaching, for work with various governmental agencies and private companies, and as preparation for advanced degrees and careers in research.

In addition to the general education offerings, the department offers the biology major and minor for the bachelor of arts degree; the bachelor of science degree in microbiology for students planning careers in microbiology and laboratory technology; the master of arts degrees in biology and microbiology; and a master of science degree in marine sciences.

Faculty advising plays a major role in the department to assist students in preparing for the numerous careers possible in biology. Students should obtain faculty advisors as early as possible in their academic careers and consult with them at least once each semester for assistance in selecting courses and programs that will prepare them for their vocational objectives. Consult the department chairman for advisor assignment.

To assure satisfactory progress, students intending to transfer from community colleges should attempt to complete the following requirements prior to transferring: general education; constitution and government; and the required lower division courses in biology and other fields for their selected departmental program.

On the graduate level the department offers a master of arts degree program in biology and microbiology amd a master of science degree program in marine sciences (see degree information under appropriate heading and *Division of Graduate Studies and Research.*)

Six of The California State University and Colleges, including California State University, Fresno, cooperate in the management of the Moss Landing Marine Laboratories on Monterey Bay, an establishment which offers regular course work and opportunities for research which are applicable to graduate and undergraduate programs. For information, consult the department chairman. See *Special Programs—Moss Landing Marine Laboratories;* course descriptions follow Zoology courses.

PREPROFESSIONAL PREPARATION

A major in the biological sciences is often used as preparation for other professions. For preprofessional programs in dentistry, medicine, and pharmacy, see the *Preprofessional Preparation* section and consult an advisor in the biology department.

CREDENTIAL PROGRAM

The single subject waiver program for Life Science (Biology) consists of Bot 1; Zool 1; Biol 105, 130, 135, 140, 162; Micro 20 or 104; Chem 2A–B, 8; Geol 1 or 2; Math 70, 101 or Psych 142; Phys 1A–B or 2A–B and one course from each of the following: (1) Biol 125, 133, Bot 107,

Zool 138, 175, M Sci 103; (2) Biol 160, 175; Bot 104, 137, Ent 110, Phy 140, Micro 161, 189; (3) Bot 106, 134, 135, 136, Ent 101, Zool 103, 113, 114

UNDERGRADUATE PROGRAM

The Biology Department offers a major for the bachelor of arts degree in biology, with options in biological science, botany, environmental biology, functional biology, microbiology, and zoology. Core courses required in all options provide the concepts, terminology, and experiences necessary to handle specialized biological material covered in advanced courses in each option. Selection of options, and of course patterns within options, will provide the required degree of specialization for entering graduate schools and research, professional schools, and vocations requiring a biological background. Students are encouraged to work closely with their faculty advisor in the selection of electives and course alternatives that will best prepare them for their future objectives. The Biological Science option is recommended for students planning to enter secondary teaching and other careers requiring a broad coverage of biology; the Environmental Biology option is suitable for careers in fish and game management, other occupations requiring a predominantly biological orientation to the environmental sciences, and in marine biology through offerings at the Moss Landing Marine Laboratories; the Functional Biology option provides an in-depth coverage of physiology and cellular biology; options in Botany, Microbiology, and Zoology serve as preparation for careers and graduate work in these specialties. Students must be reasonably prepared in inorganic and organic chemistry, mathematics through introductory calculus, and statistics. Those students planning to pursue graduate work in biology should consult with their advisor and review the entrance requirements of the graduate school of their choice regarding additional requirements in foreign language, physics, mathematics, and special requirements in biology.

See bachelor of science degree in microbiology.

BACHELOR OF ARTS DEGREE (in Biology) REQUIREMENTS

The biology major consists of 40–44 units, depending upon the option, of which a minimum of 24 units must be upper division. To complete the major for the BA degree students must complete the biology core, one of the options listed below, and additional requirements in related fields as specified in the selected option.

Biology Core	*Units*
Bot 1 or equivalent	3–5
Zool 1 or equivalent	3–5
Biol 130*, 135, 140	7
	13–17

* Biol 130 is not required in the Microbiology option.

Options

Biological Science. Students must include a minimum of 6 ud Botany units and 6 ud Zool-Ent-Phy units in this option.

Biology Core	13–17
Micro 20 or 104	4–5
Select a minimum of one course from each of the following categories:	
A. Biol 125, 133; Bot 107; Zool 138, 175; M Sci 103	3–4
B. Biol 160, 175; Bot 104, 137; Ent 110; Phy 140; Micro 161, 189; M Sci 123	3–4
C. Bot 106, 134, 135, 136; Ent 101; Zool 103, 108, 113, 114; M Sci 111, 124, 131	3–4
Biological Science electives	6–15
	40

Additional requirements: Chem (including organic); Math 70 or 75; Math 101 or Psych 142.

Botany

Biology Core	13–17
Upper division electives selected from Biol, Micro, Zool-Ent-Phy courses	6
Botany 104	4
Select a minimum of one course from each of the following categories:	
A. Bot 106, 107	3–4
B. Bot 134, 136, 137	3–4
C. Bot 135, 140, 142; M Sci 131	3–4
Additional Botany electives	1–7
	40

Additional requirements: Chem (including organic); Math 70 or 75; Math 101 or Psych 142.

Environmental Biology

Biology Core	13–17
Select a minimum of one course from two of the following categories:	6–8
A. Bot 106, 142; M Sci 131, 132	
B. Ent 101, Zool 114, M Sci 124	
C. Zool 103, 113; M Sci 111	
Select a minimum of one course from two of the following categories:	6–8
A. Biol 133; Zool 136; M Sci 103, 161	
B. Bot 107	
C. Zool 134, 138	
Select one course from: Bot 104, Phy 140, Micro 20 or 104; M Sci 123	3–4
Additional Biological Science electives	3–12
	40

Additional requirements: Chem (including organic); Math 70 or 75; Math 101 or Psych 142; and a minimum of one additional course selected from Math 20; Phys 1A or 2A; M Sci 101, 151; Geol 1, 105; Plant 138.

Functional Biology

Biology Core	13–17
Select at least two courses from Biol 160, 175, Micro 104, 189	7–9
Select at least two courses from Bot 104, Ent 110, Phy 140, Micro 161, M Sci 123	7–8
Additional Biological Science electives	6–12
	40

Additional requirements: Chem 1AB, 28, 128, 105, 109, 150 or 155; 8 units Physics; Math 70 or 75; Math 101 or Psych 142.

Microbiology

Biology Core*	11–15
Micro 104, 125, 161, 189	17
Select two courses from Bot 140, 142; Ent 107; F Sci 170, 171; H S 109; Micro 117, 118, 130, 150, 185; Plant 181; Zool 107, 108, 115, 158	6–10
Select at least one ud Biology Department course other than those listed above	3–6
	40–45

Additional requirements: Chem 1AB, 8 (or 28 and 128), 105, 109, 155, 156; Phys 1AB or 2AB; Math 70 or 75; Math 101 or Psych 142.

* Biol 130 is not required in the Microbiology option.

Zoology

Biology Core	13–17
Upper division electives selected from Biol, Micro, or Bot courses	6
Select a minimum of one course from each of the following categories:	
A. Ent 110, Phy 140, M Sci 123	3–4
B. Ent 101, Zool 108, 114, M Sci 124	3–4
C. Zool 103, 113, 160; M Sci 111	3–4
Additional Zool-Ent-Phy electives	5–12
	40

Additional requirements: Chem (including organic); Math 70 or 75; Math 101 or Psych 142.

SUGGESTED SEQUENCE OF COURSES FOR BACHELOR OF ARTS DEGREE MAJOR

In addition to courses required for the major, general education requirements and electives should be included to bring total to 15–17 units per semester. A total of 124 units must be included for the bachelor of arts degree. Electives may include minor and credential requirements. (See *Degrees and Credentials*).

During the first two years, students should attempt to complete most general education requirements; the constitution and government requirements; Zool 1 and Bot 1; and all additional lower division requirements in the option they have selected. Biol 130, 135, 140, and Math 101 or Psych 142 should be completed as early as possible after becoming eligible to receive upper division credit, preferably no later than the end of the third year. The remainder of the third and fourth years should be spent completing requirements for the selected option, and electives in biology and other fields.

BACHELOR OF SCIENCE DEGREE (in Microbiology) REQUIREMENTS

The bachelor of science degree in microbiology is offered for students preparing for careers in microbiology and laboratory technology, especially clinical laboratory technology. This degree requires 128 units. With judicious selection of electives, this major may also serve as preparation for graduate study and public health or industrial microbiology careers. Such careers would include the fermentation industries, pollution control, food technology, biologics production, and others.

Microbiology Major for the BS Degree	*Units*
Micro 104, 117, 118, 150, 185	22
Phy 65	5
Zool 1, 107, 158	12
	39

Additional requirements: Bot 10; Chem 2AB, 8, 105, 109, 150, 151, 153, 154 Phys 125 (see General Education Requirements).

The General Education requirement, special course requirements, and electives, which may include a minor, complete the 89 units, totaling the 128 units required for the BS degree.

SUGGESTED SEQUENCE OF COURSES FOR BACHELOR OF SCIENCE DEGREE MAJOR

1st year: Bot 10, Zool 1; Chem 2AB
2nd year: Chem 8, 105, 109; Micro 104, Phy 65
3rd year: Micro 117; Phys 125; Zool 107, 158
4th year: Micro 118, 150, 185; Chem 150, 151, 153, 154

BIOLOGY MINOR

The biology minor consists of a minimum of 20 units of which 12 must be upper division.	*Units*
Bot 10 and Zool 10 or equivalents	6–10
An approved field course (see below)	3–4
Biol 130 or Micro 104, Biol 135, 140	7–10
Biology electives (ud)	0–4
	20

Approved Field Courses: Biol 133, Bot 106, 107, Ent 101, Zool 113, 114, 134, 135, 137, 138, 140, 165.

MASTER OF ARTS AND MASTER OF SCIENCE DEGREES

The Biology Department offers master of arts degrees in biology and microbiology and a master of science degree in marine sciences.

GRADUATE PROGRAMS

The master of arts degree program in biology is designed to extend competence for biological research, biological field work, the teaching of biological science, and to provide a basis for advanced graduate study at a university offering the doctoral degree.

The master of arts degree in microbiology functions to provide advanced educational opportunities for certain in-service people (e.g., medical technologists) as well as those newly completing the baccalaureate degree. The curriculum is designed to meet the needs of a variety of such people, including those seeking the master of arts degree as a terminal graduate degree for professional advancement as well as those planning further education leading to the doctorate in bacteriology, microbiology, or molecular biology.

The master of science in marine sciences degree program will provide a practical and theoretical education for marine specialists, scientists and teachers planning to enter marine-related careers or fields of study. This program provides extensive field and laboratory work by taking full advantage of Moss Landing Marine Laboratories' unique location which allows immediate access to deep water over the Monterey Submarine Canyon, to Elkhorn Slough and to a wide range of ocean and coastal environments. Students will be exposed to interdepartmental work and a field facility for advanced study in the marine sciences which would be impossible to duplicate at the home campus of California State University, Fresno.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

MASTER OF ARTS DEGREE (in Biology) REQUIREMENTS

The master of arts degree program in biology assumes preparation equivalent to a CSUF undergraduate major in biology. Students having undergraduate majors in fields other than the biological sciences may enter the program, but may reasonably expect additional requirements to produce equivalent preparation. Academic breadth in the biological sciences is assumed to be part of the student's undergraduate preparation.

After obtaining a list of specific departmental requirements from the chairman of the graduate committee of the Biology Department, the student, under the direction of a graduate adviser, prepares and submits a coherent program individually designed within the following framework:

	Units
Courses in 200-series (See *specific requirements*)	15
Electives	15
Total (at least 18 units in biological sciences)	30

Specific Requirements: Biol 299. Other courses will be specified upon examination of the student's record and in accordance with the recommendation of the advisory committee.

MASTER OF ARTS DEGREE (in Microbiology) REQUIREMENTS

The successful completion of courses judged to be equivalent to the chemistry and physics requirement in the microbiology major for the BA degree and to Microbiology 104 and 161, as given at CSUF, is the basis for determining the acceptability of background preparation for the curriculum for the master of arts degree in microbiology. Students whose backgrounds are judged deficient will be required to clear the deficiency as an added prerequisite for advancement to candidacy.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis Alternatives.*)

In consultation with the thesis committee the student prepares and submits a coherent program individually designed within the framework given below:

	Units
Required courses in microbiology, 200-series (See *specific requirements*)	11
Course in chemistry or mathematics, or physics	3

Electives	16
Total (at least 15 units in 200-series)	30

Specific Requirements: Micro 256, 260, 281 (2 enrollments required), 299. It is the student's obligation to negotiate and arrange for his or her own thesis adviser and committee.

MASTER OF SCIENCE DEGREE (in Marine Sciences) REQUIREMENTS

Entrance into this degree program assumes academic preparation equivalent to an undergraduate major in the area appropriate to the graduate program established. Specific requirements in addition to this academic preparation may be obtained from the Graduate Coordinator of the Department of Biology. The student, under the direction of a graduate advisor from Moss Landing Marin Laboratories, will prepare and submit a coherent program, individually designed, within the following framework:

	Units
Courses in 200-series (including 2 units of M Sci 285, 286 or 287 and 4 units of M Sci 299)	15
Electives (courses in the 100 or 200 series) approved by the thesis committee	15
Total	30

Prerequisite requirements for classified graduate status: M Sci 101, 102 and 104.

COURSES

BIOLOGY (Biol)

10. Life Science (3)
Not open to students with credit in Bot 1 or Zool 1. Principles of biology related to the cell, maintenance, and relation of living organisms, heredity and elementary processes of evolution, and basic principles of ecology. (2 lecture, 2 lab hours)

15. An Ecological Approach to Life Science (5)
Concurrent Enrollment in Anth 15, Geol 15, N Sci 15 required. Portion of *Man and the Natural Environment* Cluster. An introduction to biological concepts and investigational methods in the natural environment. Lecture, lab, and field work. (See *Man and the Natural Environment.*)

20. Biology and Society (3)
Not open to biology majors or to students with credit in Biol 105. Impact of recent biological discoveries upon society, now and for the future; man's animal inheritance, human genetics, genetic engineering, organ transplants, and population problems.

101. Nature Study (3)
Not open to biological or physical science majors or minors.
Evaluation of natural science programs at the elementary level; optional opportunities in developing K-9 environmental study material or designing environmental awareness topics for adult groups; emphasis on life science programs dealing with the interaction of man and the biosphere. (2 lecture, 3 lab hours)

105. Human Ecology (3)
Not open to students with credit in Biol 20. The study of the relationships between humans and their environment, both natural and man-made; emphasis on scientific understanding of root causes of current environmental problems.

107. Heredity and Society (3)
Prerequisite: college biology, zoology, or botany. Principles of genetics and evolution as they apply to human society, thought, experience, and affairs. Ethical, social, political, and medical problems in relation to genetic engineering and other techniques. (Former Biol 185T section)

120. Introduction to Genetics (3)
Not open to biology majors and students with credit in Biol 135. Prerequisite: college zoology or botany. Principles of biological inheritance, including gene structure, gene function, statistical methods, problem solving, and human genetics.

122. Fundamentals of Human Genetics (3)

Prerequisite: college biology, zoology, or botany. Intended primarily for students in the health fields or biology. Meiosis, mitosis, chromosomes and genes. Mutations and familial diseases. Pedigrees, inbreeding, multiple genes, sex determination, blood group alleles, linkage and mapping, twins, cytogenetic and other diseases, genetic counseling.

125. Evolution (3)

Biol 120 or 135 recommended. Evolutionary processes and patterns. (2 lecture, 1 discussion hour)

130. Introduction to Cell Biology (2)

Not open to students with credit in Biol 100. Prerequisite: Bot 1, Zool 1 and organic chemistry. Principles of cell biology at the molecular, cell organelle, and whole cell level. Includes material related to both procaryotic and eucaryotic cells.

133. Aquatic Ecology (4)

Prerequisite: Biol 140. Physical-chemical features of inland waters as related to their biology; community structure and function, ecological interactions, adaptations, and identification of aquatic organisms. (2 lecture, 6 lab or field hours, including weekend field trips *)

135. Genetics (3)

Not open to students with credit in Biol 120. Required of all biology majors. Prerequisite: Biol 130 or Micro 104. The mechanisms of inheritance. Modes of transmission of genetic material, linkage and recombination, sex determination, chromosome aberrations, immunogenetics, developmental genetics and population genetics.

140. Introduction to Ecology (2)

Prerequisite: Bot 1 and Zool 1. Major concepts related to structure, function, organization, and regulation at the population, community, and ecosystem levels.

150. Electron Microscopy (4)

Prerequisite: permission of instructor. Preparation and examination of biological specimens. Basics of electron microscopy and interpretation of electronmicrograms. (2 lecture, 6 lab hours)

155. Marine Biology (3)

Prerequisite: college biology, botany, or zoology. Introduction to the marine environment with emphasis on the biological aspects; systematics, ecology, and morphological and physiological adaptations of marine organisms, especially intertidal and shallow water forms; pollution; utilization of marine resources. (One field trip required)

157. Conservation of Natural Resources (3) (Same as T Ed 157)

Prerequisite: biological and physical science. Problems in conservation of natural resources in the United States; water supply, soils, minerals, metals, petroleum, natural gas, grasslands, forests, fisheries, wildlife, and recreational areas; local, state, and national plans and organizations for conservation; educational implications and techniques.

160. Developmental Biology (3)

Prerequisite: Biol 135. Investigations concerning the variety of mechanisms acting during the several stages of development of the living organism, from gamete formation to morphological and biochemical differentiation of organ systems; emphasis on differential genetic control.

162. Biological Methods and Techniques (3)

Open to credential candidates in the life science or physical science waiver program; course meets the professional education requirement of 30 units for the clear credential. Collection and preparation of biological materials and specimens for instruction. Designing and conducting laboratory investigations. Planning and directing field trips. (1 lecture, 6 lab hours)

* Late afternoon, Saturday and/or overnight field trips may be required.

175. Advanced Cell Biology (4)
Prerequisite: Biol 135 and organic chemistry. Advanced topics in cell biology, including cellular and molecular aspects of the following: muscle and non-muscle motility, membranes and cell surfaces, excitable cells and abnormal cells. Laboratory will emphasize molecular biological techniques. (3 lecture, 3 lab hours)

185T. Topics in Biology (1–4; max total 6)
Prerequisite: permission of instructor. Investigation of selected areas in the field of biology. (Lecture and/or Laboratory)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES (Biol)
(See *Course Numbering System—Definitions and Eligibility*)

200. Principles and Great Experiments in Biology (2)
Development and influence of current biological thought.

204. Biology of Speciation (2)
Prerequisite: Biol 135 and an evolution course. Evolution of the species as a unit of biological organization.

206. Biological Systematics (2)
Prerequisite: at least one upper division or graduate course having a phylogenetic component. Classification, nomenclature and taxonomic theory as applied to living organisms, their evolution and phylogeny.

208. Biological Field Studies (1–6; max total 6)
Prerequisite: permission of instructor. Integrated studies or specialized topics, including botanical, environmental, microbiological or zoological field studies.*

210. Parasitic Protozoa (3)
Prerequisite: Zool 108. A systematic survey of parasitic protozoa. (2 lecture, 3 lab hours)

212. Helminthology (3)
Prerequisite: Zool 108. A systematic survey of parasitic helminths. (2 lecture, 3 lab hours)

220. Insect Toxicology (3)
Prerequisite: Ent 101, Chem 8. General principles of toxicology; factors that affect lethality of poisons in insects and mammals; insecticide classification, mode of action and metabolism; environmental movement, degradation and biohazards; laboratory exercises on bioassay, data analysis and residue analysis. (2 lecture, 3 lab hours)

225. Insect Taxonomy (2; max total 4)
Prerequisite: Ent 101, 115. Identification and classification of major and specific groups of family and generic status. (6 lab hours)

240. Systems Ecology (3)
Prerequisite: Biol 140, Math 70. Quantitative approach to the analysis of whole ecosystems including data acquisition and statistical treatment, conceptual and mathematical ecosystem modeling, and computer simulations in FORTRAN or BASIC. No programming experience needed. (2 lecture, 3 lab hours)

250. Scientific Research Reporting (2)
Prerequisite: permission of instructor. Techniques of scientific drawing and writing, illustrating emphasized. (1 lecture, 3 lab hours)

* Late afternoon, Saturday and/or overnight field trips may be required.

255T. Topics in Botany (2–3; max total 8)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or Laboratory)

260T. Topics in Biology (2–3; max total 8)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or Laboratory)

265T. Topics in Physiology (2–3; max total 8)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or Laboratory)

270T. Topics in Zoology (2–3; max total 8)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or Laboratory)

272. Physiological Ecology of Vertebrates (2)
Prerequisite: Biol 140, Phy 140. An analysis of problems in and adaptations to arctic, alpine, marine, desert, tropical and disturbed ecosystems; matters of energy and water economy, respiratory, circulatory and sensory neuromuscular adaptations, and such topics as biological timing, migration and navigation. (Lecture/seminar: paper(s) required) (Former Biol 270T section)

274. Biometry (3)
Prerequisite: one statistics class, preferably Math 101. Application of statistical techniques to biological problems with emphasis on sampling, analysis of variance, experimental design, and regression techniques. Emphasis on analysis of real biological data and interpretation of results.

275. Zoogeography (3)
Prerequisite: Zool 113 or permission of instructor. Seminar in descriptive and ecological geography of animal groups.

280. Practicum in Life Science Education (2; max total 4)
Concurrent enrollment in S Ed 155B required. Course meets the professional education requirement of 30 units for the clear credential. Life science teaching methodology analyzed through use of live, unrehearsed videotape recordings. Local resources for potential field trips explored. Videotaped science laboratory facilities, equipment and materials discussed with representatives of scientific companies. (Former Biol 281T section)

281T. Seminar in Biological Science (1; max total 5, max 2 in one field)
Prerequisite: permission of instructor. Reviews and reports on current literature in the various phases of biology.

282. Biology Colloquium (1; max total 2)
Experience in evaluation and critique of research presentations of students, faculty, and other scientists. Student must attend a minimum of ten approved research-oriented colloquia and participate in discussions and/or submit written reports.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis (2–4; max total 4)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

IN-SERVICE COURSES
(See *Course Numbering System*)

302T. Topics in Biology (3; max total 6)

BOTANY (Bot)

1. General Botany (5)
No credit if taken after a course that has college botany as a prerequisite. Students with credit in Bot 10 will receive only 2 units of credit. Prerequisite to most upper division botany courses. Fundamentals of structure and function in seed plants; survey of plant kingdom. (3 lecture, 6 lab hours)

10. Plant Biology (3)
Not open to students with credit in Bot 1. Structure, function, and development of plants. (2 lecture, 2 lab hours)

35. Ethnobotany (3)
The role of plants in past and present civilizations, using representative beneficial and injurious plants that have contributed to the development of human societies. (Former Bot 100)

104. Plant Physiology (4)
Prerequisite: college botany, Chem 1A or 2A–B; organic chemistry recommended. General metabolism and related processes. (2 lecture, 6 lab hours)

106. Plant Taxonomy (4)
Prerequisite: college botany. Principles of plant classification; local flora. (1 lecture, 9 lab or field hours *)

107. Plant Ecology (3)
Prerequisite: college botany. Interrelations of plants and environment. (2 lecture, 3 lab or field hours *)

116. Plant Microtechnique (3)
Prerequisite: college botany. Methods of preparing plant materials for microscopic examination, including tissue preparation, sectioning, staining, and photomicrography. (1 lecture, 6 lab hours)

134. Plant Anatomy (3)
Prerequisite: college botany. Structure and development of flowering plants at the cellular and tissue levels. (2 lecture, 3 lab hours)

135. Nonvascular Plants (3)
Prerequisite: college botany. Comparative structure and phylogeny of the fungi, algae, mosses, and liverworts. (2 lecture, 3 lab hours)

136. Vascular Plants (4)
Prerequisite: college botany. Morphology, reproduction, and evolution of the major groups of vascular plants (both living and extinct). Emphasis placed upon the seed plants. (2 lecture, 6 lab hours)

137. Plant Growth and Development (3)
Prerequisite: college botany. Processes involved in plant growth with emphasis on the development of form in higher plants and the experimental approach. (2 lecture, 3 lab hours)

140. General Mycology (4)
Prerequisite: college botany. Classification, structure, and development of representative fungi. (3 lecture, 3 lab hours)

142. Algology (4)
Prerequisite: college botany. Morphology, cytology, ecology, physiology, economic importance and cultivation of the algae. (2 lecture, 6 lab or field hours *)

* Late afternoon, Saturday and/or overnight field trips may be required.

145. Plant Tissue Culture (4)
Prerequisite: college botany. Aseptic culture for plant cell suspensions, callus and organs; problems of regeneration to obtain new plants; ploidy manipulation; applications for pathology, plant breeding, propagation, genetic engineering. (2 lecture, 6 lab hours)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

200. Series. Graduate courses are listed under *Biology.*

ENTOMOLOGY (Ent)

101. General Entomology (3)
Prerequisite: college zoology or one year of biology. Anatomy, physiology, life history, and classification of insects and other arthropods. (2 lecture, 3 lab or field hours *)

106. Economic Entomology (3) (See Plant 121)

107. Medical Entomology (4)
Arthropod-borne diseases of man and animals and arthropod vectors of the diseases. (3 lecture, 3 lab hours)

110. Insect Physiology (3)
Prerequisite: Ent 101. Principles of physiology as applied to insects; functions of insect body, tissues, and organs. (2 lecture, 3 lab or demonstration hours)

115. Insect Morphology (4)
Prerequisite: Ent 101. Comparative study of the form and structure of insects; external and internal anatomy. (2 lecture, 6 lab hours)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study*

200 Series. Graduate courses are listed under *Biology.*

MICROBIOLOGY (Micro)

20. Introductory Microbiology (4)
Not open to students with credit in Micro 104. Prerequisite: Chem 2A–B or 2A–C, plus a college course in the biological sciences. Introduction to microbiology; principles and selected applications. (3 lecture, 3 lab hours)

104. Microbiology (5)
For majors. Prerequisite: organic chemistry; Bot 10 or 1. Morphological and physiological consideration of the Schizomycetes and selected unicellular Eumycetes; techniques, illustration of principles, and determinative bacteriology in the laboratory. (3 lecture, 6 lab hours)

117. Immunology (4)
Prerequisite: Micro 104. Innate and specific immune response involved in cell mediated and humoral phenomena; illustration of principles and technique development in the laboratory. (2 lecture, 6 lab hours)

118. Bacteriology of Human Disease (5)
Prerequisite: Micro 104; Micro 117 recommended. Bacterial, etiological agents of human disease. (3 lecture, 6 lab hours)

125. Microbial Ecology (4)
Prerequisite: Biol 140 and Micro 104. Techniques of microbial ecology (field and laboratory); physiological ecology of microorganisms; interactions of microorganisms with abiotic and biotic factors in the environment; microbial habitats including soil, water, and organisms. (3 lecture, 3 lab hours *) (Former Micro 160T section)

* Late afternoon, Saturday, and/or overnight field trips may be required.

130. Industrial Microbiology (3)
Prerequisite: Micro 20. A study of the useful activities of microorganisms with special emphasis on fermentative processes, production of biologics, waste disposal, food processing, and single cell food sources. (2 lecture, 3 lab hours)

150. Medical Mycology (4)
Prerequisite: Micro 104; Micro 117 recommended. Morphology, physiology, and principles of pathogenicity of selected fungal agents of human and animal disease. (2 lecture, 6 lab hours).

160T. Topics in Microbiology (1–4; max total 4)
Prerequisite: permission of instructor. Investigation of selected areas in microbiology. (Lecture and/or Laboratory)

161. Microbial Physiology (4)
Prerequisite: Micro 104. Structure and physiological functions in the microbial cell. (2 lecture, 6 lab hours)

185. Virology (4)
Prerequisite: Micro 104; Micro 117 recommended. Inquiries into the unique nature of viruses; methods of analysis, structure, and replication. Virus-host interactions are described from bacterial, plant, and animal virus groups. Considerable emphasis is placed on diagnosis of viruses infecting humans including epidemiology and viropathology. (2 lecture, 6 lab hours)

189. Microbial Genetics (4)
Prerequisite: an introductory microbiology laboratory course, and Biol 135. The nature of genetic information, its mutation, transfer, and recombination in microbial cells. (2 lecture hours, 6 lab hours)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES (Micro)

(See *Course Numbering Systems—Definitions and Eligibility*)

256. Bacterial Diversity (3)
Prerequisite: Micro 161. Physiology, ecology, isolation and culture of metabolically and morphologically diverse bacteria. Term paper and research project required. (2 lecture, 3 lab hours)

258. Experimental Virology (3)
Prerequisite: permission of instructor; Micro 185, 189 recommended. Theory and application of experimental procedures used in bacteriophage, animal and plant virus research. Propagation and analysis of virus and viral components by modern technology; collection, interpretation and presentation of data. (1 lecture, 6 lab hours)

260T. Topics in Microbiology (2–3; max total 8)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or Laboratory)

281T. Seminar in Microbiology (1; max total 4 if no topic repeated)
Prerequisite: permission of instructor. Reviews and reports on current literature in the various phases of microbiology.

290. Independent Study (1–3; max total see reference)
See *Academic Placement—Independent Study.*

299. Thesis (2–4; max total 4)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

PHYSIOLOGY (Phy)

33. Human Anatomy and Physiology (5)
Not open to students with credit in either a human anatomy or human physiology course. An integrated study of the structure and function of the human body. (4 lecture, 3 lab hours)

64. Functional Human Anatomy (3)
Not open to students with credit in Phy 33. Primarily for students in the health related and biological professions. The life continuum from conception to death. A systems approach to the gross and microscopic structures of the human body. (2 lecture, 3 lab hours)

65. Human Physiology (5)
Not open to students with credit in Phy 33. College chemistry and human anatomy recommended. Homeostatis in the human body; how organ systems function to maintain life; dynamic and adaptive systems at the molecular, cellular and organ level. (4 lecture, 3 lab hours.)

140. Comparative Animal Physiology (4)
Prerequisite: Biol 130 and organic chemistry. Evolution of physiological systems; functional adaptations to different environments; physiological principles as applied to animals. (3 lecture, 3 lab hours)

155. Neuroanatomy (4)
Prerequisite: Anatomy and Physiology. Macroscopic and microscopic study of the structure and functional relationships of the mammalian nervous system. (3 lecture, 3 lab hours)

160. Neurophysiology (3)
Prerequisite: Phy 155. Advanced regulatory physiology of the central and peripheral nervous systems including modern developments in neuron physiology and function.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

200 Series. Graduate courses are listed under *Biology.*

ZOOLOGY (Zool)

1. General Zoology (5)
No credit if taken after a course that has college zoology as a prerequisite. Students with credit in Zool 10 will receive only 2 units of credit. Prerequisite to most upper division courses in zoology. Systematics, general ecology, and phylogeny of major animal groups, including comparative studies of vertebrates and a general integration of biological principles. (3 lecture, 6 lab hours)

10. Animal Biology (3)
Not open to students with credit in Zool 1. Structural and functional comparison of animals; principles and human implications of inheritance, evolution, and ecology; physiology as applied to man. (2 lecture, 2 lab hours)

103. Comparative Vertebrate Anatomy (4)
Prerequisite: college zoology. Comparative structure of vertebrate organ systems; laboratory study of representative vertebrates. (2 lecture, 6 lab hours)

107. Medical Parasitology (3)
Prerequisite: college zoology. Epidemiology, pathogenesis and identification of the parasites of man. (2 lecture, 3 lab hours)

108. Parasitology (4)
Prerequisite: college zoology, Chem 1A or 2A-B. A study of the general biology of symbiotic animals: their systematics, life histories, physiology, host relationships, and evolution. Laboratory exercises include both the microscopic examination of prepared materials and the performance of experiments illustrating the lectures. (2 lecture, 6 lab hours)

113. Natural History of Vertebrates (4)
Prerequisite: Biol 140. Systematics, distribution, morphology, behavior and ecology of fish, amphibians, reptiles, birds and mammals. Field work includes capture and sampling techniques, species identification and habitat analysis, and may require weekend field trips to coastal, desert and mountain environments. (3 lecture, 3 lab or field hours *)

114. Invertebrate Zoology (3)
Prerequisite: college zoology. Systematics, general ecology, and phylogeny of free living invertebrates (excluding insects), and including field studies of marine intertidal habitats. (2 lecture, 3 lab or field hours *)

115. Protozoology (3)
Prerequisite: Biol 130, 140. The biology of protozoan organisms. (2 lecture, 3 lab hours)

116. Zoological Microtechnique (3)
Prerequisite: college zoology. Methods of preparing zoological materials for microscopic examination, including tissue preparation, sectioning, staining, and photomicrography. (1 lecture, 6 lab hours)

130. Animal Behavior (3)
Prerequisite: Biol 140; recommended, one course in ecology or natural history. Principles of ethology with emphasis on mechanisms of behavior. (2 lecture, 3 lab hours *)

134. Wildlife Management (3)
Prerequisite: Zool 113. Ecological theory and its use in the management of wildlife resources. Field and laboratory exercises designed for the application of techniques used in research and in making management decisions. (2 lecture, 3 lab or field hours *)

135. Mammalogy (3)
Prerequisite: Zool 113. Ecology and evolution of the mammals of the world. (2 lecture, 3 lab or field hours *)

136. Fisheries Biology and Management (3)
Prerequisite: Zool 113, and permission of instructor. Biology of fishes in relation to their environment; physiological population and community ecology of fishes emphasized and related to principles, problems, and techniques of managing aquatic systems. (2 lecture, 3 lab or field hours, including weekend field trips)

137. Herpetology (3)
Prerequisite: Zool 113. Reptiles and amphibians of the world with emphasis on local species. (2 lecture, 3 lab or field hours *)

138. Animal Ecology (3)
Prerequisite: Biol 140. Studies of the environmental, behavioral and evolutionary factors influencing the distribution and population dynamics of animals. Field and laboratory exercises designed for the quantitative and qualitative description of ecological communities. (2 lecture, 3 lab or field hours *)

140. Ichthyology (3)
Prerequisite: Zool 113. Fishes of the world with emphasis on California fishes, freshwater and marine. (2 lecture, 3 lab or field hours *)

157. Histology (4)
Prerequisite: college zoology. Identification and study of vertebrate cells, tissues, and organs. (2 lecture, 6 lab hours)

* Late afternoon, Saturday and/or overnight field trips may be required.



158. Hematology (4)

Prerequisite: Phy 65; Micro 117 recommended. Development, structure, identification, and quantification of cellular blood elements; qualitative and quantitative considerations of hemoglobin, coagulation, and immunohematology. Procedural proficiency emphasized in the laboratory. (2 lecture, 6 lab hours)

160. Vertebrate Embryology (4)

Prerequisite: college zoology. Morphogenesis of vertebrates from gamete formation through organogenesis, including physiological and experimental aspects of development. Laboratory emphasis on frog, chick and pig. (2 lecture, 6 lab hours)

165. Ornithology (3)

Prerequisite: Zool 113. Introduction to the identification and natural history of birds with emphasis on local species. (2 lecture, 3 lab or field hours *)

175. Vertebrate Evolution (3)

Prerequisite: Biol 135; Zool 103 or 113. The course of evolution of the higher vetebrates including present concepts of speciation.

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study.*

200 Series. Graduate courses are listed under *Biology.*

MOSS LANDING MARINE LABORATORIES
COURSES

MARINE SCIENCES (M Sci)

Note: The following courses are offered at the Moss Landing Marine Laboratories. See Special Programs—Moss Landing Marine Laboratories; see also Geol 109. M Sci 101, 102, 103, and 104 usually recommended for first semesters of full-time students.

The Biology Department will accept only the following Moss Landing Marine Laboratories courses for major credit as indicated. Botany: M Sci 131, 132. Zoology: M Sci 111, 112, 113, 122, 123, 124, 125. Biology elective: M Sci 103, 104.

101. General Oceanography (4)

Prerequisite: college chemistry and biology. An interdisciplinary examination of physical and chemical characteristics of seawater, distribution and effects of ocean currents, geology of the ocean floor and relations of organisms to the marine environment. (3 lecture, 3 lab or field hours)

102. Marine Science Techniques (4)

Prerequisite: college chemistry and algebra. Introductory field and laboratory practice in the use of instruments for collection, analysis, and interpretation of data on the marine environment. (2 lecture, 6 lab hours)

103. Marine Ecology (4)

Prerequisite: ecology and statistics (or concurrent registration in M Sci 104). A field-oriented introduction to the interrelationships between marine and estuarine organisms and their environment with emphasis on quantitative data collection and analysis. (2 lecture, 6 lab or field hours)

104. Quantitative Marine Science (4)

Prerequisite: college mathematics. The mathematical methods for analysis of biological, chemical and physical data from the marine environment; experimental design, parametric and non-parametric statistics. (3 lecture, 3 lab or field hours)

105. Marine Science Diving (3)

Prerequisite: upper division science major; ability to pass swimming test. Not applicable to Biology major. Skin and SCUBA diving course; five ocean dives include underwater sampling and survey techniques. Successful completion gives NAUI and MLML certification. (1½ lecture, 2½ pool and ocean hours, and 5 Saturdays)

106. Subtidal Ecology (4)

Prerequisite: MLML Diver Certification, M Sci 103, and M Sci 124 or 131. Studies of communities in the sublittoral zone, stressing application of research techniques by the diver; field exercises in sampling, community analysis, and ecological surveys in space and time. Students will present seminars on their research projects. (2 lecture, 6 lab hours)

111. Zoology of Marine Vertebrates (4)

Prerequisite: college zoology; M Sci 103 recommended. Field-oriented study of the natural history, ethology, physiology, identification, and systematics of vertebrates living in or associated with marine, estuarine, and shore communities; interrelationships among organisms within these environments. (2 lecture, 6 lab or field hours)

112. Marine Birds and Mammals (4)

Prerequisite: upper division vertebrate zoology or M Sci 111; M Sci 103 recommended. Systematics, morphology, ecology and general biology of marine birds and mammals. (2 lecture, 6 lab or field hours)

113. Marine Ichthyology (4)

Prerequisite: M Sci 111. Taxonomy, morphology, and ecology of fishes. Both field and laboratory work concentrate on the structure, function and habits of marine fishes and the ecological interactions of these fishes with their biotic and abiotic surroundings. (2 lecture, 6 lab or field hours)

122. Marine Invertebrate Embryology (4)

Prerequisite: M Sci 124, cell biology or biochemistry strongly recommended. Survey of principles of developmental biology, concentrating on experimental evidence obtained using invertebrate material. Laboratory observations will cover the embryology of lower invertebrates, molluscs, crustacea, enchinoderms, and protochordates. (2 lecture, 6 lab or field hours)

123. Marine Invertebrate Physiology (4)

Prerequisite: M Sci 124 and general physiology. Comparative physiology of the invertebrates; laboratory problems on nutrition, respiration, osmotic regulation, coordination, and other physiological functions. General principles of physiology discussed using examples from the invertebrate phyla. (2 lecture, 6 lab hours)

124. Marine Invertebrate Zoology I (4)

Prerequisite: college zoology; M Sci 103 recommended. A field-oriented introduction to the structure, systematics, evolution and life histories of the major marine invertebrate phyla. (2 lecture, 6 lab or field hours) (Former M Sci 121)

125. Marine Invertebrate Zoology II (3)

Prerequisite: college zoology; M Sci 103 and M Sci 124 recommended. A field-oriented introduction to the structure, systematics, evolution and life histories of the minor invertebrate phyla. (1 lecture, 6 lab or field hours)

131. Marine Phycology (4)

Prerequisite: college botany; M Sci 103 recommended. The biology of marine algae with emphasis on identification, life histories, ecology, and systematics. (2 lecture, 6 lab or field hours)

132. Introduction to Marine Plankton (4)

Prerequisite: M Sci 101; M Sci 103 recommended. Identification, distribution and ecology of phytoplankton and zooplankton; introduction to sampling and analytical procedures. (2 lecture, 6 lab or field hours)

141. Geological Oceanography (4)

Prerequisite or concurrent: M Sci 101 and 102. Structures, physiography, and sediments of the sea bottom and shoreline. (3 lecture, 3 lab or field hours)

151. Marine Meteorology (3)

Prerequisite: M Sci 101. Introductory discussion of the interaction between ocean and atmosphere including exchange of heat, momentum and particles and their influence on waves and currents and on weather and climate. (2 lecture, 3 lab or field hours)

161. Marine Fisheries (4)

Prerequisite: college mathematics, M Sci 104, 111; M Sci 103 recommended. An introduction to fishery biology, including the concepts stock, recruitment, and yield; emphasizing the parameters abundance, age, growth, and mortality; discussion of hydrography and fishery ecology, management problems, world fisheries and mariculture; and collection and analysis of fishery data. (2 lecture, 6 lab or field hours)

171. Oceanographic Summer Cruise (4)

Prerequisite: M Sci 101, 102, 103, 104. Oceanographic shipboard research in California coastal waters; preliminary selection of research topic, cruise logistics, shipboard instrumentation. Following one week cruise, samples analyzed and data interpretation presented as written reports. (1 lecture, 9 lab or field hours)

175T. Topics in Marine Sciences (1–6)

Topics in botany, zoology, chemistry, geography, geology, and other associated areas of the marine sciences; ichthyology, behavior of marine animals, chemical oceanography, physical oceanography, meteorology of the oceans. (Lecture and/or Laboratory)

177. Microscopic Techniques (3)
Prerequisite: one semester college physics and permission of instructor. Principles and techniques of light and electron microscopy; consideration of brightfield, darkfield, phase contrast and interference contrast light microscopy; episcopic and diascopic illumination systems; photomicrography; preparation of materials for and operation of the scanning electron microscope. (2 lecture, 3 lab hours)

180. Independent Study (1–4)
Prerequisite: permission of instructor. Open only to undergraduate students having adequate subject matter preparation for the selected problem. Faculty directed study of selected research problems in the marine sciences. (3 conference, lab, or field hours per unit)

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

201. Advanced Studies in the Marine Sciences (3)
Prerequisite: M Sci 101 and 103. Study of major principles and concepts of marine sciences; analysis of outstanding research from recent scientific literature; development of laboratory exercises; for teachers-in-service or credential candidates; not open to science majors.

202. Marine Instrumental Analysis (4)
Prerequisite: M Sci 101 and 102 and quantitative analysis. Theory and use of advanced instrumentation; advanced field and laboratory techniques for the interpretation of data collected in marine science research. (2 lectures, 6 lab or field hours)

203. Advanced Marine Ecology (4)
Prerequisite: ecology. Advanced considerations of marine populations, communities and ecosystems with emphasis on current literature. (3 lecture, 3 lab, field, or discussion hours)

211. Behavior of Marine Animals (4)
Prerequisite: M Sci 104 or statistics. The causation, development, and evolution of the behavior of marine animals. (3 lecture, 3 lab or field hours)

212T. Topics in Marine Vertebrates (4; max total 8)
Prerequisite: M Sci 111 and either 112 or 113, and also permission of instructor. Advanced considerations of the ecology, physiology, and/or phylogeny of fishes, birds and/or mammals; emphasizes current literature and research. (2 lecture, 6 lab or field hours)

221T. Topics in Marine Invertebrates (4; max total 8)
Prerequisite: M Sci 124 and permission of instructor. Advanced considerations of the ecology, physiology, and/or phylogeny of the various invertebrate phyla emphasizing current literature and research. (2 lecture, 6 lab or field hours)

222. Biology of the Mollusca (4)
Prerequisite: M Sci 124 and permission of instructor. Systematics, functional morphology, ecology, and physiology of mollusca with emphasis on marine forms. (2 lecture, 6 lab or field hours)

231. Advanced Marine Phycology (4)
Prerequisite: M Sci 131 and permission of instructor. Algal development, reproduction, and ecology; review of literature; ecologically oriented individual research including laboratory culture and field experimentation. (2 lecture, 6 lab or field hours)

232. Advanced Marine Plankton (4)
Prerequisite: M Sci 132. Ecology and population dynamics of marine plankton, including physical and chemical factors. (2 lecture, 6 lab or field hours)

241. Marine Microorganisms (3)
Prerequisite: college geology, M Sci 121 and permission of instructor. Study of fossil microorganisms and related extant forms with emphasis on environmental significance. (2 lecture, 3 lab or field hours)

242. Plate Tectonics (3)
Prerequisite: M Sci 141 and permission of instructor. Historical background and modern theory of continental drift; sea-floor spreading and general considerations on plate tectonics.

243. Coastal Geomorphology (4)
Prerequisite: M Sci 141 and physical geology or physical geography. A geologic history and formation of the shoreline. (3 lecture, 3 lab or field hours)

244. Marine Biogenic Sedimentation (4)
Prerequisite: M Sci 141 and college geology and biology. Interdisciplinary studies of the provenance, biologic and geologic composition of marine sediments and of the organisms contributing to their formation; sedimentary processes affecting these sediments. (3 lecture, 3 lab or field hours)

251. Marine Geochemistry (4)
Prerequisite: quantitative analysis, year of calculus, and M Sci 101. Geochemical processes in the oceans; thermodynamics of low temperature aqueous reactions, weathering, oxidation-reduction and biologically mediated reactions, processes occurring at the sea floor and air-sea interface. (2 lecture, 6 lab or field hours)

252T. Topics in Marine Chemistry (4; max total 8)
Prerequisite: M Sci 101 and permission of instructor. Selected advanced topics dealing with the biochemistry or geochemistry of the oceans. (2 lecture, 6 lab or field hours)

261. Descriptive Physical Oceanography (4)
Prerequisite: one year of calculus and M Sci 101. Mathematical description of the distribution of properties (e.g. density, dissolved oxygen) in the oceans relating to physical and biochemical processes; theory of distribution of variables, geostrophic method. (3 lecture, 3 lab hours)

271. Population Biology of Marine Organisms (3)
Prerequisite: M Sci 103 and 104. Principles of the interaction among marine organisms which result in the alternation of population structures; techniques for assessment and management of animal populations. (2 lecture, 3 lab or field hours)

273. Environment Studies of Monterey Bay (3)
Prerequisite: M Sci 103 and 104. Research course in the advanced aspects of marine sciences as applied to local marine problems; individual and joint research projects in laboratory and field. (2 lecture, 3 lab or field hours)

275T. Advanced Topics in Marine Sciences (1–6; max total 8)
Prerequisite: graduate standing. Advanced topics in marine science (botany, zoology, chemistry, geography, geology, and other associated areas of the marine sciences). (Lecture and/or Laboratory)

277. Human Ecology of Monterey Bay (3)
Investigation and analysis of changes produced by human impacts on the coastal environment with emphasis upon physiographic alterations and ecological implications. (2 lecture, 3 field hours)

282T. Seminar in the Marine Sciences (2)
Prerequisite: graduate standing. Reviews and reports on recent literature and problems in marine science.

285T. Seminar in Marine Biology (2; max total 4)
Prerequisite: permission of instructor. Reviews and reports on recent literature and problems in marine biology.

286T. Seminar in Marine Geology (2; max total 4)
Prerequisite: permission of instructor. Reviews and reports on recent literature and problems in marine geology.

287T. Seminar in Oceanography (2; max total 4)

Prerequisite: permission of instructor. Reviews and reports on recent literature and problems in oceanography.

298. Research in the Marine Sciences (1–4)

Prerequisite: permission of instructor. Independent investigations of an advanced character for the graduate student with adequate preparation. (3 conference, lab, and field hours per unit)

299. Thesis (1–4; max total 4)

Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

CHEMISTRY DEPARTMENT

FACULTY

Stanley M. Ziegler, Department Chairman

Sydney Bluestone, Dale C. Burtner, Richard P. Ciula, David E. Clark, David L. Frank, Helen J. Gigliotti, Barry H. Gump, Robert M. Kallo, George B. Kauffman, Donald K. Kunimitsu, Ronald L. Marhenke, C. Dean Mitchell, Howard K. Ono, Stephen A. Rodemeyer, Kenneth H. Russell, Joe D. Toney, Alexander Vavoulis, David L. Zellmer

DEGREES OFFERED: BA, BS, MS
Minor

DEPARTMENTAL PROGRAMS

The Chemistry Department provides (1) undergraduate training in chemistry for students planning professional careers in chemistry, biochemistry, and allied professions and for those contemplating graduate work for advanced degrees; (2) undergraduate training in chemistry for those planning careers in professions such as medicine, dentistry, pharmacy, etc.; (3) participation in the preparation of teachers of chemistry and the other physical sciences in the teaching credential programs; (4) teaching of the basic chemical sciences required by students majoring in related fields such as physics, biology, nursing, engineering, geology, agriculture, home economics, and criminology; (5) stimulation of interest in and understanding of the achievements and contributions of chemistry to our civilization for nonscience students, as a part of general education; and (6) graduate instruction in chemistry for the master of science degree for students who intend to enter the chemical industry, pursue further advanced study, or who wish to improve their qualifications as teachers in secondary schools and community colleges.

The bachelor of science degree program in chemistry is accredited by the American Chemical Society. Students who satisfactorily complete the program will be recommended by the department for certification as graduate chemists by the American Chemical Society. Students completing the bachelor of arts degree may be recommended for certification by completing additional requirements of the American Chemical Society.

Five of The California State University and Colleges, including CSU, Fresno cooperate in the management of the Moss Landing Marine Laboratories on Monterey Bay, an establishment which offers regular course work and opportunities for research which are applicable to graduate and undergraduate programs. Consult the chairmen of the Biology, Chemistry, and Geology Departments. See *Special Programs—Moss Landing Marine Laboratories;* for course descriptions see *Biology Department.*

UNDERGRADUATE PROGRAMS

Chemistry Majors: The bachelor of arts degree with a major in chemistry consists of a total of 124 units including 38 units of chemistry. The bachelor of science degree with a major in chemistry consists of a total of 128 units including 51 units in chemistry.

High School Preparation: The high school preparation for majors in the Chemistry Department should include: algebra (2 years), plane and solid geometry, trigonometry; chemistry or physics; German (2 years) for BS degree.

Prospective students may elect to take the general chemistry placement test at college entrance. A satisfactory score in this test will permit the student to start the chemistry course sequence with Chem 1B.

Foreign Language Requirement for BS degree: German 1A-B or Russian 1A-B or two years of high school German or Russian. See the general statement under *Degrees and Credentials—Foreign Language Requirement* for equivalents and alternative ways of meeting the requirement. Any student planning advanced study is advised also to meet the foreign language requirement of the school the student plans to attend.

CHEMISTRY

BACHELOR OF ARTS DEGREE REQUIREMENTS

	Units
Chemistry Major	38
Chem 1A-B, 28, 29, 102, 110A-B, 111A-B, 128, 129, 180	
Additional Requirements	20–22
Math 75, 76, 77, Phys 5A-B (recommended) or Phys 2A-B	
General Education and Electives (See *Note* below)	64–66
Recommended: Chem 99	
	124

Note: A student may orient his baccalaureate degree program in one of several directions by the proper selection of elective courses, as follows.

Agricultural Chemistry: Chem 155, 156; 9 units of approved electives in animal or plant science

Biochemistry: Chem 155, 156; two biological science electives from Micro 104, Biol 120, 130

Clinical Chemistry: Chem 153, 154, 155, 156; Micro 104

Forensics Chemistry: Crim 20, 21, 113, 114

Secondary Education: Chem 99, 123

Spectroscopy: Chem 115, 190 (6 units)

Additional programs may be constructed upon consultation with a departmental adviser.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

	Units
Chemistry Major	51
Chem 1A-B, 28, 29, 102, 110A-B, 111A-B, 123, 124, 128, 129, 155, 180	
Chemistry electives. Select either Route I or II.	
I. Independent Study Route.	
Chem. 190 (5 units)	
Students selecting this route must satisfy university requirements for independent study (see *Independent Study*).	
II. Electives Route	
Elect six units from Chem. 115, 130, 156 or one additional approved physics, mathematics, or upper division biology course (recommended: Phys 102, Math 81, Biol 120, Micro 104). Three units must come from 156 or 130.	
Additional Requirements	22
Math 75, 76, 77, Phys 5A-B	
General Education and Electives	55
German 1A-B or Russian 1A-B or two years of high school German or Russian.	
Recommended: Chem 99	
	128

CHEMISTRY MINOR

A minor in chemistry for a bachelor's degree requires at least 21 units, of which at least 7 are upper division. Specific course requirements are General Chemistry (1A–B or 2A–B), Organic Chemistry (8 and 109), Quantitative Analysis (105), and one or more upper division chemistry courses (101, 125, 150, 151, 153).

CREDENTIAL PROGRAM

For the single subject waiver program see Physical Science section.

GRADUATE PROGRAM

The master of science degree program in chemistry is designed to provide the first graduate degree for students who expect to continue on to advanced graduate study in chemistry or biochemistry; it can also be used to extend the competence of students who anticipate employment in chemical industries, in government laboratories or as secondary school or junior college teachers.

MASTER OF SCIENCE DEGREE REQUIREMENTS

The master of science degree program in chemistry assumes undergraduate preparation equivalent to a CSUF major in chemistry. Each new student will be required to take the Qualifying Placement Examinations in four fields of chemistry (physical, organic, analytical, and inorganic or biochemistry) to provide a basis for program planning.

Twenty of the 30 units required for the degree must be in chemistry. An option in agricultural chemistry is available in the School of Agriculture and Home Economics. For specific requirements, consult the chairman of the department; for general requirements see *Division of Graduate Studies and Research.*

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed according to plan A or plan B listed below.

Plan A—Thesis Program

	Units
Courses in chemistry, all in the 200-series (See *specific requirements*)	21–23
Electives in chemistry and related fields not to include Chem 190 or 290	7–9
Total	30

Specific Requirements: Chem 280 (1 unit); 298 (4–6 units); 299 (4 units); 12 units distributed among the following courses: Chem 211 or 215; 220; 225 or 226; 230 or 235; Chem 256 or 257. An area approved 240T course may be substituted.

Plan B—Non-Thesis Program

	Units
Courses in chemistry, all in 200-series. *(See specific requirements)*	18
Electives in chemistry or related fields	12
Total	30

Specific Requirements: Chem 280 (2 units); 290 (4 units); 12 units distributed among the following courses: Chem 211 or 215; 220, 225 or 226; 230 or 235; Chem 256 or 257. An area approved 240T course may be substituted. Other courses may be specified after examination of the student's record and performance on the departmental qualifying examinations. Successful completion of a written final examination consisting of two parts is required: (a) a general examination in chemistry and (b) an examination dealing with a specific area of chemistry (e.g., analytical, biochemistry, inorganic, organic, physical).

COURSES

CHEMISTRY (Chem)

1. Chemistry: Its Impact on Society (3)

Not open to students with credit in college chemistry; for nonscience majors. The significance of chemical principles in contemporary society; benefits and hazards relative to areas such as energy, health, diet, environment and agriculture. (3 lecture-demonstration hours)

1A-B. General Chemistry and Qualitative Analysis (5–5)

Chem 1A not open to students with credit in Chem 2A-B. Prerequisite: high school chemistry or physics; advanced algebra or Math 4. Fundamental principles of chemistry; properties of common elements and their compounds; application of the principles of chemical equilibrium to separation and identification of ions. (3 lecture, 6 lab hours)

2A-B. Introductory General Chemistry (3–3)

Prerequisite: high school algebra, plane geometry. Composition of matter and physical and chemical changes; fundamental laws and principles; atomic and molecular structure, qualitative and quantitative techniques; introduction to organic chemistry and biochemistry. (2 lecture, 3 lab hours)

2C. Introduction to Organic and Biological Chemistry (4)
Not open to students with credit in Chem 2B. Primarily for students in the health-oriented professions; not a substitute for Chem 8. Prerequisite: Chem 2A. Introduction to the basic concepts of organic and biological chemistry. Structure and behavior of organic and biochemical compounds, metabolism, and regulation. (3 lecture, 3 lab hours)

8. Elementary Organic Chemistry (3)
Not open to chemistry majors. Recommended for students requiring a one-semester course in the field. Prerequisite: Chem 1A or 2A-B. Lectures, discussions, and demonstrations of fundamental principles; structure and chemical behavior of organic compounds.

28. Introductory Organic Chemistry (3)
For chemistry majors; recommended for premedical students and other science majors. Not open to students with credit in Chem 8. (Chem 28 and 128 together constitute a year sequence). Prerequisite: Chem 1A-B or Chem 2A-B. Introductory survey of the reactions of principal functional groups.

29. Introductory Organic Chemistry Laboratory (2)
Chem 29 and 129 together constitute a year sequence. Prerequisite or concurrently: Chem 28. Laboratory study of properties and reactions of organic compounds and synthesis of representative compounds. (6 lab hours)

99. Glass Blowing (1)
Enrollment limited with preference to junior and senior chemistry majors. Elements of glass blowing; construction and repair of glass apparatus. (3 lab hours)

101. Introductory Physical Chemistry (3)
Not open to chemistry majors. Prerequisite: Math 70 or 75 or permission of instructor. Chem 1B or 2B, 8 or 105. Physics 2A-B recommended. Basic treatment of gas laws, thermodynamics, phase equilibria, properties of solutions, kinetics, spectroscopy, macromolecules and nuclear chemistry. Especially recommended for students in the agricultural, earth, life and physical sciences, engineering and other related areas.

102. Analytical Chemistry (5)
For chemistry majors; recommended for other science majors. Prerequisite: Chem 28. Introduction to principles and methods of analytical chemistry. (3 lecture, 6 lab hours)

105. Quantitative Analysis Laboratory (4)
Not open to chemistry majors. Prerequisite: Chem 1B recommended, Chem 8 (or concurrently), Math 4. Laboratory study of principles and methods of quantitative analysis. (2 lecture, 6 lab hours)

109. Elementary Organic Chemistry Laboratory (3)
Not open to chemistry majors. Prerequisite or concurrently; Chem 8 or 28. Laboratory study of the carbon compounds with coordinating lectures. (1 lecture, 6 lab hours)

110A-B. Physical Chemistry (3–3)
Prerequisite: Math 77, Chem 1B, 8 or 28; Phys 5A and B (recommended), or 2A-B. Mathematical treatment of the laws of thermodynamics, reaction kinetics, elementary statistical and quantum mechanics, properties of solutions, kinetic theory of gases, crystal structure, molecular structure, and nuclear chemistry.

111A-B Physical-Analytical Measurements Lab (3-3)
Chem 102, 110A concurrently. Techniques of physical and analytical measurements and analysis of inorganic, organic and biological substances. Error analysis and statistics; introduction to instrumental analysis; kinetic, equilibrium, thermodynamic, spectroscopic and electrochemical measurements; separations; report writing. (1 lecture, 6 lab hours) (Former Chem 106, 111)

112W. Chemistry Report Writing (2)
Prerequisite: Eng. 1. Chem. 111A concurrently. Use of the chemical literature and practice in writing technical reports based on the literature. Meets upper division writing skills requirement for graduation.

115. Quantum Mechanics in Chemistry (3)
Prerequisite: Chem 110A-B. Classical mechanics and vectors; postulates of quantum mechanics, square well, harmonic oscillators, rotor and hydrogen atom problems; approximation techniques; chemical bonding and spectroscopy.

123. Advanced Inorganic Chemistry (2)
Prerequisite: Chem 1B or 4B, 102, and 110A (or concurrently). Treatment of ionic and covalent bonding, atomic structure, molecular structure, and reaction mechanisms. Introduction to visible and infrared spectroscopy of transition metal complexes.

124. Synthesis and Characterization (2)
Prerequisite: Chem 123 (or concurrently). Techniques of preparation to include high temperature reactions, vacuum line and glove box preps, nonaqueous syntheses, solid state reactions. Emphasis on structural characterizations using instrumental methods. (1 lecture, 3 lab hours)

125. Laboratory Instrumentation (3) (Same as Phys 125)
Not open to Chemistry majors. Prerequisite: Chem 8 or 28 and Chem 105. Basic electricity/electronics, light and optical systems as they apply to the design, use and limitations of instrumentation typical to the analytical and bioscience laboratory. (1 lecture, 6 lab hours)

128. Intermediate Organic Chemistry (3)
Prerequisite: Chem 28 or 8. Continuation of Chem 28. A thorough study of the reactions of aliphatic and aromatic compounds of carbon with emphasis on theory and mechanism.

129. Intermediate Organic Chemistry Laboratory (2)
Prerequisite: Chem 29 or 109. Continuation of Chem 29 with emphasis on more difficult laboratory techniques and syntheses; introduction to qualitative organic analysis. (6 lab hours)

130. Organic Analysis (3)
Prerequisite: Chem 102, 128, 129. Characterization of organic compounds through study of chemical and physical properties; application of spectroscopy, chromatography and functional group analysis to elucidation of structure. (1 lecture, 6 lab hours)

140T. Topics in Chemistry (1–4; max total 6 if no area repeated)
Prerequisite: permission of instructor. Seminar covering special topics in one of the areas of chemistry: analytical, biochemistry, inorganic, organic, physical. Some topics may have a laboratory.

150. General Biochemistry (3)
Prerequisite: Chem 8, 109. (Chem 150 and 153 together constitute a year sequence.) Chemistry and metabolism of basic cellular constituents including carbohydrates, lipids, proteins, and nucleic acids.

151. General Biochemistry Laboratory (2)
Prerequisite: Chem 8, 105, 109, 150 (or concurrently). Chemical and physical properties of naturally occurring compounds; introduction to techniques of chromatography, polarimetry, electrophoresis, photometry, and enzymology. (6 lab hours)

153. Physiological Chemistry and Metabolism (2)
Prerequisite: Chem 150 or 155. Continuation of Chem 150 or 155. Intensive discussion of the degradation and biosynthesis of major cellular constituents; energy metabolism; control of metabolic processes and pathological implications in mammalian systems.

154. Clinical Biochemistry Laboratory (3)
Prerequisite: Phys or Chem 125, (or concurrently), Chem 151, 153 (or concurrently). Clinical laboratory methods of analysis of tissues and body fluids and their diagnostic value; emphasis on instrumental methods. (1 lecture, 6 lab hours)

155. Fundamentals of Biochemistry (3)
Primarily for chemistry majors; recommended for premedical students and graduate students in the sciences. Prerequisite: Chem 29, 102 or 105, 128. (Chem 153 and 155 together constitute a year sequence.) Structure, function, and metabolism of chemical entities in living systems.

156. Biochemical Laboratory Techniques (3)
Prerequisite: Chem 150 or 155 (or concurrently). This course is designed to introduce the student to a range of techniques and methodology appropriate to the study of phenomena at the biochemical, cellular and organismic levels. (1 lecture, 6 lab hours)

180. Seminar in Chemistry (1)
Prerequisite: Chem. 129, 102. Oral presentation of topics based on the chemical literature.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES
(See *Course Numbering System—Definitions and Eligibility*)

211. Chemical Thermodynamics (3)
Prerequisite: Chem 110A-B, 111A-B. Principles of thermodynamics; application to chemical problems; introduction to statistical methods, calculation of thermodynamic functions from spectroscopic data.

215. Quantum Chemistry (3)
Prerequisite: graduate standing. Seminar on recent advances in quantum mechanics; chemical bonding, and atomic and molecular spectroscopy.

220. Theoretical Inorganic Chemistry (3)
Prerequisite: Chem 110A-B. Seminar on theoretical inorganic chemistry emphasizing structure and bonding of inorganic and coordination compounds; valence bond, molecular orbital and ligand field theories; correlation of structure and reactivity.

225. Separation Methods in Chemistry (3)
Prerequisite: Chem 111A-B, 128, 129. Seminar and laboratory on the theory, application, and literature of various separation methods for organic and inorganic analysis. (2 lecture, 3 lab hours)

226. Advanced Analytical Chemistry (3)
Prerequisite: Chem 111A-B. Theory, application, recent developments and literature of organic and inorganic analysis.

227. Spectroscopic Methods of Analysis (3)
Prerequisite: Chem 111A-B. Seminar and laboratory on the theory, application and literature of various spectroscopic methods of analysis. (2 lecture, 3 lab hours)

230. Advanced Organic Chemistry (3)
Prerequisite: Chem 128, 129. Seminar on recent advances in organic chemistry including reaction mechanisms and synthetic applications with references to current literature.

235. Physical Organic Chemistry (3)
Prerequisite: Chem 110A-B, 128. Seminar in applications of modern theoretical concepts to the chemical and physical properties of organic compounds.

240T. Topics in Advanced Chemistry (1–3; max total 6 if no area repeated)
Seminar covering special topics in one of the areas of chemistry: analytical, biochemistry, inorganic, organic, physical. Some topics may have a laboratory.

256. Biochemistry of Nucleic Acids (3)
Prerequisite: Chem 150 or 155. Seminar on the chemistry and biology of nucleic acids and their role in living systems.

257. Structure and Function of Enzymes (3)
Prerequisite: Chem 150 or 155. Seminar on the isolation, characterization and mechanism of enzymes; enzyme-coenzyme complexes.

280. Seminar in Chemistry (1; max total 2)

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

298. Research (2–6; max total 6)
Prerequisite: permission of instructor. Independent investigations of an advanced character for the graduate student with adequate preparation. (May include conferences, laboratory, library.)

299. Thesis (4)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.



GEOLOGY

FACULTY

Robert D. Merrill, Department Chairman

Jon C. Avent, S. Robert Bereskin, Bruce A. Blackerby, Eugene G. Cserna, Seymour Mack

DEGREES OFFERED: BA, MA
Minor

DEPARTMENTAL PROGRAMS

The Geology Department provides a diversified but balanced program of investigation of the earth, its materials, processes, history, and their applications to man's usage of the earth. A field and laboratory emphasis is present throughout the geology program. This field orientation takes advantage of the University's close proximity to the Sierra Nevada. The California Coast Ranges, coastal California, and the Basin and Range province. This unique location gives faculty and students access to an unparalleled geologic laboratory all within one to five hours of the University.

The Geology Department offers a major in geology for the Bachelor of Arts and Master of Arts degrees as well as a minor in geology. The Bachelor of Arts degree is designed for students who want to: (1) work in industry or government at the technical level, (2) teach earth science or physical science on the secondary level, or (3) pursue a graduate degree.

The graduate program provides: (1) courses of instruction and research leading to the Master of Arts degree, (2) graduate level courses for students in other departments, and (3) advanced course work for professional personnel within the CSUF service area.

Six of the California State University and Colleges, including CSU, Fresno, cooperate in the management of the Moss Landing Marine Laboratories on Monterey Bay, an establishment which offers regular course work and opportunities for research which are applicable to graduate and undergraduate programs, including courses in geological oceanography. Consult the chairmen of the Geology and Biology Departments. See Special Programs—Moss Landing Laboratories; for course descriptions see Biology Department.

UNDERGRADUATE PROGRAM

The bachelor of arts degree with a major in geology consists of a total of 124 units including 41 units of geology. For general degree requirements see *Degrees and Credentials.* A student planning graduate study is advised to meet the foreign language requirements of the institution he plans to attend. Students majoring in geology are strongly urged to take Geology 107 and make arrangements for Geology 108 during their junior year (see adviser).

BACHELOR OF ARTS DEGREE REQUIREMENTS

	Units
Geol 1 or 15, 2, 2L, 12 and 13 concurrently, 100, 101, 104, 106, 107, 108	32
Geol 105 or 122, and Geol 110 or Zool 1	6–8
Elect from upper division geology (See *Note* below)	7
	45–47

Note: No more than 1 unit of Geol 160.

Additional Requirements: Chem 1A-B; Math 75, 76, or Math 71, 72, 76; Physics 2A-B 26–28

Strongly recommended: Math 11, 20

In addition to the requirements of the major (45–47 units), the student is responsible for additional requirements in related fields (26–28 units), completion of the General Education requirement, special course requirements, and electives, which may include a minor, totaling 124 units for the BA degree.

GEOLOGY MINOR

A minor in geology consists of 20 units.

CREDENTIAL PROGRAM

For the single subject waiver program see Physical Science section.

GRADUATE PROGRAM

The Department of Geology offers graduate courses of instruction and research leading to the master of arts degree. The courses are designed to provide the first graduate degree for students anticipating advanced graduate study in geology and related sciences, to prepare the student for industrial and governmental employment, and to extend the competence of secondary school and junior college teachers in the earth sciences.

MASTER OF ARTS DEGREE REQUIREMENTS

The graduate program for the master of arts degree in geology is based on the equivalent of the undergraduate major at CSU, Fresno. Twenty of the 30 units required for the degree must be in geology. By the end of the first semester each new student should have taken the Graduate Record Examination Advanced Test in Geology. For specific requirements consult the chairman of the department; for general requirements see Division of Graduate Studies and Research.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, Foreign Language Requirements* and *Thesis.*)

Under the direction of a graduate adviser each student prepares and submits a program individually designed within the following framework:

	Units
Courses in geology, including at least 15 units in 200-series. (See *specific requirements*)	20
Approved upper division or graduate course electives in geology or related fields such as biology, chemistry, physics, engineering, and mathematics. Electives determined in consultation with graduate advisor	10
Approved electives in geology or related fields	0– 6
Total	30

Specific requirements: Geol 299 (3–6 units). Other courses may be specified after examination of the student's record and the performance on the Graduate Record Examination Advanced Test. Any graduate student of geology doing a thesis on a foreign area must have knowledge of the area's language or the language in which source materials are published.

COURSES

GEOLOGY (Geol)

1. Physical Geology (4)

Processes and materials which together produce the different topographic and geologic features of the earth. Plate tectonic theory (including continental drift) as the unifying model to explain geologic phenomena. Effects of geology on man. (3 lecture, 3 lab hours)

2. Evolution of Life and Continents (3)

Origin and evolution of the earth as revealed by the rock record and by fossil remains. Special emphasis on the evolution of life and on the physical development of North America. May include field trips.

2L. Evolution of Life and Continents Laboratory (1)

Prerequisite: Geol 1 or 15, 2 (concurrently). Introductory laboratory study of geologic time, geologic maps, regional geology and regional geologic history. (3 lab hours)

3. Introductory Field Studies (1)

Prerequisite: Geol 1 or 15 (concurrently). Weekend supervised field trips to areas such as Yosemite, Sequoia, San Joaquin Valley and the Coast Ranges.

12. Mineralogy (3)

Geol 13 concurrent in the geology major. Prerequisite: high school chemistry. Properties, relationships, origin of minerals; determination of common minerals by chemical and other tests. May include field trips. (2 lecture, 3 lab hours)

13. Crystallography (2)

Prerequisite: high school chemistry, trigonometry. Form and structure of crystals. (1 lecture, 3 lab hours)

15. The Earth and its History (5)
Portion of *Man and the Natural Environment* Cluster. Physical and historical geology, including man's use of the earth and the impact of that use on the earth. Lecture, lab, and field work.

100. Optical Mineralogy (3)
Prerequisite: Geol 13. Optical properties of minerals; identification of selected minerals by optical methods. Manipulation and use of petrographic microscope. (2 lecture, 3 lab hours)

101. Petrology (4)
Prerequisite: Geol 1 or 15, 12, 13, 100. Common rock-forming minerals; origin, classification, textures, and structures of igneous, sedimentary, and metamorphic rocks; examination of rocks in hand specimen and thin section. (3 lecture, 3 lab hours)

104W. Scientific Writing (1)
Organization of the scientific paper, involving concise and logical presentation of data. Topics include analyses of abstract writing, bibliographical format, and scientific styles regarding punctuation and footnotes, preparation of illustrations. (3 lab hours). Meets upper division writing skills requirement for graduation.

105. Geomorphology (3)
Prerequisite: Geol 1 or 15. Land forms, climates, geologic processes and their interrelation in shaping the earth's surface today and in the geologic past. Interpretation of topographic maps and aerial photographs. May include field trips. (2 lecture, 3 lab hours)

106. Structural Geology (3)
Prerequisite: Geol 1 or 15, 2. Structural arrangements of rocks; intrusive and extrusive rock structures; folding and faulting; unconformities. Outcrop patterns, structure contours, projections, maps and aerial photographs, stereonet. May include field trips. (2 lecture, 3 lab hours)

107. Field Geology Methods (4)
Prerequisite: Geol 101, 104, 106. Field trips to introduce groups of students to methods and instruments used in geologic field work; observation and description of geologic phenomena; written presentation of observed data. (1 lecture, 9 lab hours, usually on week-ends)

108. Field Geology (4)
Prerequisite: Geol 107. Geologic reconnaissance and mapping in field groups. Written reports of areas selected for detailed study.

110. Invertebrate Paleontology (3)
Prerequisite: Geol 2 and either Zool 1 or 10. Invertebrate structures and development of prehistoric animals; introduction to stratigraphic importance of fossils. May include field trips. (2 lecture, 3 lab hours)

112. Paleoecology of Marine Invertebrates (3)
Prerequisite: Geol 110, Zool 114. Interpretation of ancient sedimentary environments using invertebrate fossils; use of index fossils for chronologic purposes. Includes field trips. (1 lecture, 6 lab hours)

115. Ore Deposits (3)
Prerequisite: Geol 101, 106, college chemistry. Geology, mineralogy, distribution and occurrence of common ore minerals essential in industry; genesis and localization of metallic minerals. May include field trips. (2 lecture, 3 lab hours)

116. Petroleum Geology (3)
Prerequisite: Geol 106. Theories of origin of petroleum, petroleum structures, prospecting, extraction methods, techniques used in exploration and development; selected petroleum fields. May include field trips. (2 lecture, 3 lab hours)

117. Ground Water (2)
Prerequisite: senior standing. Geologic and hydrologic factors related to occurrence and utilization of ground water.

118. Advanced Structural Geology (2)

Prerequisite: Geol 106. Tectonic framework of Europe and North America; study of selected areas in the Western Alps, Appalachians, Rocky Mountains and Sierra Madre Oriental. Advanced problems in structural geology, structural interpretation of geologic maps and aerial photographs. May include field trips. (1 lecture, 3 lab hours)

122. Stratigraphy (3)

Prerequisite: Geol 101. Relationships of sedimentary and volcanic rocks in space and time based on principles of stratigraphy. (2 lecture, 3 lab and/or field hours)

124. Geochemistry (3)

Prerequisite: Geol 101, one year of college chemistry. Application of chemical principles to geological processes. Chemical reactions involved in origin and alterations of rocks and minerals of the earth's crust. (2 lecture, 3 lab hours)

130T. Advanced Problems in Geology (1-3; max total 6 if no topic repeated)

Prerequisite: senior standing in geology. Topics or problems in the following fields: geology of North America, field geology, micropaleontology, advanced ground water geology, sedimentation and sedimentary rocks, geochemistry, geophysics, volcanic geology, and marine geology. Some topics may have labs.

140. Interpretation of Geologic and Topographic Maps (3)

Prerequisite: Geol 105 or 106. Interpretation of geologic and topographic maps with respect to structure, stratigraphy, and processes. Some aerial photographs included. (2 lecture, 3 lab hours)

150T. Studies in Earth Science (1-3; repeatable with different topics)

Applicable to the geology major only with prior departmental approval. Prerequisite: Geol 1. Earth science topics designed for students minoring in geology, with an interest in earth science, in teacher training, and for elementary and secondary teachers.

151. Minerals and Rocks (3)

Primarily for students who are not majoring in geology. Not a substitute for Geology 12 or 101 in the geology major. Recognition, origin, importance, and uses of common and significant minerals and rocks. (2 lecture, 3 lab hours)

160. Field Studies (1-4; repeatable in different studies)

Prerequisite may be specified by instructor. Weekend or vacation field trips to geologically important and significant areas such as the Grand Canyon, Baja California, the Sierra Nevadas, Death Valley.

169. Environmental Geology (3)

Prerequisite: Geol 1. Examination of the interaction between man and earth, with emphasis on earth features and processes that are hazardous to man. Includes field trips. (2 lecture, 3 lab hours)

171. Igneous Petrography (3)

Prerequisite: Geol 100, 101. Identification, classification, and interpretation of igneous rocks, using the petrographic microscope and other techniques. May include field trips. (2 lecture, 3 lab hours)

189. Geology of California (3)

Prerequisite: Geol 1 or 15 and Geol 2 strongly recommended. Development of the diverse geology of California as traced through the geology of its different geologic provinces. (2 lecture, 3 lab and field hours, usually on weekends)

190. Independent Study (1-3; max see reference)

See *Academic Placement—Independent Study*

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

206. Depositional Systems (3)
Prerequisite: Geol 101 and Geol 105. Investigation of modern and ancient depositional systems. (2 lecture, 3 lab hours)

209. Geology Seminar (3; max total 9 if no topic repeated)
Research and reporting on theories, principles, experimentation, and methods of dealing with significant problems in geology.

210. Geotectonics (3)
Prerequisite: Geol 106. Theory and applications of continental drift, plate tectonics, and sea floor spreading to understanding continental geology. Special emphasis on geology of the Americas. Structural analysis of deformed plate margins. (2 lecture, 3 lab hours)

212. Mineral and Rock Analysis (3)
Prerequisite: Geol 100, Chem 1A-B. Principles and techniques of mineral and rock analysis using universal stage, X-ray diffractometer, X-ray fluorescence analyzer, atomic absorption and flame emission spectrometers, and other techniques. (1 lecture, 6 lab hours)

222. Carbonate Petrology (3)
Prerequisite: Geol 101. Chemistry and content of carbonate rocks; introduction to organic and inorganic constituents with emphasis on diagenetic alteration. May include field trips. (2 lecture, 3 lab hours)

250T. Topics in Geology (1–3; max total 9 if no topic repeated)
Prerequisite: Major or minor in geology; permission of instructor. Advanced studies in such areas as hydrology, regional stratigraphy, and marine geology. Some topics may have labs.

271. Volcanoes and Volcanic Rocks (3)
Prerequisite: Geol 101. A study of volcanic activity, including classification, characteristics, products of eruptions, man's interactions with volcanoes and related phenomena. Field trips required. (1 lecture, 6 lab hours)

272. Metamorphic Petrology (3)
Prerequisite: Geol 101, Chem aA-B. Identification, classification, and interpretation of metamorphic and metasomatic rocks using the petrographic microscope and other techniques. May include field trips. (2 lecture, 3 lab hours)

290. Independent Study (1–3); max total 6)
See *Academic Placement—Independent Study.*

299. Thesis (2–6)
Prerequisite: see *Master's Degrees-Thesis Requirements.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

MATHEMATICS

FACULTY

Anthony E. Labarre, Jr., Department Chairman

Mir K. Ali, Robert F. Arnold, Moses E. Cohen, Donald J. Donohue, Daniel J. Ewy, Noal C. Harbertson, Harold B. Haslam, Merrilee K. Helmers, Arthur A. Hiatt, Thomas C. Kipps, Detlev Lindae, Hussain S. Nur, Walter Read, Hugo S. Sun, Ronald L. Wagoner, Norman T. Woo, Henderson C. Yeung, Burke Zane

DEGREES OFFERED: BA, MA, MS

Minor

DEPARTMENTAL PROGRAMS

Mathematics and related subjects play important dual roles in our culture. On the one hand mathematics is a study in its own right; on the other, it furnishes languages for the expression of ideas in the various sciences. The courses offered by the department are designed to develop an appreciation of both roles.

The Department of Mathematics provides (1) general courses designed for college students who need to improve the quantitative skills that are necessary to function effectively (see *General Education* courses); (2) an appropriate mathematical preparation for science and engineering majors, consisting of courses in mathematical analysis, computer programming, and statistical analysis; (3) undergraduate training in mathematics for students who plan to teach mathematics in secondary schools; (4) a mathematics minor program for those interested in teaching mathematics in elementary school; (5) undergraduate preparation in mathematics, computer programming and operations research techniques for students who are interested in computer science; (6) undergraduate training for students who plan to work in the area of statistical analysis of scientific, technical, or economic data; (7) preparation for the first two examinations in mathematics of insurance that are offered annually by the Society of Actuaries (this preparation consists of Math 75, 76, 77, 107, and 108); (8) undergraduate preparation for students who intend to continue their study of mathematics at the graduate level; and (9) a master of arts and master of science programs in mathematics for students who intend to work in industry, pursue further advanced study, or wish to improve their qualifications as teachers in secondary schools and community colleges.

CREDENTIAL PROGRAM

The single subject waiver program in mathematics consists of Math 20, 75, 76, 77, 116 or 145, 124 or 152, 128 or 172, 143, 151, 161, 171 and 6 units in 107, 110, 111, 131.

BACHELOR OF ARTS DEGREE REQUIREMENTS

High School Preparation. Two years of algebra and courses in geometry and trigonometry or a sequence of mathematics courses containing their equivalents are prerequisite to entry into either a major or a minor program in mathematics. It is strongly recommended that such study be completed before entrance into the university.

Requirements of the major (39–42 units) include completion of:

Core mathematics:	*Units*
Math 75, 76, 77	12
Math 151, and 152 or 124	6
Math 171, and 172 or 128	6

and electives from one of the following groups:

- Applied Mathematics (17–18 units)
- Computer Science (17 units)
- Pre-College Teaching (17 units)
- Pure Mathematics (15 units)
- Statistics and Probability (16 units)

In addition, the student is responsible for the completion of a total of 124 units for the BA degree including:

1. General Education requirement,
2. special course requirements, if any, and
3. electives (which may include a minor)

Duplication of Courses

No credit will be allowed for	*if taken after completion of*
Math 1	Math 4
Math 4	Math 71 or Math 75
Math 5	Math 72 or Math 75

MATHEMATICS MINOR

The minor in mathematics includes 20 units of mathematics courses, of which at least 6 must be upper division. Math 70, or Math 71 and Math 72, or Math 75, or equivalent must be included. Math 1, 2, 4, 5 may not be applied on the minor.

GRADUATE PROGRAM

The master of arts and master of science degree programs in mathematics are designed to provide preparation for work in industry, for high school and junior college teaching, and for advanced graduate study in mathematics. Those who plan to work in industry will ordinarily take the master of science, and combine mathematics courses with courses in physics, engineering, economics, etc.; those planning to teach will usually take additional work in allied fields and in education, along with the mathematics courses recommended for the master of arts degree; and those who plan advanced graduate study in mathematics should take the master of science degree program.

Any student preparing for graduate work in mathematics is advised to meet the foreign language requirements of the school he or she plans to attend. Proficiency in the reading of at least two languages selected from French, German, and Russian is required for most doctor's degree programs; however, most graduate programs do not leave time for language study. There is no language requirement for the master's degree.

MASTER OF ARTS AND MASTER OF SCIENCE DEGREE REQUIREMENTS

Both the master of arts and the master of science degree programs in mathematics assume undergraduate preparation equivalent to a CSUF major in mathematics.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

Under the direction of an advisory committee, each student prepares and submits a coherent program individually designed within the following framework:

Master of Arts and Master of Science Degrees

	Units
Courses in mathematics, including at least 15 units in 200-series (See *specific requirements*)	24
Electives (upper division or graduate level)	6
Total	30

Specific Requirements: Each master's degree candidate must complete Math 298. This research project culminates in a written and an oral report to the Department. Master of science degree candidates must complete Math 152, 153T, 172, 173T, and 181, or their equivalent, in their graduate program if they have not been completed in their undergraduate program.

COURSES

MATHEMATICS (Math)

1. Elementary Algebra (3)

Transition from arithmetic to the symbolism and generalization of algebra; fundamental operations, equations, formulas. (See *Duplication of Courses*) (Former Math 27)

2. Elementary Geometry (3)

Prerequisite: elementary algebra. Postulates concerning points, lines, planes. Definitions. Congruence; properties of triangles. Parallel lines. Properties of quadrilaterals. Area formulae. Similar figures. Circles. Volumes of certain solids. (Former Math 28)

4. Intermediate Algebra (3)

Prerequisite: elementary algebra and geometry. Sets, functions, graphs, quadratic equations, inequalities, simultaneous equations, matrices and determinants, mathematical induction, binomial theorem, progressions, exponents and logarithms. (See *Duplication of Courses.*) (Former Math 29)

5. Trigonometry (3)

Prerequisite: intermediate algebra. Concept of a function, sine and cosine functions, tables and graphs, other trigonometric functions, identities and equations. Trigonometric functions of angles, solution of triangles. (See *Duplication of Courses.*) (Former Math 30)

11. Elementary Statistics (3)

Prerequisite: elementary algebra. Illustration of statistical concepts: elementary probability models, sampling, descriptive measures, confidence intervals, testing hypotheses, chi-square, nonparametric methods, regression. It is recommended that students with credit in Math 72 or 75 take Math 101. (Former Math 40)

11L. Elementary Statistics Laboratory (1)

Concurrent enrollment in Math 11. (Not required for Math 11.) Computational techniques pertinent to elementary statistics with emphasis on calculator programming and formula derivation. (Former Math 40L)

19. Intensive BASIC Programming (1)

Prerequisite: Elementary algebra. Introduction to structured programming techniques using the program language BASIC. Topics include input/output, branching, looping, subroutines, and computer graphics. No prior experience required. (Former Exp 2)

20. Introductory Computer Programming: FORTRAN (2)

Prerequisite: intermediate algebra and trigonometry. Introduction to FORTRAN programming and flow charts with applications to matrix algebra, integration, series and linear programming.

21. Computer Programming II (3)

Prerequisite: Math 20 or QM 64 or Engr 70 or equivalent high level programming language. Examination of program design, debugging and testing, and algorithmic analysis. Introduction to structured programming, recursion, and simple data structures.

41. Number Systems (3)

Not open to mathematics majors. Prerequisite: elementary algebra and geometry; designed for elementary credential candidates. Development of rational number system and its subsystems from the informal point of view; sets, relations and operations, equivalence classes; definitions of number systems and operations; algorithms for operations; prime numbers, divisibility tests; ratios.

45. What is Mathematics? (3)

Prerequisite: elementary algebra and elementary geometry. The intention of this course is to provide an introduction to the history and nature of mathematics for students in the arts, humanities and social sciences. Topics will vary with the instructor.

51. Elements of Modern Mathematics (3)

Prerequisite: intermediate algebra. Logic, set theory, vectors and matrices, linear programming, permutations and combinations, probability, Markov chains, applications to business and social sciences.

52. Elementary Linear Algebra (3)

Prerequisite: intermediate algebra. Elementary properties of matrices, determinants; systems of linear equations; linear transformations.

70. Mathematics For Life Sciences (4)

Prerequisite: intermediate algebra. Functions and graphs, limits, derivatives, antiderivatives, differential equations, and partial derivatives with applications in the Life Sciences.

71. Elementary Mathematical Analysis 1 (3)
Prerequisite: elementary geometry and intermediate algebra. Review of algebra, real numbers, inequalities, function, graph, finite induction, limit, differentiation of algebraic functions and applications to extrema, mean value theorem, l'Hôpital's rule.

72. Elementary Mathematical Analysis 2 (3)
Prerequisite: Math 71 and trigonometry. Analytic geometry and calculus of polynomials, rational functions, transcendental functions; polar coordinates, conic sections, integration and applications.

75. Mathematical Analysis I (4)
Not open to students with credit in Math 72; one unit allowed for students with credit in Math 71. Prerequisite: elementary geometry, intermediate algebra, trigonometry. Inequalities, functions, graphs; limits, differentiation of algebraic functions, the definite integral and applications.

76. Mathematical Analysis II (4)
Prerequisite: Math 72 or 75. Transcendental functions, techniques of integration, improper integrals, arc length; conic sections; polar coordinates; introduction to vectors.

77. Mathematical Analysis III (4)
Prerequisite: Math 76. Three dimensional calculus; partial derivatives; multiple integrals; infinite series, and applications.

81. Applied Analysis (4)
Prerequisite: Math 77. Introduction to ordinary linear differential equations; solutions by power series and Laplace transforms. Vector analysis; line, surface, and volume integrals. Solution of systems of linear equations by matrix methods. Introduction to Fourier series. Introduction to complex variables.

101. Statistical Methods (4)
Prerequisite: Math 70 or 72 or 75. Practice in applying standard statistical procedures of data analysis to examples from biology, engineering, and the social sciences; one- and two-sample normal theory methods; chi-square, analysis of variance, and regression problems; nonparametric methods. Experience with commonly used computerized statistical packages. (Former Math 105)

102. Sampling Theory and Methods (3)
Prerequisite: one semester of statistics, and Math 70 or 72 or 75. Basic concepts of sampling; probability sampling, stratification, clusters, single and multiple-stage designs; estimation procedures, non-sampling errors; illustrations from agriculture, biology, and social sciences. (Former Math 106)

107. Introduction to Probability and Statistics (3)
Prerequisite: Math 77 (or concurrently). Basic concepts required for applications of probability theory; standard discrete and continuous models; random variables; conditional distributions; limit theorems.

108. Statistics (3)
Prerequisite: Math 107. Criteria used for selecting particular procedures of data analysis; derivation of commonly used procedures; topics from sampling, normal theory, nonparametrics, elementary decision theory.

109. Applied Probability (3)
Prerequisite: Math 107. Introduction to stochastic processes and their applications in science and industry. Markov chains, queues, stationary time series.

110. Symbolic Logic (3)
Prerequisite: Math 71 or 75. An informal treatment of the theory of logical inference, statement calculus, truth-tables, predicate calculus, interpretations applications.

111. Theory of Sets (3)

Prerequisite: Math 71 or 75. Set theory from an informal axiomatic foundation, relations and functions, cardinal numbers, ordinal numbers, applications.

113. Theory of Computation (3)

Prerequisite: Math 20. Computability, effective procedures, algorithms; finite-state and infinite machines; Turing machines, recursive functions; limitations of effective computability, the halting problem, the debugging problem; computable and noncomputable real numbers.

114. Discrete Structures (3)

Prerequisite: Math 20, and 72 or 75. Directed and undirected graphs; algebraic structures in computer science; representation of trees and graphs, searching and sorting techniques; application to computer science.

116. Theory of Numbers (3)

Prerequisite: Math 72 or 75. Divisibility, greatest common divisor, Euler's function, continued fractions, congruences, quadratic residues, Diophantine equations, different forms of the Prime Number Theorem, Mobius inversion formula.

117. Operating Systems and Computer Organization (3)

Prerequisite: Math 21, E E 85 and assembly language programming. Examples of operating system segments implemented on the APPLE II, PDP-11, CYBER 170 series computers. Dynamic procedure activation, evaluation of network models of systems, memory management and multi-programming. Also included are process management and recovery techniques.

118. Graph Theory (3)

Prerequisite: Math 72 or 75. Permutations and combinations; generating functions; recurrence relations, principle of inclusion and exclusion, Polya's theory of counting; fundamental concepts of graphs, trees and circuits, planar and dual graphs; applications to networks, programming, etc.

120. Structures of Programming Languages (3)

Prerequisite: working knowledge of FORTRAN or COBOL and Math 72 or 75. Formal definition of programming language; global properties of algorithmic languages; list processing, string manipulation, data description, simulation languages; language structure in FORTRAN, ALGOL.

121. Numerical Analysis I (3)

Prerequisite: Math 77 and working knowledge of APL or FORTRAN. Finite difference and Lagrangian interpolation formulas; numerical solution of equations, systems of equations, and differential equations; principles of coding and programming computers.

122. Numerical Analysis II (3)

Prerequisite: Math 121. Current topics of interest in interpolation and approximation theory, dynamic programming, and optimization theory, Fourier analysis, numerical linear algebra, numerical solution of ordinary and partial differential equations.

123. Topics in Applied Mathematics (3)

Prerequisite: Math 77. Vector spaces and linear transformations, eigen values and eigen functions. Special types of linear and nonlinear differential equations; solution by series. Fourier transforms. Special functions, including gamma, hypergeometric, Legendre, Bessel, Laguerre and Hermite functions. Introduction to partial differential equations.

124. Applied Matrix Analysis (3)

Prerequisite: Math 77. Norms, canonical forms, quadratic forms, matrix semigroups and matrix groups, spectral theory, perturbation of spectra, variational principles, Markov processes. Applications to differential equations, optimization problems in physics, engineering and economics.

128. Complex Analysis (3)

Prerequisite: Math 77. Analytic functions of a complex variable, contour integration, series, singularities of analytic functions, the residue theorems, conformal mappings; applications to engineering and physics. (Former Math 174)

131. Game Theory and Linear Programming (3)

Prerequisite: Math 72 and permission of instructor; or Math 76. Introduction to linear programming, adaptation of the Dantzig simplex algorithm to linear programming problems; applications to diet, production and transportation problems. Games of chance; strategy. Minimax theorem for two-person zero-sum games; relationship to linear programming. Normal form of a game.

132. Mathematical Methods of Operations Research (3)

Prerequisite: Math 131. Algebraic and geometric representation of linear optimization models, simplex method, dynamic programming, integer programming, classical optimization theory, non-linear programming and algorithms, applications to the theory of transport, network and inventory models.

132L. Mathematical Methods of Operations Research (1)

Concurrent enrollment in Math 132. (Not required for Math 132.) Use of computers in setting up and solving problems in operations research.

143. History of Mathematics (3)

Prerequisite: Math 72 or 75. History of the development of mathematical concepts in algebra, geometry, number theory, analytical geometry, and calculus from ancient times through the 17th century, and selected topics from more recent times. (Former Math 103)

145. Problem Solving (3)

Prerequisite: at least one mathematics course in the 100–200 series. A study of formulation of problems into mathematical form; analysis of methods of attack such as specialization, generalization, analogy, induction, recursion, etc. applied to a variety of non-routine problems. Topics will be handled through student presentation.

151. Principles of Algebra (3)

Prerequisite: Math 76. Groups, cyclic groups and normal subgroups; rings, integral domains and polynomials; fields.

152. Linear Algebra (3)

Prerequisite: Math 151. Linear transformations, matrices, determinants, linear functionals, bilinear forms, quadratic forms, orthogonal and unitary transformations, selected applications of linear algebra.

153T. Topics in Algebra (3)

Prerequisite: Math 151. Topics may include such algebraic theories as Galois Theory, permutation groups, modules, lattices, etc.

161. Principles of Geometry (3)

Prerequisite: Math 72 or 75. The classical elliptic, parabolic, and hyperbolic geometries developed on a framework of incidence, order and separation, congruence; coordinatization. Theory of parallels for parabolic and hyperbolic geometries. Selected topics of modern Euclidean geometry.

165. Differential Geometry (3)

Prerequisite: Math 77. Study of geometry in Euclidean space by means of calculus, including theory of curves and surfaces, curvature, theory of surfaces, and intrinsic geometry on a surface.

171. Intermediate Mathematical Analysis I (3)

Prerequisite: Math 77. The complete ordered field and its usual topology; extensions to the plane; continuity and uniform continuity; characterization of the differential; extended mean value theorem; intermediate value property of derivatives; characterization of Riemann integrable functions as functions continuous almost everywhere.

172. Intermediate Mathematical Analysis II (3)

Prerequisite: Math 171. Function theory, continuity, differentiability; partial differentiation, integration in Euclidean n-space.

173T. Topics in Real Analysis (3)
Prerequisite: Math 172. Topics will vary according to needs and interests of students. May include elementary measure theory. Fourier series and integrals; Dirac delta function and elementary distribution theory.

181. Differential Equations (3)
Prerequisite or concurrently: Math 81 or 123. Definition and classification of differential equations; general, particular, and singular solutions; existence theorems; theory and technique of solving certain differential equations; phase plane analysis, elementary stability theory; applications.

182. Partial Differential Equations (3)
Prerequisite: Math 81 or 123, and 171. Classical methods for solving partial differential equations including separation of variables, Green's functions, the Riemann-Volterra method and Cauchy's problem for elliptic, parabolic, and hyperbolic equations; applications to theoretical physics.

190. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

191T. Proseminar (1–3; max total 9)
Prerequisite: permission of instructor. Presentation of advanced topics in mathematics in the field of the student's interest.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

202. Fundamental Concepts of Mathematics (3)
Prerequisite: Math 151, 161 and 171. Fundamental notions regarding number theory, number systems, algebra of number fields; functions.

210. Foundations of Mathematics (3)
Prerequisite: Math 110 or 151. Formal introduction to theories of inference, first order theories, completeness metatheorems, consistency metatheorems, decision problems.

216. Topics in Number Theory (3; max total 6)
Prerequisite: Math 116. An investigation of topics having either historical or current research interest in the field of number theory.

221. Advanced Numerical Analysis (3)
Prerequisite: Math 121. Linear equations and matrices; parabolic, hyperbolic, and elliptic differential equations; constructive function theory.

223. Principles and Techniques of Applied Mathematics (3)
Prerequisite: Math 123. Linear spaces and spectral theory of operators.

224. Optimization Methods (3)
Prerequisite: Math 123. Techniques for optimizing static and dynamic systems, calculus of variations, Hamiltonian canonical form, maximum principle, with applications.

228. Functions of a Complex Variable (3)
Prerequisite: Math 128, 171. Representation theorems of Weierstrass and Mittag-Leffler, normal families, conformal mapping and Riemann mapping theorem, analytic continuation, Dirichlet problem. (Former Math 274)

251. Abstract Algebra I (3)
Prerequisite: Math 153T. Semi-groups, groups, groups with operators, rings, fields, lattices.

252. Abstract Algebra II (3)
Prerequisite: Math 153T, 251. Vector spaces, linear transformations, sets of linear transformations, Euclidean and unitary spaces, infinite dimensional vector spaces.

263. Point Set Topology (3)
Prerequisite: Math 172. Basic concepts of point set topology, set theory, topological spaces, continuous functions; connectivity, compactness and separation properties of spaces. Topics selected from function spaces, metrization, dimension theory.

265. Differential Geometry (3)
Prerequisite: Math 165, 172. Study of geometry of curves and surfaces in Euclidean space; including an introduction to Riemannian geometry and theory of manifolds.

271. Real Variables (3)
Prerequisite or concurrently: Math 173T. Theory of sets; cardinals; ordinals; function spaces, linear spaces; measure theory; theory of modern integration and differentiation.

272. Functional Analysis (3)
Prerequisite: Math 271. The Lebesgue-Stieltjes integral and its generalizations, integral equations, Hilbert and Banach spaces, linear transformations (bounded and unbounded).

290. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

291. Seminar (3)
Prerequisite: graduate standing. Presentation of current mathematical research in field of student's interest.

298. Research Project in Mathematics (3)
Prerequisite: graduate standing. Independent investigation of advanced character as the culminating requirement for the master's degree.

IN-SERVICE COURSES
(See *Course Numbering System*)

302. Topics in Mathematics for Teachers (3; max total 6, if topic not repeated)

PHYSICAL SCIENCE

Some of the departments in the School of Natural Sciences offer courses in the physical science area. Some of these courses may be used to satisfy requirements for general education, credential programs, or professional development.

PHYSICAL SCIENCE MINOR

The minor in physical science consists of 20 units of selected courses with at least 6 of these units in upper division courses. Those core courses which are required are Geog 5, Geol 1, P Sci 21, and P Sci 106. The approved courses from which the remaining 8 units may be taken are Chem 2A-B, Phys 1A-B or Phys 2A-B, Phys 135, Phys 136, P Sci 103, P Sci 108, and P Sci 168.

CREDENTIAL PROGRAM

The single subject waiver program for Physical Science is in the process of being approved; see the Physical Science departmental coordinator for teacher education or the Chairman of the Teacher Education Department.

COURSES

PHYSICAL SCIENCE (P Sci)

ASTRONOMY

21. Elementary Astronomy (3)

Basic concepts, theories, and laws of astronomy as these apply to the solar system, galaxies, quasars, pulsars, black holes, and hypotheses on the origin and development of the cosmos. Class includes night observation and laboratory sessions.

22. Solar System Astronomy (3)

Prerequisite: Phys 1A, 2A. Astronomical coordinate systems; astronomical instrumentation; planetary motion and Kepler's Laws; the planets; comets, meteors, and meteorites; the sun; and the solar wind. (Former Phys 22A)

23. Stellar Astronomy (3)

Prerequisite: Phys 1A, 2A. Methods of measuring stellar distances, photometry, stellar spectra, H-R diagram, stellar structure, stellar evolution, the Milky Way galaxy, exterior galaxies, and cosmology. (Former Phys 22B)

103. Extraterrestrial Life (3)

Contemporary astronomical theories of the evolution of galaxies, stars, and planetary systems with attention focused primarily on the question of whether or not life exists beyond the earth.

PHYSICAL SCIENCE (P Sci)

20. Of Atoms and Space (3)

Exploration of the nature of matter, motion, and space through the use of concepts, theories, and laws of physical science. Recommended for liberal arts students. (Former P Sci 10)

106. History and Philosophy of Physical Science (3)

The development of great ideas and discoveries in physical science from antiquity to the present; special emphasis upon early Greek scientific thought.

108. Impact of Science Upon Society (3)

Basic philosophical issues and social problems attending the growth of science; study of areas in the history of science which have posed important questions for man, with special attention to the writings of eminent scientists.

168. Environmental Impact of Energy Demands by Society (3)

Analysis of energy crisis; introduction to various forms of energy, energy conversion processes and environmental effects; present energy supply and energy projections; alternatives to future energy demands and ways of evaluating alternatives.

PHYSICAL SCIENCE

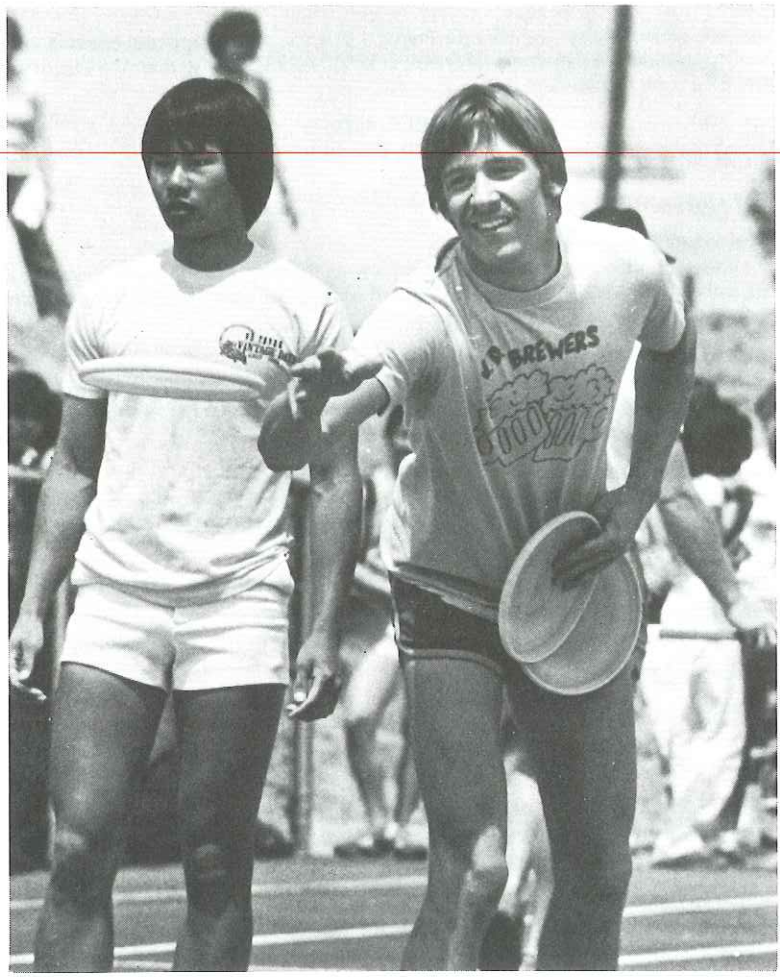
180T. Topics in Physical Science (1–3; max total 9)
Detailed discussion of special topics within the realm of physical science.

IN-SERVICE COURSES

(See *Course Numbering System*)

305. Physical Science for Secondary School Teachers (3; max total 6 in any one field)

350. Physical Science for Elementary School Teachers (3-6; max total 6 in any one field)



PHYSICS

FACULTY

Floyd L. Judd, Department Chairman

Sheldon J. Brown, Jon R. Dews, John R. Donaldson, Donald E. Holmes, Brandt Kehoe, James T. Shockley, Hugh A. Williamson, Michael J. Zender

DEGREES OFFERED: BA, BS, MA, MS

Minor in Physics and Physical Science

DEPARTMENTAL PROGRAMS

The department takes pride in its strong interest in the individual student. The friendly atmosphere within the department is conducive to informal and relaxed conversations with faculty, assistance with homework, and helpful discussions regarding the student's career plans. The departmental tutorial sessions give added peer instruction and provide for a high degree of interaction between students having common goals.

The department offers the bachelor of science and the bachelor of arts degrees as well as the master of science and master of arts. The curriculum for each degree program is designed for a solid background in physics while allowing the student maximum flexibility to fit particular career goals. All physics majors are asked to file a plan of study upon entering upper division work.

Those students with majors outside the department who wish to work on a minor in physics or physical science are asked to consult with the department chairman as early as possible. Early consultation will aid in the design of a minor which best complements the student's major and career goals.

UNDERGRADUATE PROGRAM

The bachelor of arts degree major consists of 40 units in physics of which 30 units must be upper division. The program allows development of competence in related areas of natural science, engineering and teaching. See the department chairman for particular programs. The bachelor of science degree major in physics consists of 34 units as listed below in the core plus another 15 units from a coherent program worked out with the department chairman.

For general degree regulations see *Degrees and Credentials.* There is no language requirement for either of these degrees; however, students planning graduate study are advised to prepare for the language requirement of the school they plan to attend. Students majoring in physics are strongly encouraged to use their general education and elective units to develop competence in another scientific field or relevant area. See the department adviser for recommended areas of concentration.

High School Preparation The high school preparation for majors in the Physics Department should include mathematics through trigonometry and physics and/or chemistry. Calculus is also strongly recommended if available. Language study in French, German, or Russian would be helpful for students planning graduate study.

BACHELOR OF ARTS DEGREE REQUIREMENTS

	Units
Physics Major	40
Phys 5A-B, 102, 104, 105A-B, 120A-B (28 units)	
Upper division electives in physics (12 units) *	
Additional Requirements	23–25
Math 75, 76, 77, Chem 2A-B, P Sci 106 or 108 or Math 81, Math 20 or Engr 70 or QM 60	
General Education and Electives	59–61
	124

* Courses outside the department may be accepted with prior approval of department chairman.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

	Units
Physics Major	49
Phys 5A-B, 102, 104, 105A-B, 107A, 110, 120A, 140 (34 units)	
Upper division electives in physics (15 units) *	
Additional Requirements	28–29
Math 75, 76, 77, 81, Chem 1A-B	
Computer programming (Engr 70 or Math 20 or QM 60)	
General Education and Electives	50–51
	128

SUGGESTED SEQUENCE OF COURSES FOR BACHELOR OF SCIENCE DEGREE

In addition to the specific courses listed below, general education requirements and electives should be included to bring total to 15–17 units per semester. A total of 128 units must be completed for the bachelor of science degree. (See *Degrees and Credentials.*)

1st Year: Phys 5A, Math 75, 76, Computer Programming, Chem 1A-B
2nd Year: Phys 5B, 102, 104, Math 77, 81
3rd & 4th Years: Phys 105A-B, 107A, 110, 120A, and 15 approved units of upper division physics.

PHYSICS MINOR

A minor in physics for a bachelor's degree requires 18 units of which 8 must be upper division, including Phys 102.

CREDENTIAL PROGRAM

For the single subject waiver program see Physical Science section.

GRADUATE PROGRAMS

The Department of Physics offers graduate courses of instruction and research leading to either the master of arts or master of science degree. These programs are intended to prepare the student for teaching, further graduate study, or for industrial employment in the research and development areas. For specific requirements, consult the chairman of the department; for general requirements, see *Division of Graduate Studies and Research.*

Under the direction of a graduate adviser, a coherent program is prepared and submitted, directed toward the student's goal in graduate study and designed within the framework outlined below.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

MASTER OF ARTS DEGREE REQUIREMENTS

The graduate program for the master of arts degree in physics is intended to be a terminal degree. It is not the appropriate program for those who plan to pursue a doctoral program in physics. There is no foreign language requirement for this degree.

Master of Arts Degree

	Units
Courses in physics, including 15 units in 200-series	20
Electives in physics or related fields	10
Total	30

MASTER OF SCIENCE DEGREE REQUIREMENTS

The master of science degree in physics is designed for graduates who desire further graduate study or industrial employment in physics and allied fields. Undergraduate preparation equivalent to a physics major at CSU, Fresno, is necessary for admission. There is no foreign language requirement for this degree; however, candidates intending further study are advised to meet the language requirement of the prospective university.

* Courses outside the department may be accepted with prior approval of department chairman.

	Units
Courses in physics, including 15 units in 200-series	20
Courses in other subject fields	4
Electives in physics or related fields	6
Total	30

Specific Requirements: Phys 203A-B, 220A-B. Students not doing a thesis are expected to complete at least 3 units of Phys 290 as well as take a final comprehensive oral examination.

COURSES

PHYSICS (Phys)

Note: Phys 4A-B-C is replaced by Phys 5A-B.

1. Physics for the Health Professions (4)

Prerequisite: equivalency of Math 4 (Intermediate Algebra) and Math 5 (Trigonometry). The theory and application of physical principles relative to biomedical problems. Measurement, force and motion, energy/work/power, fluids and gases, heat, electricity, and radiation. (3 lecture, 3 lab hours)

1A-B. Physics for Bioscientists (4-4)

Prerequisite: two years of high school algebra or Math 4. Essentially the same physical content as Phys 2A-B but with all theory, applications, and experimental techniques directed toward the investigation, description, and analysis of biological systems. (3 lecture, 3 lab hours)

2A-B. General Physics (4-4)

Prerequisite: two years of high school algebra or Math 4. Mechanics, properties of matter, heat, sound, light, electricity and magnetism, and modern physics. (3 lecture, 3 lab hours)

5A. Principles of Physics I (5)

Prerequisite: Math 76 (or concurrently). Topics and concepts in classical physics including statics, kinematics, Newton's laws, conservation laws, rigid body motion, simple harmonic motion, mechanics of solids and fluids, heat and thermodynamics. (4 lecture, 3 lab hours)

5B. Principles of Physics II (5)

Prerequisite: Phys 5A, Math 77 (or concurrently). Topics in classical physics including electrostatics, electric fields, currents, magnetic fields, electromagnetic induction, Maxwell's equations, radiation, geometrical and physical optics, and acoustics. (4 lecture, 3 lab hours) (Note: Students who desire a survey of the entire scope of general physics should continue through Phys 102.)

55. Sound (3)

For music students and others interested in the physical basis of music. Vibrations and spectra of various musical instruments; harmony and discord, the tempered scale; acoustics; reproducing instruments; hearing.

102. Modern Physics (3)

Prerequisite: Phys 5B. Fundamental concepts of atomic and nuclear structure, transitions and radiations. Includes discussions of relativistic mechanics, quantum mechanics, solid state physics. Special topics as they pertain to modern developments in physics, engineering, and chemistry.

104. Experimental Techniques in Solid State Physics (3)

Prerequisite: Phys 5B. Basic concepts in solid state physics. Measurements of conductivity, energy gap in semiconductors, drift mobility, Hall coefficients, photoconductivity, magnetic susceptibilities, exciton spectra, dielectric loss. Experience in X-ray diffraction, vacuum technology, thin-film deposition, and low temperature techniques. (1 lecture, 6 lab hours) (Former Phys 165)

105A-B. Analytical Mechanics (3-3)

Prerequisite: Phys 5B. (A) Analytical and vector treatment of the fundamental principles of statics, kinematics, and dynamics. (B) Advanced dynamics; harmonic motion, central force fields and Lagrange's equations.

107A-B. Intermediate Electricity and Magnetism (3-3)

Prerequisite: Phys 105A, Math 81. (A) Mathematical analysis of electrostatics and magnetostatics, Gauss' law, solutions of Laplace's equation, images, theory of conduction, magnetic potentials. (B) Motion of ions in electric and magnetic fields, electromagnetic induction, Maxwell's equations and wave propagation, electron theory and magnetic properties.

110. Physical Optics (3)

Prerequisite: Phys 5B, Math 81. Theory of optical phenomena; wave theory of light with applications to optical instruments; interference and diffraction phenomena, dispersion, polarization, coherence and laser phenomena.

115. Quantum Mechanics (3)

Prerequisite: Phys 102, 105A, 170A (or concurrently), Math 81. Historical background, postulates, meaning and methods of quantum mechanics; applications to atomic phenomena.

116. Quantum Physics of Atoms (3)

Prerequisite: Phys 115 or Chem 115. Quantum mechanics applied to atomic and nuclear physics.

120A-B. Scientific Measurements and Instrumentation (3-3)

Prerequisite: Phys 5B. Electronic measurements and the physics of modern analog and digital circuits used in general scientific instrumentation. (2 lecture, 3 lab hours) (Former Phys 120)

125. Laboratory Instrumentation (3) (See Chem 125)

Not open to chemistry majors. Prerequisite: Chem 8 or 28, Chem 105. Basic electricity, electronics, light and optical systems as applied to the design, use and limitations of instrumentation typical to the analytical and bioscience laboratory. (1 lecture, 6 lab hours)

130. Advanced Laboratory (2)

Prerequisite: Phys 102, 120A. Advanced experiments in such areas as mechanics, electricity and magnetism, atomic and nuclear physics. Opportunity for at least one individual project. (6 lab hours) (Former Phys 130A-B)

135. Physics of Medical Instrumentation (3)

A course in diagnostic, emergency and laboratory instrumentation, designed for students and personnel in the medical, paramedical and biological fields with emphasis in electronic devices. The subject matter includes basic electronic principles, biomedical recording, oscilloscopes, electrocardiography, encephalography, fetal monitors, etc. (Former Exp 110B)

136. Radiation Physics (3)

Prerequisite: Phys 1B or 2B or 102. The interaction of radiation with matter: photoelectric, Compton and pair production processes, neutron and charged particle interactions, linear energy transfer, quality factor, attenuation coefficients, shielding. Biological effects, RBE, internal dose, permissible exposures, beneficial application. Instrumentation.

140. Thermodynamics and Kinetic Theory (3)

Prerequisite: Math 81. Fundamental concepts and laws of classical thermodynamics. Rudiments of kinetic theory and statistical thermodynamics with application to physical and chemical systems.

145. Geophysics (3)

Prerequisite: Phys 1A-B or 2A-B or 5A, Math 75. Basic principles of physics applied to the solution of geological problems, rotation and figure of the earth, the gravity field, seismology and the earth's interior, geomagnetism, and the thermal history of the earth.

162. Solid State Physics (3)
Prerequisite: Phys 102 or Chem 115. Classification of solids; crystalline state and lattice vibrations; properties of metallic lattices and dielectrics; magnetic properties of solids; free electron theory and band theory of metals; semiconductors; imperfections.

170A-B. Mathematical Physics (3-3)
Prerequisite: Math 81. Application of mathematical methods to the solution of problems in physics.

175T. Topics in Contemporary Physics (1-4; max total 12)
Designed to provide students with special work in such areas of physics as biophysics, modern optics, plasmas, high energy physics, solid state, nuclear structure, astrophysics, low temperature phenomena. Some topics may have labs.

180. Seminar in Physics (1; max total 3)
Prerequisite: senior or graduate physics major or permission of department chairman.

190. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

203A-B. Theoretical Physics (3-3)
Advanced treatment of classical analytical mechanics including Lagrange's and Hamilton's formulation of the laws of motion, special relativity, small oscillation theory, hydrodynamics.

220A-B. Advanced Electricity and Magnetism (3-3)
Electromagnetic theory and its applications; solutions of Laplace's equation; electromagnetic potentials; cylindrical and spherical waves; retarded potentials; Lienard-Wiechert potentials; special relativity and electron theory.

221A-B. Atomic and Nuclear Physics (3-3)
The nature of matter and radiation as deduced from the classical quantum and quantum mechanical theories; atomic and nuclear structure; the nature of the nucleus as deduced from classical, quantum and quantum mechanical theories; models of nuclear structure.

222A-B. Quantum Mechanics (3-3)
Nonrelativistic quantum theory; state vectors and Hermitian operators, quantum mechanical pictures and representations, angular momentum, perturbation theory. Application to central force problems; hydrogen and helium atoms, scattering. Foundations of quantum field theory. Application of Group Theory to Quantum Mechanics.

223. Statistical Mechanics (3)
Theoretical principles of classical and quantum statistics.

253A-B. Astrophysics (3-3)
Radiant energy, atomic spectra, excitation and ionization, positional astronomy, magnitude systems, binary and variable stars, colors and star temperatures and stellar spectra. Continuous stellar radiation, theory of line formation, stellar interiors, stellar evolution, interstellar matter, galactic structure and galaxies.

275T. Topics in Contemporary Physics (1–3; max total 6)
Advanced topics in such areas as modern optics, plasma physics, high energy physics, solid state physics, astrophysics, nuclear physics, biophysics, relativity. Some topics may have labs.

290. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

299. Thesis or Project (2-4; max total 4)
Prerequisite: See *Master's Degrees—Thesis Requirements.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

PSYCHOLOGY

FACULTY

William C. Coe, Department Chairman

Ibrahim M. Abou-Ghorra, Barbara H. Basden, David R. Basden, Raul Betancourt, Thomas E. Breen, Benjamin B. Burton, Alan D. Button, Jack A. Chambers, Arnold M. Cooper, Samuel S. Franklin, Alexander Gonzales, Joel S. Grossman, Wayne B. Holder, Donald D. Kirtley, George S. Leavitt, Robert V. Levine, Stanley E. Lindquist, Harrison E. Madden, Ernst Moerk, Terry G. Newell, Frank V. Powell, Merry W. Salehi, Mitri E. Shanab, James Mitchell Smith

DEGREES OFFERED: BA, MA, MS
Minor

DEPARTMENTAL PROGRAMS

The Psychology Department offers work leading to the bachelor of arts and the master of arts and master of science degrees in psychology.

Required core courses provide the basic terminology, the empirical and conceptual knowledge, and the research experiences necessary to deal with psychological subject matter. Twelve additional units from outside the field of psychology are required to encourage breadth in the major. Students should work closely with their advisers in selecting the psychology electives which will best satisfy their individual needs and interests. Those students planning to pursue graduate work in psychology should check carefully with their advisers and the graduate schools of their choice regarding requirements for admission and should plan to use their electives within the major largely to satisfy such requirements.

An undergraduate advisory guide is available from the Psychology Department office on request.

PREPROFESSIONAL PREPARATION

A psychology major is often used as preparation for other professions. For preprofessional programs in law, dentistry, medicine, and the ministry, see the *Preprofessional Preparation* section and consult an adviser in the Psychology Department.

CREDENTIAL PROGRAMS

The Department of Psychology offers the Pupil Personnel Services Credential and the School Psychology Credential. The Pupil Personnel Services Credential must be completed prior to entrance into the School Psychology program. The admission dates for these programs are November 30 and April 30.

Course Requirements: Pupil Personnel Services Credential—Psych 121, 149, 155, 166 or 171, 167 or 168, 249, 267; A S 116, 222, 224; E Ed 234 (40 units). School Psychology Credential—Psych 261, 262, 265, 267, 268, 277 (39 units).

Application forms and advising are available in the Psychology Department.

BACHELOR OF ARTS DEGREE REQUIREMENTS

In addition to the requirements of the major (48 units), outlined below, the student is responsible for the completion of the General Education requirement, special course requirements, and electives (76 units) totaling 124 units for the BA degree.

The major consists of a core of five course areas plus elective courses. With departmental approval students may make adaptations in their programs to fulfill specific needs and career objectives.

	Units
A. Applications Area (Three courses) Psych 160T, 162 or 165, 166, 169, 175, 176, 177, Mgt. 110A	9–11
B. Basic Content Area (Two courses) Psych 150T, 154, 155 or 178, 156 or 173	6– 8
C. Basic Processes Area (Two courses) Psych 120T, 121, 122, 124, 125, 126, 127	6– 8

D. Assessment Area (All courses)
Psych 142 *, 144, 149, 170T (computer) 14–15
E. History and Systems, Psych 112 4
F. Psych Electives 2–7
48

Courses Suggested for Particular Emphases **

1. Child Development
   A. Applications: Psych 166, 175, 177
   B. Basic Content: Psych 155 or 178, one other
   C. Basic Processes: any except Psych 127
   F. Electives: Psych 167 or 168, 132, 174; La Raza 124 or 127
2. Counseling
   A. Applications: Psych 162 or 165, 166 or 160T, 177
   B. Basic Content: Psych 154, one other
   C. Basic Processes: Psych 121, 122
   F. Electives: Psych 132, 174, 175; La Raza 125T (Chicano Psychology) or La Raza 127.
3. Business
   A. Applications: Psych 162 or 165, 176, 177; Mgt. 110A
   B. Basic Content: Psych 154, 156
   C. Basic Processes: Psych 121, 122
   F. Electives: Psych 174 or 175, 166 or 171
4. Preparation for Graduate Work
   A. Applications: Psych 166, any others of interest
   B. Basic Content: Psych 154, 155, 156 (any two)
   C. Basic Processes: Psych 121, 122
   F. Electives: Psych 143, one course from Areas B or C

PSYCHOLOGY MINOR

A psychology minor must have prior approval of the Psychology Department. The minor consists of 22 units of psychology courses, 15 of which must be upper division. The specific courses may be selected to satisfy the needs of individual students but must be worked out in advance with an adviser from the Department and be approved by the Department.

GRADUATE PROGRAMS

The master of arts and master of science degrees in psychology are designed to provide students with a broad background in psychology while allowing them opportunities to pursue areas of special interest. Fulfillment of the requirements for either master's degree prepares the student for positions in related community service, public institutions, college teaching, research, or entrance into Ph.D. programs in psychology.

The master of arts and master of science degree programs in psychology are based upon the satisfactory completion of the core coures required for the CSUF undergraduate major in psychology, or their equivalent. Classified standing requires an undergraduate average of B or better in psychology courses and a total GRE Aptitude Test score of 1000 (V plus Q) or a total score on the GRE Advanced Test in Psychology equivalent to the 60th percentile (ETS norms).

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements,* and *Thesis and Thesis Alternatives.*)

Under the direction of a graduate adviser, a coherent program is prepared and submitted, directed toward the achievement of the student's goal in graduate study.

MASTER OF ARTS DEGREE REQUIREMENTS

The Master of Arts degree program in Psychology may be arranged to include interest areas such as general experimental, developmental, and social psychology, as well as special Master of Arts programs for individuals. This 30-unit degree program is intended primarily to prepare

* Math 101, Statistical Methods (plus a one-unit laboratory), may be substituted for Psych 142. This course carries a prerequisite of Math 70 which may be credited under the 12 units required outside the major.
** The D. and E. requirements are the same for all students regardless of interests.

graduates for entry into a doctoral program in general experimental, developmental, social, as well as clinical psychology, and may serve as preparation for community college teaching or professional employment requiring a master's degree.

	Units
Courses in psychology, 200-series. (See *specific requirements)*	15
Electives in psychology or related fields	15
Total	30

Specific Requirements: Psych 244 (4 units) or 249 (4 units), 200T (4 units) or 250T (4 units) or 255T (4 units), 225T (4 units) and 231 (1–2 units). (See the department for other requirements related to the General Experimental, Developmental, and Social program interest areas.)

MASTER OF SCIENCE DEGREE REQUIREMENTS

The Master of Science degree in Psychology is a 60-unit degree which can be a terminal degree or qualify one for entry into a doctoral program. This clinical program can be coordinated with developmental psychology or school psychology pursuits. Nearly half the units are field work practicum and intern work. The second year is partially spent in intern placements.

	Units
Courses in core program and field work	40
Electives in psychology, 200-series	20
Total	60

Specific Requirements: Psych 261 (6 units), 262 (6 units), 265 (6 units), 267 (12 units), 268 (6 units), 244 (4 units) or 249 (4 units).

Specific requirements for advancement to candidacy for either degree include a score above the 60th percentile (ETS norms) on the GRE Advanced Test in Psychology. See the department for details about other requirements. Psych 299 is required of all master's degree candidates.

COURSES

PSYCHOLOGY (Psych)

Note: All psychology courses are open to majors and non-majors.

10. Introduction to Psychology (4)
Not open to students with more than six units in psychology. Introduction to psychology as an empirical science; biological and social bases of behavior; scientific principles of psychology in perception, learning, motivation, intelligence and personality. (3 lecture, 2 lab hours)

20. Contemporary Issues in Psychology (3)
In depth investigation of a limited number of currently popular topics in the psychological literature. Emphasis on student involvement and application of principles.

36. Introduction to Psychophysiology (3)
Functioning of the brain in learning, memory, language, motivation, and emotion; human physiological correlates of emotional states, pain, dreaming; control of brain waves and internal states, lateralization of brain functions.

60T. Psychology as a Behavioral Science (2-5; max total 6 if no topic repeated)
Problems in approaching man as a social animal; sections in basic or applied processes in personality, interpersonal relations, social environment, and group participation. (Some sections may have lab hours.)

61. Personal Adjustment (3)
Not open to students with credit in Psych 171. General adjustment behavior with regard to personal, academic, social and mental health problems; application of principles of prevention of emotional problems.

66. Individual Differences (3)
Major dimensions of individual and group differences emphasizing intelligence, sex, race, class and personality factors.

101. Child Psychology (3)
Not open to students with credit in Psych 155. The dynamics of infant and child development and adjustment.

102. Adolescent Psychology (3)
Adjustment of youth to self and society.

103. Maturity and Old Age (3)
Psychological study of maturity and old age; physiological and sociological considerations.

112. History and Systems (4)
Prerequisite: 12 units in psychology. Historical, philosophical and scientific background of psychology; current systems and theoretical issues.

120T. Topics in General Psychology (2-5; max total 12 if no topic repeated)
Prerequisite: Psych 142, 144. Empirical evidence and theoretical issues in learning, motivation, cognition, language, perception, sensory and physiological processes. Sections may be limited to animal or human studies; research and reporting. (Usual sections include lab hours).

121. Principles of Learning (3–4)
Prerequisite: Psych 142. Combined survey of (1) principles from the human and animal laboratory with theoretical interpretations and applications; and (2) principles of operation of the human memory system with theoretical interpretations. (May include lab hours).

122. Motivation (3–4)
Prerequisite: Psych 142. Initiation and continuation of behavior; acquisition and modification of motives. (May include lab hours).

124. Perception and Cognition (3–4)
Study of sensory, perceptual and cognitive processes and their role in learning, memory, motivation and social behavior. (May include lab hours).

125. Physiological Psychology (3–4)
Prerequisite: Psych 142 or permission of instructor. (Psych 36 recommended) Nervous systems structures and physiological processes underlying behavior; anatomical and physiological bases of learning, motivation, emotions and emotional disorders. (May include lab hours).

126. Psycholinguistics (4)
Not open to students with credit in Psych 130T section, *Thought and Language*. An introduction to theory and research in psycholinguistics: language as related to thought and culture; language acquisition; recognition, production, and comprehension of language; psychological applicability of modern linguistic theory; language as related to social processes.

127. Animal Behavior (3–4)
Not open to students with credit in Psych 120T section, *Animal Learning and Motivation.* Prerequisite: Psych 144 or permission of instructor. Causal factors for instigation, acquisition and maintenance of behavior in animals. Genetic, ethological, ecological and physiological approaches are considered. (May include lab hours and field trips).

132. Psychology of Sexuality (3)
Prerequisite: upper division standing. Psychological aspects of human sexual behavior: influence on personality, various behavioral manifestations and pathologies.

134. Social Psychology (3)
Not open to students with credit in Psych 156. Introduction to human interaction in different social environments. Major concepts, theories, and principles of social psychology, relevant findings and their applications to everyday life.

136. Human Learning and Behavior (3)
Not open to students with credit in Psych 121. Open to majors and non-majors. Introduction to learning principles as they interact with perception, cognition and motivation. Relevance of these principles in understanding human adaptation to school, home and social environments.

142. Introductory Statistics (4)
Not open to students with credit in Psych 25. Recommended: two years high school algebra such as Math 4; Math 51 recommended. Basic statistical methods for analysis of data: parametric tests of significance; linear regression and correlation; analysis of variance; introduction to non-parametric techniques. (Usually 3 lecture, 2 lab hours).

143. Intermediate Statistics (4)
Prerequisite: Psych 142. Intensive study of analysis of variance with research emphasis. Topics include single and multifactor designs both with and without repeated measures, planned and post hoc comparisons, trend analysis, analysis of covariance, and introduction to university computational facilities. (3 lecture, 3 lab hours).

144. Research Designs and Experimental Methods (4)
Not open to students with credit in Psych 50. Prerequisite: Psych 142. Basic course in experimental psychology: research design statistics; introduction to scientific procedures and methods in psychology; participation in research and report writing. (3 lecture, 3 lab hours).

149. Psychological Testing (4)
Prerequisite: Psych 142. Theories of psychological testing stressing the logic and limits of measurement. Emphasis on technical and individual tests. (3 lecture, 3 lab hours).

150T. Problems in Personality, Developmental and Social Psychology (2-5; max total 12 if no topic repeated)
Prerequisite: Psych 142. Wholistic levels of analysis in psychology such as personality, social, and developmental; conceptual and empirical issues. (Some sections include lab hours).

154. Personality (3–4)
Major contemporary theories of personality; techniques for research in personality. (May include lab hours).

155. Developmental Psychology (3–4)
Prerequisite: Psych 142. Empirical and theoretical treatment of human development throughout the life span; genetic, physiological, and socio-cultural influences upon development; physical, emotional, motivational, intellectual-cognitive, and social facets of development. (May include lab hours).

156. Social Processes (3–4)
Prerequisite: Psych 142. Theories and research about human functioning in social systems. (May include lab hours).

160T. Topics in Clinical Processes (2-5; max total 12 if no topic repeated)
Prerequisite: permission of instructor. Examination of individual behavior and small-group processes; includes such topics as clinical psychopathology, sensitivity training, and intragroup dynamics, consciousness, dreams and imagination.

162. Encounter Group (4)
Prerequisite: permission of instructor. Exploration and analysis of interpersonal relations, group processes, and other social interactions through the clinical process in a small group setting; enhancement of interpersonal competence by a variety of methods.

165. Interpersonal Dynamics (4)
Explores personality, social and situational factors in interpersonal relations, with emphasis on two-person relationships. Uses clinical process approach requiring student's participation in personal and social interaction exercises.

166. Abnormal Psychology (3)
Theoretical examination of origins, symptoms, and treatments of personality disturbances.

167. Mental Retardation (3)
Psychological aspects of mental retardation; parent-child problems, etiology, nosology, school placement, institutionalization, treatment and recognition of all types; parent and child counseling.

168. Exceptional Children (3)
The atypical child; etiology, symptomatology, nosology, recognition and recommendations.

169. Problems of the Handicapped and Exceptional (3)
Examination of the psychological, sexual, learning and social adjustments of handicapped and exceptional persons.

170T. Topics in Psychological Applications (2-5; max total 12 if no topic repeated)
Applications of psychology; human factors; clinical psychology, learning applications, clinical, quantitative, learning, creativity, computer, and other applied topics. (Some sections may include labs).

171. Adjustment and Mental Hygiene (3)
Not open to students with credit in the Psych 60T section or Psych 61. Basic processes in adjustment; mental health and social problems; applications of principles of emotional health, prevention of personal problems.

172. Psychology of Women (3) (Same as WS 172)
Prerequisite: permission of instructor. Examination of sex differences and sex roles: biological, cognitive, social, and motivation.

173. Environmental Psychology (3–4)
Man-environmental relations, psychological and behavioral effects of various ecological conditions including crowding, housing, urbanization, and space.

174. Principles and Techniques in Guidance (3) (See A S 174)

175. Family Counseling (3)
Psychodynamic treatment of family problems; methods of counseling; psychotherapy.

176. Industrial Psychology (3)
Occupational assessment, training procedures, production efficiency, morale determinants, human engineering, decision processes, organization theory.

177. Behavior Modification (3)
Introduction to learning principles and their applications to behavior. Modification methods and techniques used for problems of children, adolescents, and adults.

178. Culture, Social Class and Development (3–4)
Not open to students with credit in Psych 170T section entitled *Culture, Social Class and Development.* An introduction to theory and research on race, prejudice, culture and social class, and the results of these on the intellectual and social development of the child.

180T. Seminar in Psychology (1-5; max total 12 if no topic repeated)
Prerequisite: 9 units in psychology, permission of instructor. Undergraduate seminar in specialized areas, new developments and synthesis of psychological processes, thought and theory.

190. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

199. Senior Thesis (2-4)
Concentrated empirical or theoretical study of specific topic in psychology; emphasis on independent and creative activity. Copy of thesis required for Psychology Department file.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

200T. Seminar in Developmental Psychology (2-4; max total 15 if no topic repeated)
May be repeated with different topics. Prerequisite: permission of instructor. Seminars in development and genetic psychology, special topics for particular age ranges and problem areas. (May include lab hours).

220T. Seminar in Learning and Related Problems (2-4; max total 15 if no topic repeated)
Prerequisite: undergraduate core. Advanced current developments in learning, perception, language, memory and cognitive psychology. (May include lab hours).

225T. Seminar in Psychobiological Bases of Behavior (2–4; max total 15 if no topic repeated)
Prerequisite: permission of instructor. Recent advances in psychophysiology, physiological psychology, psychopharmacology, behavior genetics, sensory processes and related topics. (May include lab hours) (Former 270T section).

231. Readings in Psychology (1-3; max total 8 if no topic repeated)
Prerequisite: permission of instructor. Seminar in individually directed readings in areas of interest or need; appropriate reports and evaluations required. Individual conferences.

240T. Seminar in Quantitative Methods for Behavioral Research (2–4; max total 15 if no topic repeated)
Prerequisite: Psych 142, 143. Methods for analysis of multivariate data; factor analysis; multiple regression; advanced analysis of variance procedures. Computer applications and use of computers for analysis of data. (May include lab hours).

244. Seminar in Advanced Theoretical and Methodological Issues (4)
Prerequisite: Psych 143. Examination of current theories and their relationship to design and methodology in behavioral research. (3 lecture, 3 lab hours)

249. Seminar in Advanced Research Methods and Applications (4)
Prerequisite: Psych 143. An advanced research methodology course stresssing procedures, problems, and theories of data analysis and research planning. (3 lecture, 3 lab hours)

250T. Seminar in Personality and Related Areas (2-4; max total 12 if no topic repeated)
Prerequisite: undergraduate core in psychology. In-depth examination of the recent developments in personality and clinical psychology. (May include lab hours).

255T. Seminar in Social Psychology and Related Areas (2–4; max total 15 if no topic repeated)
Prerequisite: permission of instructor. Theories and research about individual functioning in society; also includes such topics as environment psychology and the psychology of women. (May include lab hours).

261. Clinical Intervention Techniques I (3–6)
Prerequisite: Psych 166 and permission of instructor. Principles and techniques of clinical interviewing and history taking; theory and application of individual psychotherapeutic techniques. Includes supervised practicum experience.

262. Clinical Intervention Techniques II (3–6)
Prerequisite: Psych 166 and permission of instructor. Principles and applications of group psychotherapy. Theory and techniques of behavior modification. Includes supervised practicum experience.

265. Clinical Assessment I (3–6)

Prerequisite: Psych 149 and permission of instructor. Administration, scoring, and interpretation of individual and group verbal and non-verbal measures of intelligence and achievement; case studies on children and adults will be developed. Includes supervised practicum experience.

267. Field Work in Clinical Methods (3-18; max total 18)

Prerequisite: Psych 261, 262, 265, 268, and permission of instructor. Supervised field work in clinical assessment, intervention and case study techniques. Field placements will include hospitals, schools and clinics, depending on students needs. Regular conferences and critiques with supervising faculty.

268. Clinical Assessment II (3–6)

Prerequisite: Psych 149 and permission of instructor. Administration, scoring and interpretation of measurement instruments used for learning problems, physical-motor development, vocational aptitude, social maturity and emotional and personality appraisal; development of prescriptive and rehabilitative statements in case studies on children and adults. Includes supervised practicum experience.

270T. Seminar in Applied Behavioral Science (1-6; max total 15 if no topic repeated)

Prerequisite: permission of instructor. Topics in applied behavioral research; conflict management, group dynamics, organization development, sensitivity training, and related processes. For students in the fields of business, communications, education, psychology, and the social sciences. (May include lab hours)

275T. Seminar in Community Psychology and Related Areas (2–4; max total 15 if no topic repeated)

Prerequisite: permission of instructor and graduate standing. May be repeated with different topics. Survey course of basic concepts in Community Psychology including levels of prevention, crisis work, consultation, program evaluation, community influence and organization and new approaches to mental health problems. Open to graduate level psychology and non-psychology majors with an interest in mental health programs.

277A. Seminar in School Psychology (2)

Prerequisite: Graduate standing. State education codes and court decisions related to school psychology; community resources; and observation of special educational programs. (Former Psych 277)

277B. Seminar in School Psychology (2)

Prerequisite: Admission to the School Psychologist credential program, Psych 277A, Psych 265, and Psych 268 (may be taken concurrently). Professional issues, ethics and current practices; in-service training theory and practicum; consultation skills and individualized educational planning. (Former Psych 277)

290. Independent Study (1-3; max see reference)

See *Academic Placement—Independent Study.*

299. Thesis (2-6; max total 6)

Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree in compliance with Psychology Department regulations.

IN-SERVICE COURSES

See *Course Numbering System.*

302. Selected Topics in Psychology (1-3; max total 9 if no topic repeated)



SCHOOL OF SOCIAL SCIENCES

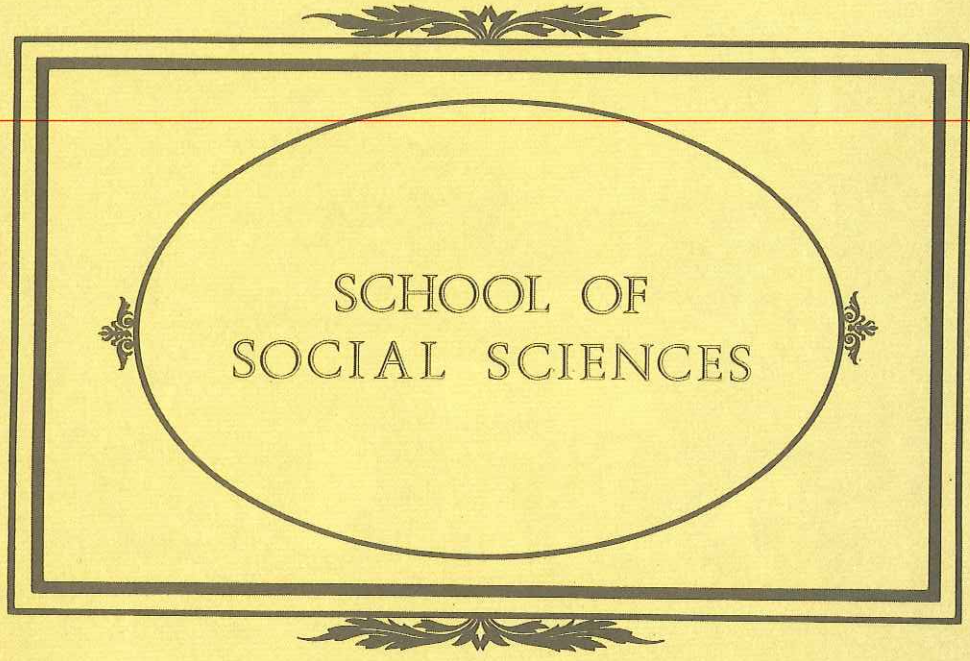
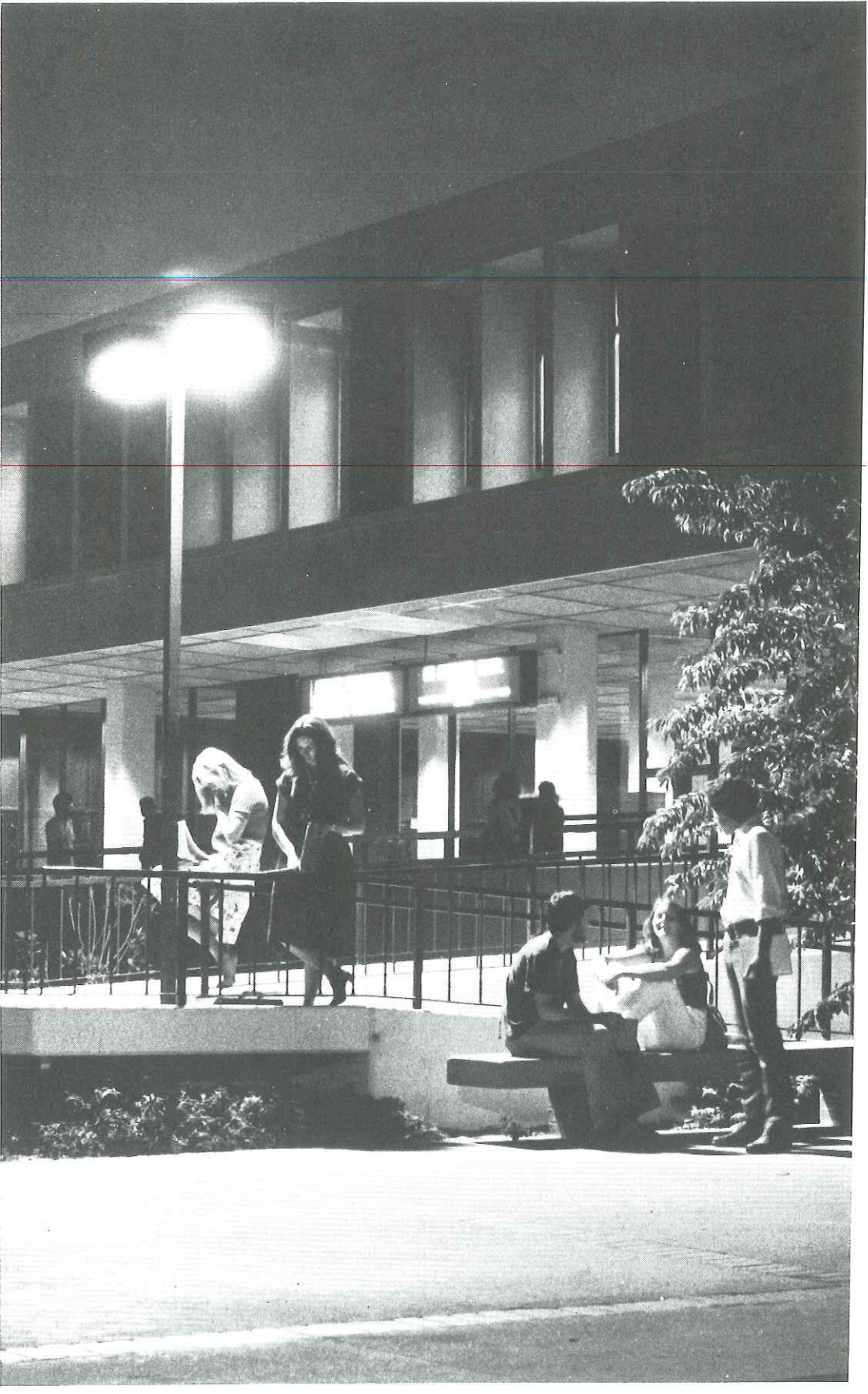


Photo: *Edna Orr James—Teacher, Primary grades, Education*
Fresno State Normal School, circa 1917



SCHOOL OF SOCIAL SCIENCES

Peter J. Klassen, Dean

Department or Program	*Chairman or Coordinator*
Anthropology	Roger M. LaJeunesse
Criminology	Charles W. Dean
Economics	Izumi Taniguchi
Ethnic Studies Program	(Coordinator) Robert Mikell
Geography	Stanley Norsworthy
History	Hudson Kensel
La Raza Studies Program	(Coordinator) Jesus Luna
Political Science	David H. Provost
Sociology	Joel Best
Urban and Regional Planning	(Acting) Wayne V. Merchen

SCHOOL PROGRAMS

The School of Social Sciences offers a variety of degree, credential, and certificate programs at both the undergraduate and graduate levels, as the materials under department and program headings on the succeeding pages indicate. The School is stongly committed to traditional liberal arts educational programs and maintains a varied and strong participation in the university general education program. At the same time constant attempts are being made by the faculty to develop innovative curricula for the 1980's. Professional employment preparation is available for nongovernmental situations and for service in public and private education as well as city, county, state, federal, and other governmental services. Preparation for graduate study and professional degrees is likewise a concern of the school's departments and programs.

The School engages in many interdisciplinary programs (see *Special and Interdisciplinary Programs*). Special attention is invited to the social science major as a method for obtaining elementary and secondary teaching credentials and in prelegal training. Faculty and students of the school are involved in community services, research, and other professional activities. The faculties of the various departments engage in credit and noncredit offerings through the Extension Program (see *Extension Bulletin*).

In recognition of the value and importance of ethnic minority cultures in the United States, it is strongly recommended that every student satisfactorily complete at least one course from any of the following areas: Ethnic Studies, (Black Studies Native-American Studies, Armenian Studies, Asian-American Studies) or La Raza Studies.

COURSES

SOCIAL SCIENCE (S SCI)

185. Internship (1–6; max total 6)

Prerequisite: upper division or graduate standing; permission of instructor. Supervised work experience in the applied aspects of the Social Science disciplines. Hours to be arranged.

ANTHROPOLOGY

FACULTY

Roger M. LaJeunesse, Department Chairman

Thomas Bowen, Shien-min Jen, Franklin C. L. Ng, Sydney R. Story, Dirk H. van der Elst

DEGREES OFFERED: BA

Minors in Anthropology and Asian-American Studies

DEPARTMENTAL PROGRAMS

The department administers the major and minor in Anthropology (Anth), and the minor in Asian-American Studies (As Am).

ANTHROPOLOGY

Anthropology offers an extremely broad yet integrated approach to the study of man and his culture. Various aspects of the field view man as a biological product of the evolutionary process, as a participant in diverse ecological systems, as a bearer of alternative cultural traditions, and as a creator of complex symbolic worlds. Because of its wide coverage and holistic approach, anthropology provides an unusually versatile liberal arts education which can serve as a solid foundation for many fields and vocations. Individuals with anthropological training at the baccalaureate level are prepared not only for graduate study but for a large number of employment possibilities including state and local social services, public health, archaeological research, and personnel administration.

A special 5-unit course, Anth 15, is part of a 17-unit program which integrates Anthropology with Biology and Geology through extended field trips in the Western USA and Mexico.

The Anthropology Program includes six areas: I: Introductory Anthropology; II: Method and Theory; III: Ethnology; IV: Archaeology; V: Cross-Cultural Comparisons; VI: Physical Anthropology.

BACHELOR OF ARTS DEGREE REQUIREMENTS

	Units
Anth 1, 2 or 15, 3, 4, 104, 115	18
One further course selected from each of the following areas:	
III, IV, V, VI	12
Anthropology electives beyond the above	6
Elementary statistics or Anth 165	3
	39

In addition to the requirements of the major (39 units), the student is responsible for completion of the General Education requirement, special course requirements, and electives, which may include a minor (85 units), totaling 124 units for the BA degree.

ANTHROPOLOGY MINOR

The following minor requirements are in addition to the general education requirements.

	Units
Anth 1, 2 or 15, 3, 4	12
One further course selected from each of the following areas:	
II, V, and VI	9
	21

ASIAN-AMERICAN STUDIES

Asian-American courses familarize students with the historical, socio-economic, and cultural adaptations which peoples from Asia made to life in the United States. The curriculum is designed to enable professional men and women to understand and to interact with people from ethnic subcultures in our pluralistic society. The Asian-American Studies minor therefore complements any major concerned with human behavior.

ASIAN-AMERICAN STUDIES MINOR

The following minor requirements are in addition to the general education requirements. At least 9 units must be upper division.

	Units
Elect from Anth 2, As Am 110, Eth S 1	6
Elect from As Am 15, 30, 56	6
Elect from As Am 150, 180T, Anth 123, 124	9
	21

COURSES

ANTHROPOLOGY (Anth)

I. INTRODUCTORY ANTHROPOLOGY

1. Introduction to Physical Anthropology (3)

Relation of man and the animals; evolution of man, fossil man, race and racial classification; racial theories. (2 lecture, 2 lab hours)

2. Introduction to Cultural Anthropology (3)

Not open to students with credit in Anth 15. Evolution and variability of human adaptations to environmental limits. Surveys and integrates such phenomena as technology, organization, religion, language, culture history, and culture change.

3. Introduction to Archaeology (3)

Basic principles and concepts of anthropological archaeology. Traces the evolution of culture from its two million year old beginnings through the emergence of civilization. Emphasis on the major developments in human life and their causes.

4. Introduction to Linguistic Anthropology (3)

Linguistic influences on anthropological theory. Linguistic models in anthropology. Language in human evolution. Infrahuman communication systems.

15. Man's Place in the Natural Environment (5)

A special introduction, involving extended field trips, which integrates concepts and techniques of cultural anthropology and archaeology. Explores how past and present peoples have adapted to and altered biological and geological processes and features. To be taken concurrently with Biol 15, Geol 15, and N Sci 15.

II. METHOD AND THEORY

100. Cultural Anthropology (3)

Not open to students with credit in Anth 2 or 15. An advanced introduction to the evolution and variability of human adaptations through language, technology, organization, and ideology. Designed for majors in other disciplines. Satisfies same prerequisite as Anth 2 and 15.

104. History and Theory of Anthropology (3)

Prerequisite: Anth 2. The place of anthropology in the sciences; theories and controversies in anthropology; functionalism, cognitive aspects, neo-evolution.

110. Archaeological Method and Theory (3)

Prerequisite: Anth 2 and 3. Detailed examination of the nature of archaeological data and the methods used to interpret such data and to reconstruct the lifeways of prehistoric peoples.

111. Field Archaeology (4)

Prerequisite: Anth 110. Practical experience in basic techniques of archaeological survey, excavation, and laboratory analysis through participation in archaeological research projects. Weekend field trips may be required.

115. Seminar in Cultural Anthropology (3)
Prerequisite: Anth 104. Reading, analysis and description of major cultural theorists and their contributions to modern anthropological thought.

117. Urban Anthropology (3)
Prerequisite: Anth 2. Overview of social science theories of urbanization and urban life; reviews theories and methods used by anthropologists in cross-cultural urban research.

119. Fieldwork in Anthropology (3–6; max total 6)
Prerequisite: permission of instructor. Field study in physical, cultural, urban or linguistic anthropology. Working closely with the instructor, the student designs, carries out and presents the results of an independent field project on a topic related to her/his area of interest. (Former Anth 119T)

III. REGIONAL ETHNOLOGY

120. Peoples and Cultures of North America (3)
Prerequisite: Anth 2. A survey of the history and range of lifeways developed by the American Indians north of Mexico in response to the variety of ecological and sociopolitical pressures before and after contact with the West.

121. Peoples and Cultures of South America (3)
Prerequisite: Anth 2. A survey of the Indian tribes and civilizations from prehistoric times to the present. Emphasizes the interaction of ecological and cultural factors, using ethnological and historical data.

123. Peoples and Cultures of Southeast Asia (3)
Prerequisite: Anth 2. Surveys Mainland societies of Burma, Thailand, Cambodia, and Vietnam; and Insular societies of Indonesia, Malaysia, and the Philippines. Culture history, dynamics, ecology, similarities and variation; impact of contact on Eastern and Western cultures.

124. Peoples and Cultures of East Asia (3)
Prerequisite: Anth 2. Culture change and variation among the dominant populations of China, Japan, and Korea; Chinese Moslems, Tibetans, Mongolians and other major ethnic groups. Peasant communities, kinship organization, religion, philosophy and other cultural variables.

129T. Topics in Ethnology (1–4; max total 8) (Former Anth 150T section)
Prerequisite: Anth 2. Surveys the culture history of a major region such as Africa, the Near East, India, or Europe. (Former Anth 150T section)

IV. REGIONAL ARCHAEOLOGY

130. Archaeology of Meso-America (3)
Prerequisite: Anth 3. Evolution of native New World cultures from hunting and gathering to the rise of theocratic states such as the Maya and Aztec in the area between northern Mexico and the Isthmus of Panama.

131. Archaeology of North America (3)
Prerequisite: Anth 3. Development of Native American cultures in what are now known as Canada, the United States, and northern Mexico from the Paleo-Indian stage of 12,000 B.C. to the arrival of Europeans.

139T. Topics in Archaeology (1–4; max total 8)
Prerequisite: Anth 3. Selected studies in the techniques, methods, history or theory of archaeology in anthropology. (Former Anth 150T section)

V. CROSS-CULTURAL COMPARISONS

142. Anthropology of War (3)
Prerequisite: Anth 2. Theories on the causes and evolution of aggression. Explanations and implications of conventional warfare at different levels of cultural complexity. The ecology and ethics of combat from warrior through soldier to terrorist.

143. Women: Culture and Biology (3)

Prerequisite: Anth 1 or 2. Genetic and environmental factors in becoming and being female in our species. Sexuality, maturation, and reproduction. Cross-cultural variations in psychological, political, and economic aspects of women's roles. (Former 159T section)

145W. Comparative Religion (3)

Prerequisite: Anth 2. Religious systems of nonliterate, peasant, and sectarian groups; anthropological theories of religion and magic. Meets upper division writing skills requirement for graduation.

146. Anthropology of Art (3)

Prerequisite: Anth 2 or 3. A study of art within its socio-cultural contexts. Emphasizes the perspectives and expressions of societies in the major world areas. (Former Anth 150T section)

151. Cultures and Foods of East Asia (3) (Same as As Am 151)

The regional ecologies, preparations, and ritual implications of food in Mainland and Insular Asia. Emphasizes socio-cultural rather than bio-nutritional factors. Students will learn to prepare and serve a variety of Oriental dishes. (Former Anth 129T section)

152. Organization and Inequality (3)

Prerequisite: Anth 2. Principles of organizational forms from kinship to bureaucracy. Evolutionary links between organizational complexity and levels of inequality. Types of human exploitation in bands, tribes, feudalism, caste, and class systems. (Former Anth 112)

153. Psychological Anthropology (3)

Prerequisite: Anth 2. Cultural and biological factors in cognition, learning, values, decision-making and personality-formation. Cross-cultural perspectives on mental health and illness; supportive and destructive patterns in culture and behavior. (Former Anth 113)

155. Folk Medicine (3)

Prerequisite: Anth 2. Cross-cultural examination of health practices and attitudes. Ethnomedicine, ethnopsychiatry, epidemiology, and health care systems of non-Westerners and of ethnic communities in plural societies. (Former Anth 150T section)

159T. Topics in Cultural Anthropology (1–4; max total 8)

Prerequisite: Anth 2 and permission of instructor. Detailed consideration of a single topic in cultural anthropology. Seminar. (Former Anth 150T section)

VI. PHYSICAL ANTHROPOLOGY

161. Fossil Man (3)

Prerequisite: Anth 1. Critical examination of fossil evidence for hominid forms from the Pliocene and Pleistocene epochs; analysis of those factors that led to the emergence of man.

162. Primates (3)

Prerequisite: Anth 1. The evolutionary development of the order Primates during the Tertiary. Relevance of primate behavior for the understanding of human evolution.

163. Human Variation (3)

Prerequisite: Anth 1. A cross-cultural examination of human morphological, physiological, and biochemical variation; the correlation of human biological variability with differences in climate, culture, nutrition, and disease. (Former Anth 150T section)

164. Human Osteology Laboratory (3)

Prerequisite: Anth 1. Laboratory identification of human skeletal materials; estimation of sex and skeletal age; osteometric and odontometric analyses; examination of skeletal/dental epigenetic traits; the diagnosis of pathological lesions; statistical interpretation of skeletal data, with coordinating lectures. (1 lecture, 6 lab hours)

165. Methods of Data Collection and Analysis in Physical Anthropology (3)
Prerequisite: Anth 1. Techniques in anthroposcopic, anthropometric, osteometric, odontometric and serological data collection and analysis; quantitative methods; preparation and writing of technical reports.

169T. Topics in Physical Anthropology (1–4; max total 8)
Prerequisite: permission of instructor. Detailed consideration of a single topic in physical anthropology. Seminar. (Former Anth 150T section)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

192. Directed Readings (1–3)
Prerequisite: permission of instructor. Supervised readings in a selected field of anthropology. No more than 6 units may be counted towards major.

ASIAN-AMERICAN STUDIES (As Am)

15. Introduction to Asian-American Status and Identity (3)
Historical, social, and psychological factors in the changing status and role of Americans from Asia. Value conflicts and social stress in the search for personal identity.

30. The Japanese-Americans (3)

Historical survey of social adaptations and cultural changes in Japanese-American society. Marginality, integration, and assimilation among the Issei, Nisei, and Sansei.

56. The Chinese-Americans (3)
Historical survey of social adaptations and cultural changes in Chinese-American society. Evolution of a distinctive Asian-American minority.

110. Asian-American Communities (3)
Multidisciplinary study of Asian-American communities in the context of the larger society. Examines Chinese, Japanese, Korean, Pilipino, Vietnamese and other communities in California and elsewhere in the United States.

150. Asian-American Arts (3)
The development of a uniquely American perspective out of the many artistic traditions of Asia. Analyzes Asian and Asian-American expression in art, dance, literature, and music through group projects and individual papers.

151. Cultures and Foods of East Asia (3)
(See Anth 151)

180T. Topics in Asian-American Studies (3; max total 6)
Prerequisite: As Am 15, permission of instructor. Detailed consideration of a single topic concerning the past or present position of Asian-Americans in U. S. society.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

CRIMINOLOGY

FACULTY

Charles W. Dean, Department Chairman

Max D. Futrell, Tomas M. Martinez, Ruth Masters, Robert F. Perez, Lester P. Pincu, John R. Quinn, D. N. Ray, Robert D. Saake, James W. Swanson, Octavio J. Tocchio

DEGREES OFFERED: BS, MS

Options:
Corrections
Law Enforcement

DEPARTMENTAL PROGRAMS

The Criminology Department provides undergraguate and graduate training in criminology for students planning professional carreers in the criminal justice field. The program is diversified, but integrated, and reflects the wide range of job opportunities in the field, including direct service and administration in law enforcement, corrections, and juvenile justice. The department offers the bachelor of science and master of science degrees.

UNDERGRADUATE PROGRAM

Criminology courses at the undergraduate level include integration of theoretical and applied materials with contributions from other disciplines when needed to meet the students' needs. The undergraduate curriculum is designed to prepare for beginning professional work in criminal justice and to provide preparation for graduate work.

The corrections program is designed for students interested in careers in probation, parole, penal and correctional institutions, and other affiliated forms of work. The law enforcement program is designed for students interested in careers in law enforcement and related areas at the federal, state, and local levels of government, or in allied occupations in government, business and industry.

Core courses provide the student with an overview of the field and with the concepts, terminology, and experiences necessary to select and handle more specialized material covered in advanced courses. These should be taken before the more advanced and specialized courses.

Faculty advising helps the student to select courses so as to prepare for the numerous careers possible in criminology. Students shall obtain faculty advisors as early as possible in their academic careers, and consult with them at least once each semester for assistance in selecting courses and programs that will prepare them for their vocational objectives. Consult the department chairman for adviser assignment.

While not required, students are encouraged to participate in one of the internship programs available through the department. These provide students with an opportunity to bring together theory and practice in a realistic setting, and to make more judicious career decisions.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

The bachelor of science degree with a major in criminology with options in corrections or law enforcement is granted upon completion of a four-year curriculum consisting of 128 semester units. In addition to completing the criminology core and the requirements of either of the options outlined below (corrections—51 units; law enforcement—50 units), the student is responsible for the completion of the General Education requirement, university requirements, and electives, which may include a minor, totaling 128 units for the BS degree. Any course that meets the upper division writing skills requirement cannot be applied to the major requirement.

CRIMINOLOGY MAJOR

Corrections Option

Lower Division Requirements: Crim 2, 20, 21, 31, 73 15
Upper Division Core: Crim 100, 102, 117 (must be taken before or concurrent with other upper division requirements) 9
Upper Division Requirements: Crim 133, 134, 135 9
Crim Electives (three of the following courses): Crim 112, 118, 119, 120, 121, 136T, 141, 146, 147, 153, 170, 181, 183, 190 9
Additional Electives (three of the following courses, but no more than one course in each discipline): AS 172; A Sp 104A-B, 105A-B; BA 117, 156; Bl S 135, 144, 146; CD 136; CFS 108; Ind R 150, 152, 153; Jour 113; La R 105, 142; Mgt 110A-B; IS 107; Pl Si 181, 182; Psych 101, 102, 162, 166; Soc 111, 143, 162, 181; Spch 108, 162, 164; U R P 100 9
51

Law Enforcement Option

Lower Division Requirements: Crim 2, 20, 21, 31, 73 15
Upper Division Core: Crim 100, 102, 117 (must be taken before or concurrent with other upper division requirements) 9
Upper Division Requirements: Crim 109, 113 8
Crim Electives (three of the following courses): Crim 104, 108, 111, 112, 118, 119, 120, 129, 133 or 135, 136T, 141, 153, 170, 180, 190; Phil 121 9
Additional Electives (three of the following courses, but not more than one course in each discipline: AS 172; A Sp 104A-B, 105A-B; BA 117, 156; Bl S 135, 144, 146; CD 136; CFS 108; Ind R 150, 152, 153; Jour 113; La R 105, 142; Mgt 110A-B; IS 107; Pl Si 181, 182; Psych 101, 102, 166; Soc 111, 143, 162; Spch 162, 164; U R P 100 9
50

Note: Criminology majors can prepare for a variety of occupations in the criminal justice field. Students desiring further specialization may orient their baccalaureate degree program in one of several directions by proper selection of elective courses as follows:
Administration: A Sp 104A-B, 105A-B; BA 18, 118, 156; Mgt 110A-B, 127; Pl Si 2, 160, 181; Soc 145
Counseling-Case Work: Crim 134, 146, 147; Psych 162; Soc 181; Spch 108
Forensic Science: Chem 8; Crim 113, 129
Inter-Cultural Relations: Bl S 56, 144, 146; Crim 31; La R 118, 127, 133; NAS 50; Soc 111
Juvenile Justice: Crim 119, 120, 121; Psych 102
Legal Studies: BA 18, 118, 119, 156; Crim 118, 126; Pl Si 101, 170
Planning & Research: A Sp 104A-B; Crim 170; Mgt 110A-B; Pl Si 181; Soc 25, 144, 175
Police Generalist: Crim 104, 108, 153; Psych 166

GRADUATE PROGRAM

The master of science degree in criminology is designed to prepare students for immediate service and for eventual responsible administrative and professional positions in agencies engaged in the several areas of criminology and the criminal justice system.

The master of science degree program in criminology assumes undergraduate preparation equivalent to a CSUF major in criminology. Other courses or satisfactory professional experience may be substituted after evaluation of the student's record. Certain undergraduate courses may be required before advancement to candidacy.

MASTER OF SCIENCE DEGREE REQUIREMENTS

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, Foreign Language Requirements,* and *Thesis and Thesis Alternatives.*)

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
Required courses in criminology 200 series (*see specific requirements*)	15
Electives in criminology or related areas *200 series (Under special circumstances a maximum of 6 u.d. units may be allowed)*	15
Total	30

Specific Requirements:
Plan A — Thesis Program: Crim 200, 201, 202, 203 and 299
Plan B — Non-Thesis Program: Crim 200, 201, 202, 203 and 298
All Plan B degree candidates must pass a comprehensive written and oral examination.

COURSES

CRIMINOLOGY (Crim)

1. Crime in America (3)
Not open to students majoring in criminology who have more than 60 units. Social justice and criminal law; state vs accused; crime and criminals; police function; prosecution; correctional process; prevention.

2. Administration of Justice (3)
Purpose, function, and history of agencies dealing with administration of justice; survey of criminal procedures; organization of law enforcement agencies at federal, state, and local levels; organization and functions of courts; probation, parole, and pardons; penology and prison administration.

3. Introduction to Corrections (3)
History and philosophy of correctional practices. A basic course in the local, state, and federal judicial systems of jails, institutions, probation and parole.

4. Police Operations (3)
Open only to criminology majors. Basic theories, objectives, and activities of police patrol and field operations.

20. Criminal Law (3)
Not open to students with credit in Crim 105. Introduction to the case method of studying criminal law, theory, concepts, and philosophy of substantive law and criminal offenses; analysis of court decisions and opinions through case method.

21. Criminal Evidence (3)
Not open to students with credit in Crim 107. Fundamental questions of evidence and theory of proof through analysis of court decisions and opinions by case method, code sections, judicial notice, burdens of proof, presumptions and inferences, competency, hearsay, privilege, relevance, documentary evidence, and the exclusionary rule.

31. Interpersonal and Community Relations (3)
The relationship of the criminal justice system and the community; nature and causes of complex problems in people to people relations in criminal justice.

73. Criminal Justice Communications (3)
Not open to students with credit in Crim 74; open only to criminology majors. The fundamentals of gathering and organizing data, and writing reports in the criminal justice system.

100. Criminology (3)
Not open to students with credit in Crim 132. Theories of criminal behavior; sociological factors; organized crime; professional criminals; selected types of social deviants and criminal offenders.

102. Criminal Justice Organization and Management (3)
Fundamentals of organization/management theory, principles, and processes relating to the operation and functioning of the criminal justice system.

104. Trends and Issues in Criminal Justice Management (3)
Prerequisite: Crim 102. Analysis of current criminal justice management programs and problems from the perspective of both the administrator and the line staff officer: integrating established scientific knowledge with practical experience in the various areas of criminal justice management.

108. Directed Policing (3; max total 12)
Open only to criminology majors. Prerequisite or concurrently: Crim 4, permission of instructor and sponsoring agency. Supervised field experience in police work for interpreting theories developed in parallel criminology courses. Purchase of uniform required. (Minimum of 6 field hours per unit.)

109. Comparative Systems of Criminal Justice (3)
Prerequisite: Crim 102. Study of selected criminal justice systems in other jurisdictions; examination of the organization; administration and operations of criminal justice agencies in the United States, Europe, the United Kingdom, and Asia.

111. Police Supervision (3)
Not open to students with credit in Crim 101. Prerequisite: Crim 102. Analysis and evaluation of sound human relations and supervisory techniques as related to effective policy performance: discipline; motivation, problem handling, personnel policies; supervisory relationships; wages; grievances; morale and safety; instruction; training.

112. Professionalism in Criminal Justice (3)
Professionalism in criminal justice including formal and informal control, political activity, use of discretion, conflict of interest, rights of clients, and other current topics.

113. Forensic Science (5)
Open only to criminology majors. Advanced study of scientific crime investigation, identification, and detection methods. (4 lecture, 3 lab hours)

117. Criminal Legal Process (3)
Prerequisite: Crim 2. Specific emphasis on the laws of arrest, search and seizure, interrogation and confession, procedure prior to and during trial, post-conviction procedures, limitations on criminal prosecutions and juvenile proceedings.

118. Individual Rights in the Criminal Justice System (3)
Prerequisite: Crim 117. Examines specific issues relative to the rights of individuals in substantive design of our criminal justice system. Deals with the development and protection of rights; surveys common abuses in the criminal justice system and their causes.

119. Juvenile Law (3)
The history of juvenile law, the evolution of juvenile courts, and survey of current juvenile law and procedures.

120. Juvenile Delinquency (3)
The problem of juvenile delinquency; portrait of delinquency; causal factors; agencies of justice; treatment process; programs for control and prevention.

121. Delinquency Prevention (3)
An analysis of the role of the police, correctional agencies, the courts, group and community oriented programs of the prevention and control of juvenile delinquency.

126. Legal Rights of Women (3) (Same as W S 126)
Legal rights of women: constitutional law, employment legislation, family law, property rights, criminal law, and women's legal rights in other countries.

128W. Interviewing and Reporting in Criminal Justice (3)
Instruction and supervised practice in fundamentals of writing. Practical assignments in the types of writing required of criminal justice practitioners, including police, investigative, pre-sentence, probation and correctional reports. Meets upper division writing skills requirement for graduation.

129. Detection of Deception (3)

Open only to criminology majors. Historical, physiological, psychological and legal aspects of the analysis of detection of deception techniques; theory and practice of instrumental detection of deception and other interrogation aids; laboratory experiments in the use of the polygraph. (2 lecture, 3 lab hours)

133. Correctional Institutions (3)

Prerequisite: Crim 3. Examination of institutional philosophy, theory, function and practice; historical and systems approach to incarceration; contemporary prison facilities; socio-psychological effects of incarceration; inmates and staff; institutional programs; parole; rights of the confined; institutional issues; future of corrections.

134. Correctional Counseling (3)

Not open to students with credit in Crim 145. An overview of treatment modalities and counseling techniques as practiced in correctional settings.

135. Issues and Trends in Community Corrections (3)

Prerequisite: Crim 3. Examination of community-based corrections issues and trends; alternatives to incarceration; offender diversion; restitution; community treatment facilities; probation; parole.

136T. Topics in Criminology (3; max total 12 if no topic repeated)

Analysis of selected areas of criminology; deviant behavior; institutional and noninstitutional treatment; corrections; administration and management; law enforcement; criminalistics.

141. Alcohol, Drugs, and Criminality (3)

Drug and alcohol related criminal behavior and the response of the criminal justice system.

146. Small Groups in the Administration of Justice (4)

Not open to students with credit in Crim 137 prior to Fall 1977. An examination of the theory and practice of small groups within the criminal justice setting. (3 lecture, 3 lab hours)

147. Individual Counseling Theories in the Administration of Justice (3)

Not open to students with credit in Crim 139 prior to Fall 1977. Prerequisite: Crim 134 (may be taken concurrently). Psych 7 and 10 recommended. Theories, techniques, and methods of counseling within the field of corrections.

153. Psychology of the Criminal (3)

Psychological bases of crime; motivation, alcoholism, economic and cultural pressures; forms of crime; criminal careers.

170. Research in Criminology (3)

Research methodology; use of library resources; preparation and handling of materials in criminology; written report required.

180. Internship in Law Enforcement (1–12; max total 12)

Open only to criminology majors. Prerequisite: Crim 4, permission of instructor and sponsoring agency. Relates student's classroom studies with occupational and professional experiences. Weekly conference with field supervisor. (Minimum of 3 field hours per unit) (Transfer students should be aware that 12 unit total must include units previously earned; check with departmental adviser.)

181. Internship in Corrections (1–12; max total 12)

Open only to criminology majors. Prerequisite: Crim 3, permission of instructor and sponsoring agency. Relates the student's classroom studies with occupational and professional experiences. Weekly conference with field supervisor. (Minimum of 3 field hours per unit) (Transfer students should be aware that 12 unit total must include units previously earned; check with departmental adviser.)

183. Counseling Practicum (3; max total 6)
Professional experience in individual and group counseling in a correctional or related agency. (Minimum of 6 supervised field hours)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

200. Research Methods in Criminology (3)
Prerequisite: graduate standing. Methods and techniques of research in criminology; research designs and models; statistical techniques; preparation and critique of a research paper.

201. History of Western Criminological Thought (3)
Prerequisite: Crim 132. An historical approach to criminological theory in Western civilization. Special treatment to the theoretical underpinnings of contemporary United States criminological thought. Detailed analysis of major 18th, 19th, and early 20th century Occidental thought.

202. Criminal Legal Process (3)
Prerequisite: Crim 117. Advanced study in criminal legal process. Analysis of contemporary legal issues from arrest to final disposition.

203. Criminal Justice Administration (3)
Prerequisite: permission of instructor. A comprehensive assessment of the historical evolution of the criminal justice system, including current status and future growth; organization/management theory and practice relating to criminal justice; individual research.

220. Seminar in Group Therapy in Criminal Justice Agencies (3)
Prerequisite: Crim 200, 201, 202, and 203. The theory and practice of group therapy in criminal justice agencies. Use of transactional analysis concepts in describing group interactions.

221. Seminar in Family Counseling in Criminal Justice Agencies (3)
Prerequisite: Crim 200, 201, 202, and 203. The theory and practice of family counseling in criminal justice agencies. (Former Crim 233)

227. Seminar in Crime and Delinquency Prevention Programs (3)
Prerequisite: Crim 200, 201, 202, and 203. Policies and programs for prevention and control of delinquency and crime; evaluation of specific programs; principles of prevention and control.

252. Seminar in Criminal Justice Personnel Administration (3)
Prerequisite: Crim 200, 201, 202, and 203. The historical development of modern personnel theory and practice in criminal justice agencies; manpower, merit concepts, concepts of man and work, classification, training and compensation, collective bargaining and organizational communication. (Former Crim 270)

255. Seminar in Criminal Justice Labor Relations (3)
Prerequisite: Crim 200, 201, 202, and 203. The historical development of labor relations theory and practice in criminal justice agencies; legislation, court decisions, collective bargaining agreements, arbitration awards and fact-finding, and administrative law decisions. (Former Crim 270)

270T. Problems in Criminology (1–6; max total 12 if no topic repeated)
Prerequisite: Crim 200, 201, 202, and 203. Special problems in law enforcement or corrections; individual research in laboratory, library, or field work; formal written reports. Weekly conference with instructor. (Former Crim 270)

281. Supervised Professional Experience (1–6; max total 6)
Open only to criminology majors. Prerequisite: permission of instructor and selected agency. Supervised professional experience in law enforcement or correctional work.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

292. Readings in Criminology (1–3; max total 3)
Prerequisite: permission of instructor and Chairman, Criminology Graduate Committee. Individually directed readings in an area of special concern to the student's graduate program; appropriate written reports and evaluation required; individual student conferences.

298. Directed Research (3)
Prerequisite: Crim 200, 201, 202, and 203. Directed evaluative research in applied criminological settings culminating in a research paper.

299. Thesis or Project (2–4; max total 4)
Prerequisite: Crim 200, 201, 202, and 203; see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

IN-SERVICE COURSES
(See *Course Numbering System*)

302. Topics in Criminology (1–3)

ECONOMICS

FACULTY

Izumi Taniguchi, Department Chairman

Robert J. Allison, P. Dale Bush, James M. Cypher, Don R. Leet, Robert A. Minick, Grady L. Mullennix, Louis F. Pisciottoli, John A. Shaw, Jr., Edwin F. Terry

DEGREE OFFERED: BA

Minor

DEPARTMENTAL PROGRAMS

The Economics Department prepares students to fill the role of citizens well informed on the economic problems confronting a modern society. Majors in economics are offered training for careers in government, business, and the teaching profession. Those going on to graduate work are given training in sufficient depth and breadth to enable them to pursue their studies in satisfactory fashion.

The department cooperates with other departments in providing for a concentration in Asian Studies (See *Special Programs—Asian Area Courses*)

BACHELOR OF ARTS DEGREE REQUIREMENTS

Econ 1A and 1B are prerequisite to all upper division courses in economics except those offered in extension. Econ IB may be taken prior to or concurrently with Econ IA. Any student planning graduate work is advised to take some calculus and econometrics and to meet any foreign language requirement of the school he plans to attend.

	Units
Econ 1A–B, 100A–B, 120	16
Economics electives (at least 14 units upper division)	18
	34

In addition to the requirements of the major (34 units), the student is responsible for completion of the General Education requirement, special requirements, and electives, which may include a minor, (90 units), totaling 124 units for the BA degree.

ECONOMICS MINOR

The minor in economics requires 18 units as listed below; 20 units are required for use in a credential program.

	Units
Econ 1A–B	6
Elect from: Econ 100A, 100B, 101	3
Economics electives (11 units required for credential program)	9–11
	18–20

COURSES

ECONOMICS (Econ)

1A. Principles of Economics (3)

May be taken prior to or concurrently with Econ IB. Introduction to macro-economics; levels of income, production, employment; economic role of government and banking system in the United States; relationships between the aggregate and world economies.

1B. Principles of Economics (3)

May be taken prior to or concurrently with Econ 1A. Introduction to micro-economics; price determination via supply and demand; resource allocation under pure competition, monopolistic competition, monopoly, oligopoly; fundamentals of distribution theory and international trade.

10. Principles of Political Economy (3)
Prerequisite: permission of instructor. Principles of political economy; political nature of applications of economic theory.

76. Economics Through Classic Films and Documentaries (3)
A study with emphasis on an integrated series of classic films and documentaries such as Grapes of Wrath, Hunger in America, etc. Students will develop a germinal appreciation and understanding of economics concepts, issues and institutions through the film medium.

100A. Economic Theory: Microeconomic Analysis (3)
Prerequisite: Econ 1A–B. Price mechanism and resource allocation under conditions of pure competition, monopolistic competition, oligopoly; theories of consumer's choice, cost, production, income distribution; nature of economic generalizations.

100B. Economic Theory: Macroeconomic Analysis (3)
Prerequisite: Econ 1A–B. An examination of classical, Keynesian and post-Keynesian theories of the determination of the levels of income, output, and employment; the scientific and ideological implications of Keynesian thought; and the theoretical foundations of contemporary monetary and fiscal policies.

101. History of Economic Thought (3)
Prerequisite: Econ 1A–B. Evolution of economics as a science; doctrines of different schools of thought—Mercantilists, Physiocrats, Historical School, Classical Economists; contributions of outstanding economists.

102T. Contemporary Economic Problems (3)
Prerequisite: upper division standing or permission of instructor. Analysis of economic problems and issues which are of public interest and importance at the time the course is given.

103. Economics of Inflation, Unemployment and Growth (3)
Prerequisite: Econ 1A. A theoretical and empirical analysis of the various types of inflation and unemployment in the United States economy.

105. Marxian Economic Theory (3)
Prerequisite: Econ 1A–B. Marxian economic theory and its relevance for modern economic theory and analysis; Marx's value, production and distribution theory; modern developments of Marxian models.

107. Institutional Economics (3)
Prerequisite: Econ 1A–B. Study of the literature of American institutionalism, e.g., Veblen, Commons. Systematic study of the process of institutional adjustments; interplay of ceremonial and technological aspects of economic activity; application of institutionalist theory to specific fields in economics.

108. Radical Traditions in Economics (3)
Prerequisite: Econ 1A–B. Economic philosophies of the Utopian, Anarchist, Anti-Materialist, Marxist, and Fabian Socialist schools. Intensive examination of contemporary radical economic ideas and the radical critique of modern neo-classical economics.

110. Economic History of the United States (3)
Prerequisite: Econ 1A–B. Exploration and colonization to the present; economic factors in development of the United States; relationships of economic forces to historical, political, and social change.

111. Economic Development of Europe (3)
Prerequisite: Econ 1A–B. European expansion from the Middle Ages to present. Emphasis is placed on the causes of the Industrial Revolution and its spread throughout Europe; present economic conditions and trends in Europe; the interest of the United States in the European Economy.

114. Economics of Underdeveloped Areas (3)
Prerequisite: Econ 1A–B. Survey and analysis of developmental problems of emergent economies.

115T. Topics in US Economic History (1–3; max total 6)
Detailed investigation of developments in the United States economy. Topics vary with the needs and interests of students and faculty.

117. Economics of Ecology (3)
Prerequisite: Econ 1A–B. Investigation into the economics of resource use. Development and creation of resources through the application of technology and the destruction of resources through misuse and pollution of the environment.

119. Regional Economic Analysis (3)
Prerequisite: Econ 1A–B. Techniques of economic analysis of geographic regions; study of differing definitions of a region, economic base studies, input-output analysis, location theory, and multiplier analysis.

120. Economic Statistics (4)
Prerequisite: Econ 1A–B and Math 4. Introduction to the use of statistics in economics; consideration of measures of central tendency and dispersion, index numbers, time series analysis, tests of hypotheses and simple regression analysis. (3 lecture, 2 lab hours)

131. Public Finance (3)
Governmental revenues and expenditures at federal, state, and local levels of jurisdiction.

135. Money and Banking (3)
Not open to students with credit in Fin 135. Prerequisite: Econ 1A–B. Survey of the monetary and banking system of the United States and analysis of its role in economic growth and stabilization.

140. The Political Economy of the Military-Industrial Complex (3)
Prerequisite: Econ 1A. Economic effects of military expenditures in historical perspective. Economic effects of World War II, Korea and Vietnam. The Military-Industrial Complex, war profiteering, and the economic effects of disarmament.

150. Labor Economics (3)
Prerequisite: Econ 1A–B. Alternative theories of wages, employment and structure of labor market; impact of collective bargaining on level of wages, employment and labor's share of national income; history and philosophies of labor movement, structure and functioning of labor unions.

151. History of Labor in the United States (3)
Prerequisite: Econ 1A–B. Analytical topics from historical viewpoint; evolution of unions and labor legislation interpreted in terms of economic theory.

161. Population Economics (3)
Prerequisite: Econ 1A-B. Development of an economic framework for studying components of population growth: fertility, mortality, and migration. Analysis of relationship between population change and modern economic growth in both developed and lesser developed nations.

162. Medical Economics (3)
Prerequisite: Econ 1A–B. Examination of several aspects of the health care situation in the United States from the viewpoint of economic analysis.

170. Transportation (3)
Prerequisite: Econ 1A–B. Economics of rail, water, motor, air, and pipeline transportation.

174. Government Regulation of Economic Activity (3)
Prerequisite: Econ 1A–B. Justification for regulation, constitutional limitations, public utility regulation, regulation of monopoly; competitive practices; government policy in other areas of economic activity.

178. International Economics (3)
Prerequisite: Econ 1A–B. International economic relations; problems and policies in the light of fundamental economic theory.

179. Global Corporations and the Third World: The World Economy (3)
Problems of economic underdevelopment in the Third World within the context of the world economy, nature and function of multi-national corporations, theories of economic imperialism.

180. Comparative Economic Systems (3)
Prerequisite: Econ 1A–B. Comparative study of economic systems of the modern world; capitalism, socialism, communism, fascism, and the problems which arise within each.

181. Political Economy of Central Planning (3)
Prerequisite: Econ 1A–B. Theory, history, and institutional application of central planning; examination of existing centrally planned economies, feasibility of central planning in the underdeveloped economies, welfare criteria for nonmarket economies.

185. Directed Readings (1–3)
Prerequisite: Econ 1A–B and permission of instructor. Directed readings in the literature of economics. Intensive reading of economic literature on special topics under faculty supervision.

188T. Special Topics (1–3; max total 6)
Prerequisite: Econ 1A–B. Consideration in depth of special topics in political economy; systematic, detailed study into issues not possible in survey courses. Topics vary with the needs and interest of students and faculty.

189T. Topics in Public Policy (1–3; max total 6)
Prerequisite: Econ 1A–B. Detailed analysis of questions of economic policy. Areas of investigation include social welfare policy, farm policy, environmental quality policy, and others. Topics to be varied with the interests and needs of students and faculty.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

200T. Seminar in Economic Theory (4; max total 8)
Consideration of advanced theoretical propositions in micro and macro economic theory.

210T. Seminar in Economic History (4; max total 8)
Critical examination of, and reports on, selected topics in economic history.

220T. Seminar in Research Methodology (4; max total 8)
Development of deductive and inductive quantitative inference techniques in economics.

230T. Seminar in Monetary and Fiscal Economics (4; max total 8)
Examination of advanced topics in the operation of the government and the money system.

240T. Seminar in Urban and Regional Economics (4; max total 8)
Issues and analytic techniques of regional economics and survey of empirical literature. Independent study with subject matter and technique determined by preparation and professional objectives of student.

250T. Seminar in Labor Economics (4; max total 8)
Advanced topics in employment theory, trade union philosophy, and collective bargaining.

260T. Seminar in International Economics (4; max total 8)
Preparation of papers and oral reports on current problems in international trade.

274T. Seminar in Industrial Organization (4; max total 8)
Consideration of effects of industrial organization on the functioning of an economy.

280T. Seminar in Economic Policy (4; max total 8)
Examination of problems and issues in formulating and implementing economic policy.

285. Directed Reading (1–4)
Reading list compiled in consultation with graduate adviser, not necessarily of the specialized nature required for independent study.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

298. Critique (2–4; max total 4)
The preparation, completion, and submission of a paper showing proficiency in some significant problem or area in economics.

299. Thesis (2–4; max total 4)
Prerequisite: See *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

IN-SERVICE COURSES

See Course Numbering System.

365T. Economics for Teachers (1–6)

ETHNIC STUDIES PROGRAM

Robert S. Mikell, Coordinator

MINORS OFFERED: Minor in Ethnic Studies, Black Studies, and Armenian Studies

The Ethnic Studies Program offers a broad course of study of the different ethnic groups in American society, with classes in Black Studies, Native-American Studies, and Armenian Studies. Students will find that some classes are team taught so that they may benefit from the multi-ethnic perspective imparted by a group of specialists. Whether for academic interest, personal knowledge, or professional training, students should find courses in the Ethnic Studies Program of special interest.

Students may minor in Ethnic Studies, Black Studies, and Armenian. Many ethnic studies classes can be applied to the social science minor and to general education requirements. Students in the helping professions such as criminology, social work, education, health sciences, nursing, recreation, and communicative disorders, should find ethnic studies courses of benefit to their future careers.

ETHNIC STUDIES MINOR

The minor in Ethnic Studies consists of 21 units, of which 9 must be upper division.

	Units
Eth S 1, 2, or 4	6
Approved electives in one of the areas listed below (Armenian Studies, Black Studies, La Raza and Native-American)	9
Approved Armenian Studies, Black Studies, La Raza and Native-American electives from one of the areas not used above	6
	21

A student intending to pursue a minor in Ethnic Studies should see the Coordinator for assignment to a faculty adviser who will assist the student in planning his or her program.

BLACK STUDIES MINOR

	Units
Eth S 1 or 2	3–6
Approved Black Studies career-oriented courses (upper division)	9
Approved Black Studies electives	6–9
	21

ARMENIAN STUDIES MINOR

Arm 1-AB	8
Arm 2A or 2B or Eth S 130T	3–4
Arm S 10, Hist 108	6
Arm S 50T, Arm S 109 or Arm 190 or Hist 109T, 124T	3–4
	21

ASIAN-AMERICAN STUDIES MINOR *(see Department of Anthropology)*

COURSES

ETHNIC STUDIES (Eth S)

1. Ethnic Experience (3)

Comparative study of ethnic minorities in the United States, combining the perspectives of history, sociology, and psychology.

2. Ethnic Expression (3)

Comparative study of the characteristic ways in which ethnic minorities in the United States think and feel about themselves and the world, as reflected in literature, art, and music.

4. American Poverty (3) (Former Bl S 115)

Multi-ethnic and interdisciplinary perspective on poverty as a worldwide phenomenon, with emphasis on America; geographic analysis of migration to poverty areas such as urban ghettos and other minority areas; policy alternatives for dealing with poverty.

130T. Topics in Ethnic Studies (1–3; max total 6)

In-depth research and writing on the past and contemporary situation of America's major ethnic minorities.



BLACK STUDIES

FACULTY

Hermon George, Robert S. Mikell, Lily B. Small

Black Studies program represents a new field of study and research based on vigorously innovative educational processes. The courses offered are interdisciplinary in nature, and address themselves to problems that pertain to minorities in the American society. The program is structured to provide better service to the minority oriented student population at CSUF. This includes the historical contributions and the sociological, psychological and economic problems that confront Blacks in the American society.

This program establishes concepts and tools for the survival of Black people and presents to all university students the understanding of the uniqueness of minority heritage, culture and life styles.

The Black Studies program philosophy and academic curriculum is developed through a special relationship (mutual understanding and cohesiveness) established between the communities, students and its faculty.

The Black Studies program includes improved career counseling, cluster advising, experimentation and computer technology, curriculum development, increased use of mathematics offerings and science courses, professional education orientation, and extended day, evening and Saturday courses.

Through counseling and advising, students are urged to select courses from the Black Studies offerings which may be of special value in meeting their education and professional career programs.

For students interested in the general dimensions of the Black experience, the following courses are recommended: Bl S 27, 36, 38, 130T, 135, 137, 140.

For students interested in the following careers, the following courses are recommended:

Education ..... Bl S 38, 42, 110, 130T, 135, 150, 162
Performing Arts ..... Bl S 20, 22, 27, 35, 130T
Business ..... Bl S 38, 130T, 135, 136, 148, 149, 190
Pre-Professional ..... Bl S 56, 130T, 135, 144, 146, 190
(Nursing, Criminology, Pre-law, etc.)
Writing ..... Bl S 15, 25, 60, 125, 190
Social Sciences ..... Bl S 27, 38, 135, 140, 178

These selected courses will also assist Black students to become "qualifiable" for entrance into those professions (professional and career oriented) opened by Affirmative Action Programs.

COURSES

BLACK STUDIES (Bl S)

15. Basic Composition and Communication (3)

Designed to help students express themselves concisely and clearly both in speech and writing; assist students to overcome difficulties in spelling, grammar, punctuation, sentence construction; investigate techniques and methods to develop term papers.

20. Black Drama and Dance (3)

Comprehensive study of the nature of Black drama and dance and its relation to society. Performance of plays, dances, and dramas written by Blacks. Emphasis on communicative functions of Black drama and dance, technical and theoretical.

22. Black Dialect (3)

Linguistic course designed to explore the origin, impact, historical background, and problems created by Blacks in using the Black dialect derivative of English and the African language.

25. Black Literature (3)

Major authors, their works, themes and movements in Black literature in America from colonial times to the present.

27. The Black Image (3)
Introduction to the social experience of Afro-Americans in American life and to various images of that experience which have developed historically.

35. Art and Music of Africa (3)
Comprehensive study of African artistry and music.

36. Contemporary African Societies (3)
Analysis of the cultural and political structure of some Black African nations; understanding the impact of colonialism in Africa; realizing the relationship of Black Americans to Africa.

38. Ethnic Sociology (3)
Basic principles of sociology from the perspective of the Black experience.

42. Ethnic Psychology (3)
Introduction to psychology as an empirical science; biological and social basis of behavior; evaluation of concepts or general psychology and personality theories; emphasis on perception, learning, motivation and intelligence; applicability to behavioral patterns of Black Americans.

56. The Black Family (3)
This course deals with the origin, development and adaptations the Black family has created to sustain itself as a viable institution. Emphasis is on problems encountered and created by the American society and how the Black family handles these adversities.

60. Introduction to Contemporary African Literature (3)
Survey of the general characteristics, main currents, and representative works by contemporary African authors writing in English and French; African novels, poetry, drama, and oral literature.

110. Education in the Black Community (3)
Analysis of the economic, sociological, and political foundations of education in the Black community. Aims, methods, and leaders of Black education with special emphasis upon the interrelationship between the Black school, Black values, and Black community.

125. Advanced Black Literature (3)
Major authors of the 1920's and their contribution to American Literature: Rudolph Fisher, Jean Toomer, Claude McKay, James Weldon Johnson, Countee Cullen, Langston Hughes, Arna Bontemps.

130T. Topics in Black Studies (3; max total 9)
Major social problems confronting Blacks in America today; emphasis on welfare, education, legal systems, religious institutions, and economic institutions; effect on the Black segment of the population.

135. American Black Ghettos (3)
Analysis of the various life styles and cultural patterns of the large Black ghettos of America.

136. Black Business Economic Development in the United States (3)
Introduction to Black business enterprises with special emphasis on the analysis and developments of Black business from early slave trade to present day. Relationship of economic forces to historical, political, and social change pertaining to Black Americans.

137. Black Women (3) (Same as W S 137)
An overview of the accomplishments of Black women in the United States; their contributions to American culture; African influence; Black women as defined by a dominant society vs. legitimate definition designed to encourage a positive self-concept.

140. The Black Church (3)
History of the formation and development of Afro-American religious institutions (Christianity, Islam, Judaism) in the Black community; their effect on the Afro-American personality.

144. Race Relations (3)

An examination of race in American society as it affects major social issues such as stratification, income distribution, and political power, with concern for theoretical orientations toward the study of black-white race relations.

146. Law and the Black Community (3)

Critical analysis of the foundation and changing structure of law in the Black community. Review of consumer practices; legal actions pertaining to property, merchandise, credit practices; what can be done to effect change and assure equal protection for minorities.

148. Minority Business Management (3)

Topics in marketing, management, accounting and finance for small businesses with emphasis on minority ownership. Discussions will also focus on "Blacks as Managers" and "Management of Minority Employees."

149. Minority Consumer Behavior (3)

The study of the behavior and motivation of the multi-billion dollar minority consumer with particular emphasis upon shopping habits, brand preference, and other socio-psychological factors involved.

150. Problems in Ghetto Schools (3)

Problems inherent in ghetto schools with emphasis on the family, community and socio-economic factors which determine the quality of educational programs and experiences; their effect on Black values, schools, and community.

178. History of Black Americans (3) (Same as Hist 178)

Evolution of Black society from 1619 to the present; emphasis on the social, political and economic aspects as they relate to cultural values, theories in the development and environment that contribute to the Afro-American way of life.

180. Famous Black Americans (3) (Former Bl S 130T section)

The course focuses on famous Black Americans and their important contributions to the many aspects of American history and society.

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study.*

NATIVE-AMERICAN STUDIES

COURSES

NATIVE-AMERICAN STUDIES (NAS)

9T. Topics in Native-American Studies (1–3; max total 9 if no area repeated)
Selected topics at an introductory level in Native-American Studies.

50. Contemporary Life of the Native American (3)
Current problems of American Indians resulting from acculturation, minority status, and legislative action; detailed study of health, education, social welfare legislation, tribal leadership, and other areas.

60T. Topics in Indian Education (3; max total 9)
Foundations and history of Indian education, methods of teaching Indian children, curriculum and practices for Indian education, guidance for the Indian student, problems of teachers of Indian children, education of Indian adults.

100. American Indian Religion (3)
Religious systems of the American Indian, including beliefs; myths, the social structure of religion, types of ritual activities, and functions of religion in Indian societies as perceived by the American Indian.

101. American Indian Law (3)
Concepts of laws on Indian reservations, termination, litigation and complaints, strengthening tribal governments. Law related to Indian land and resources.

103. Indians of California (3)
Indians of California: population, customs, beliefs, arts of life.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

ARMENIAN STUDIES

FACULTY

Dickran Kouymjian, Coordinator

California State University, Fresno, offers a wide variety of courses in Armenian Studies, including Armenian language, literature, history, art, and architecture, folk traditions, and contemporary issues affecting the Armenian diaspora. It has the only regularly taught program in Armenian art with specialized courses in painting, architecture, and the minor arts. In addition, the University offers a large number of courses in other disciplines related to Armenian Studies. Although CSUF does not currently offer a Bachelor's degree program in the field, by a careful selection of electives and requirements in various majors, a student can secure a useful background for the understanding of the history, art, and culture of one of the worlds oldest people. A "Special Major" in Armenian Studies may be obtained with proper approval.

The minor offered in Armenian Studies can prepare a student for teaching in Armenian schools in the United States; for administrative positions in the ever-increasing Armenian cultural, social, and benevolent organizations, or for graduate work in Armenian Studies.

The Armenian Studies Program also sponsors the Index of Armenian Art, a systematic card catalogue of individual works of Armenian art with which students have the opportunity to work. The Program sponsors and supports the Armenian Students Organization on campus and its newspaper *Armenian Action.* It also works closely with the Armenian Alumni Association of CSUF. For students who need financial aid, the Program provides a limited number of work-study possibilities as well as scholarships for students with an interest in Armenian Studies; the Charles K. Pategian Scholarships and the Knights of Vartan Scholarship.

For Armenian Studies courses see *Armenian Studies—Special and Interdisciplinary Programs.*

GEOGRAPHY

FACULTY

Stanley F. Norsworthy, Department Chairman

Michael J. Biechler, Chester F. Cole, John A. Crosby, Roger E. Ervin, E. Frank Koller, James S. Kus, Robert E. Lee, Richard C. Montgomery, Donald L. Morgan, George N. Nasse, Merrill M. Stuart, Jerry C. Towle, Paul Vander Meer

DEGREES OFFERED: BA, MA

Minor

DEPARTMENTAL PROGRAMS

The Geography Department offers a major and a minor in geography for the bachelor of arts degree and a graduate program for the master of arts degree. Geography offerings include undergraduate preparation for careers in regional and urban planning; teaching; map and air photo intelligence, real estate, cartography, weather; management of the environment; and preparation for graduate work.

Geography, because it integrates information and theory from the social and natural sciences and because of the diversity of subject matter from which it obtains data, offers a broad, liberal education applicable to many fields of employment. Geography provides much insight of direct application to teaching various courses of study in the elementary and secondary schools.

The department cooperates with other departments in providing for a concentration in Asian Studies, Latin American Studies, and in Russian Area Studies. (See *Special Programs—Asian Studies, Latin American Studies, Russian Area Studies*)

Five of The California State University and Colleges, including CSU, Fresno, cooperate in the management of the Moss Landing Marine Laboratories on Monterey Bay, an establishment which offers regular course work and opportunities for research which are applicable to graduate and undergraduate programs. Consult the chairmen of the Geography and Biology Departments. See *Special Programs—Moss Landing Marine Laboratories;* for course descriptions see *Biology Department.*

BACHELOR OF ARTS DEGREE REQUIREMENTS

The geography major consists of a minimum of 30 upper division units. There are 12 units of lower division prerequisites to the major. The major is so designed that students can emphasize that area in geography in which their interest lies, or which conforms to their career objectives.

	Units
Prerequisites to Major	12
Geog 5, 7, and two of the following: Geog 2, 3, 4	
Major in Geography	
Breadth requirement: at least one course from each of the major divisions in geography (Geographic Techniques, Physical Geography, Environmental Studies, Human Geography, and Regional Geography)	15
Emphasis requirement: three additional courses from any one of the five major divisions	9
Electives in upper division geography	6
	30

In addition to the requirements of the major, including prerequisites (42 units), the student is responsible for the completion of the General Education requirement, special course requirements and electives, which may include a minor (82 units), totaling 124 units for the BA degree.

Recommended courses offered by other schools in the University of special interest to Geography Majors: Agri 161, C E 3, 106, Engr 70, IS 50.

All students are urged to regularly consult with their academic adviser. Such consultation will facilitate course selection and enable the student to develop a program consistent with individual interests and needs. Baccalaureate degree programs may be oriented in one of several ways to emphasize *geographic techniques* (skills), *physical geography, environmental studies, human geography* or *regional geography.* In addition, one may elect a course of study which constitutes an emphasis in *environmental design.*

The selection of an emphasis will be strongly influenced by career goals, interest in graduate study and related matters. Whether one's interest focuses on environmental protection, planning, cartography, locational analysis or any one of a wide array of geographic competencies, the department can provide current applicable information. Inquiries are welcomed.

GEOGRAPHY MINOR

	Units
Elect from: Geog 2, 3, or 4 (two courses); and either Geog 5 or 7	9
Elect from Geography physical or human systematic courses (upper division)	6
Elect from upper division Geography	6
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CREDENTIAL PROGRAM

See *Social Science Major* for the single subject waiver program in Social Science.

GRADUATE PROGRAM

The Geography Department offers two programs leading to the master of arts degree in geography: Plan A—Thesis Program and Plan B—Non-Thesis Program. Plan A is a research-oriented program and is intended to give extended preparation for a person going into research-oriented geographic professions and serves as a preparation for additional graduate work leading to the doctorate. Plan B is designed to give a person a broad background in advanced geographic topics as preparation for nonresearch-oriented geographic professions.

MASTER OF ARTS DEGREE REQUIREMENTS

The master of arts degree program in geography assumes a BA degree in geography or a closely allied field. It is recommended that cartography, field geography and quantitative techniques (statistics) (Geog 100, 109, and 110) be taken as technique courses at the undergraduate level.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, Thesis and Thesis Alternatives.)*

For specific requirements consult the departmental graduate adviser; for general requirements see *Division of Graduate Studies and Research.*

Under the supervision of the departmental graduate adviser, each student submits an approved program within one of the following frameworks:

Plan A—Thesis Program

	Units
200-series courses in geography	18
Outside the field	3–6
Electives in geography	6–9
Total	30

Specific requirements: Geog. 200; 206T; 270T; 203T or 260T; 299 (6 units).

Plan B—Non-Thesis Program

	Units
200-series courses in geography	18
Outside the field	3–6
Electives in geography	6–9
Total	30

Specific requirements: Geog. 200; 206T; 270T; 203T or 260T. Terminal oral examinations.

COURSES

INTRODUCTORY GEOGRAPHY (Geog)

2. Introduction to Cultural Geography (3)
General background to cultural geography, including origins of cultural landscapes, man's modification of the natural environment, and problems of population and settlement geography.

3. Man's Economic Environment (3)
Evolution and change in the location of major economic (agricultural, commercial, transportation, mineral, and industrial) activities. An examination of the diverse phenomena that influence the location of economic activities.

4. World Geography (3)
Cultural and physical features; economic development; resources; man-land relationships. The approach is by continents and/or cultural regions.

5. Physical Geography: Global Concepts, Weather and Climate (3)
The earth as a planet, map projections, location on the earth's surface, time, oceans, weather and climate.

5L. Physical Geography: Global Concepts, Weather and Climate Laboratory (1)
Laboratory study of climatological methods and techniques. Use of meteorological instruments, and interpretation and construction of weather maps. To be taken concurrently with Geography 5. Optional lab. (2 hours)

7. Physical Geography: The Earth's Surface (3)
A survey of those elements of the physical environment at the earth-atmosphere contact. Fundamentals of landform features, soils, natural vegetation and water bodies.

7L. Physical Geography: The Earth's Surface Laboratory (1)
Laboratory study of basic principles and theorems in geomorphology, soils and vegetation. To be taken concurrently with Geography 7. Optional lab. (2 hours)

TECHNIQUES IN GEOGRAPHIC STUDY (Geog)

100. Cartography (3)
Emphasis is on compiling and drawing a publishable map through the use of drafting instruments, various types of lettering, construction and use of standard map projections, and the proper use of symbols and patterns for thematic maps. (2 3-hour labs) (Former Geog 115)

104. Map Interpretation (3)
Prerequisite: Geol 1 or Geog 7. Interpretation of foreign and domestic maps; symbols, scale, method of showing topography, vegetation, culture, land use, soils, water levels, characteristics of projections. (2 3-hour labs) (Former Geog 111)

105. Aerial Photograph Interpretation (3)
Prerequisite: Geol 1 or Geog 7. Aerial photographs as a means of determining culture, topography and vegetation; scale, use of index, vertical and oblique photographs, and stereoscopes. (2 3-hour labs) (Former Geog 112)

106. Advanced Aerial Photo Interpretation and Remote Sensing of Environment (3)
Prerequisite: Geog 105. Interpretation of air-borne and orbital imagery; panchromatic, color, infrared, color infrared, radar, multispectral. (2 3-hour labs) (Former Geog 113)

108. Meteorological Data and Instruments (3)
Prerequisite: Geog 5 or 111. Nature, collection, availability, and applications of meteorological data. Meteorological instrumentation and equipment. (2 lecture, 3 lab hours)

109. Technical Field Geography (3)
Gathering and analysis of rural land use data—crop distribution related to topography, climate, soils, water, markets; urban land use—delineation of central business district (CBD), foot and automobile traffic flows, housing quality, retail and wholesale trade territories, population concentrations and ethnic groupings. (4–8 field hours) (Former Geog 181)

110. Basic Quantitative Techniques (4)
Quantitative techniques applied to problems in geography. Small hand calculator required. A mini-computer will be used in some laboratory exercises. No prior knowledge of statistics is assumed. (3 lecture, 3 lab hours) (Former Geog 135)

PHYSICAL SYSTEMATIC GEOGRAPHY (Geog)

111. Meteorology (3)
A descriptive, non-mathematical course in basic meteorology. Atmospheric movements, energy, and circulation patterns. Applications of meteorology to aviation, agriculture, and other human activities. (Former Geog 105)

112. World Climates (3)
Prerequisite: Geog 5 or 111. Study of various systems of climate classification. Climates as they exist throughout the world and the reasons for thier occurrence. (Former Geog 108)

114. Agricultural Climatology (3) (Same as Plant 170T section)
Prerequisite: Geog 5 or 111. Study of micrometeorologic influences on local climates. Climatic factors influencing agriculture with specific reference to the San Joaquin Valley. Course designed for anyone interested in the relations between climate and agriculture, regardless of major.

117. Plant Geography (3)
Study of earth's plant cover; world floras; dispersal and migration; environmental effects on distributions; plant communities; major vegetation regions. (Former Geog 109)

118. Soils Geography (3)
Properties of soil, factors of soil genesis, soil types of the world and their distribution, man's use of the soil. (Former Geog 171)

120. World Landform Regions (3)
A systematic analysis of types of world landform regions with emphasis on glaciated regions, arid lands, and volcanic lands. (Former Geog 106)

121. United States Landform Regions (3)
Prerequisite: Geog 120 or Geol 105. Natural regions of the United States based on study of types of landforms. Analysis of unity and diversity in such landform regions as the Colorado Plateau, Sierra Nevada Province, Basin and Range, et al. (Former Geog 110)

ENVIRONMENTAL STUDIES (Geog)

126. Environmental Factors in the Geography of Man (3)
Elements of the physical environment as they affect man and his activities. Emphasis on bioclimatology and medical geography. Covers climatic stress, physiological climates, climate and health, house climates, and earth and human cycles. (Former Geog 144)

127. Man's Modification of the Natural Environment (3)
Ways in which man's activities have altered climate, landforms, soil and water conditions, and natural vegetation. (Former Geog 145)

128. Environmental Pollution (3)

A discussion of current environmental pollution problems involving the atmosphere, land, and water. The adverse effects of transportation, surface mining, sewage and waste disposal, noise, the use of pesticides, energy production and consumption, and related topics are examined. (Former Geog 146)

129. Physical Environment of Cities (3)

Geologic, topographic and pedologic influences on cities including siting and growth, earthquake and landslip hazards; meteorologic and hydrologic elements including urban climate, air pollution, noise, and flood risk; biologic elements like urban vegetation and wildlife. (Former Geog 147T section)

132. Geography of Natural Resources (3)

Study of the spatial distributions and relationships of natural resources, including land, water, minerals, plants, and animals; form, inherent characteristics, and external relations with the regions in which they are found; use and misuse. (Former Geog 107)

134. Geography of Energy (3)

The world's energy resources emphasizing fossil fuels. The energy crisis. Alternative sources of energy: solar, nuclear, hydroelectric, geothermal, wind and tidal. (Former Geog 100T section)

135. The Protection of Nature (3)

An examination of the plight of nature; the values of nature preserved; man's attempt to preserve nature. Attention focuses on the national park movement, wilderness, endangered species, the management of lands for the purpose of preservation, and related topics. (Former Geog 147T section)

140. Environmental Perception and Behavior (3)

Analysis of individual and group differences in perception and evaluation of environment. Ways in which these differences help to explain migration, land use, and other geographically significant aspects of human behavior.

145T. Environmental Regions (1–3; max total 9, if no area repeated)

Systematic and regional investigation of the physical and cultural complexes of various environmental regions. Regions to be discussed include the Humid Tropics, Arid Lands, Polar Lands, Coastal Lands, Mountain Environments, Island Environments. (Former Geog 153T)

HUMAN SYSTEMATIC GEOGRAPHY (Geog)

146. Land Use (3)

Principles and trends relating to the causes and effects of existing land use patterns throughout the world. Topics include climate and soils, trade, transport, and manufacturing systems; national and local policies, and human abuse. (Former Geog 100T section)

147. Population Geography (3)

Geographical analysis of the causes and consequences of global population growth, migrations, distributions, and relationships to natural resources. (Former Geog 119)

150. Agricultural Geography (3)

Analysis of areal distribution of agricultural (crops and livestock) patterns of the world. Interactions with the environment, role in economics. (Former Geog 101)

152. Transportation Geography (3)

Analysis of areal distribution of transport networks of the world (road, rail, water, and air) and the interaction of these networks with other phenomena. (Former Geog 102)

160. Urban Geography (3)

The city environment. An understanding of the changing urban environments from ancient through medieval to modern times; the relationship of the urban center to its surrounding hinterland; the interdependence of its functional parts; its problems and future. (Former Geog 120)

161. Historical Geography of the United States (3)
Regional settlement of the United States; peopling of physiographic regions, creation of economic (cultural) regions, and geographic factors related to broad trends in American history. (Former Geog 177)

162. Political Geography (3)
Systematic treatment of the nature and structure of states, boundary problems, political policy for the oceans, international power, air space. (Former Geog 116)

163. World Crises (3)
Current major political, economic, and environmental crises occurring on either a global or a regional level. (Former Geog 100T section)

164. Minority Peoples (3)
Spatial analysis of minority groups in the world, in the United States, and in Central California. Historical and modern distribution of minority peoples, based on racial, ethnic, cultural, and economic characteristics. (Former Geog 118)

165. Cultural Landscapes (3)
Spatial aspects of the development of cultural landscapes, particularly the evolution of agriculture and urbanization. Emphasis on the cultural landscapes of Central California. (Former Geog 104)

490 REGIONAL GEOGRAPHY (Geog)

166T. Anglo-American Regions (1–3; max total 9, if no area repeated)
Examination of the physical, economic and cultural geographic foundations of major Anglo-American regions. Regions to be discussed include Canada, the Continental United States, the American West, the South, the Middle West, and the North East. (Former Geog 140, 141)

168. Geography of California (3)
Natural and cultural patterns of California; historical and regional geography of the state. (Former Geog 189)

170T. Latin American Regions (1–3; max total 9, if no area repeated)
Geography of Latin America. Relationship of cultural and natural features; social and economic development; man-land relationships. Regions to be discussed include Mexico, Central America, Caribbean Islands and South America. (Former Geog 142, 143T)

174T. European Regions (1–3; max total 9, if no area repeated)
Geographic regions of Europe emphasizing the relation of human activities to physical factors areal in their distribution and influence. Regions to be discussed include Mediterranean lands, Western Europe, Eastern Europe, Central Europe, Northern Europe, the British Isles. (Former Geog 127T)

176. Geography of the USSR (3)
Comprehensive study of the economic, cultural, physical and political geographic foundations of the Soviet state, followed by intensive study of selected regions within the country. (Former Geog 124)

177T. Asian Regions (1–3; max total 9, if no area repeated)
Geographic regions of Asia emphasizing physical and cultural features. Regions to be discussed include Southeast Asia, South Asia, and the Far East. (Former Geog 128T)

179. Geography of the Middle East (3)
Comprehensive study of the physical features of the Middle East and the cultural traits of its people. The area under consideration extends from the Turkish Straits to the Pamir knot, and from the Caucasus to the Sudan. (Former Geog 125)

180. Holy Lands (3)
Geography is used to analyze and interpret ancient and contemporary materials which relate to this relatively small area that has spawned Judaism, Christianity, and Islam. (Former Geog 128T section)

181T. African Regions (1–3; max total 9 if no region repeated)
Study of major African regions relating to basic physical, cultural, economic, and political geographic conditions and problems. Regions to be discussed include Subsaharan Africa, Developing Black Africa, North Africa, West Africa, East Africa, Central Africa and Southern Africa. (Former Geog 129T)

183. Australia and New Zealand (3)
Geographic relationship of natural and cultural features to social and economic development. (Former Geog 126)

GEOGRAPHIC INNOVATION, THEORY, RESEARCH AND FIELD TRIPS (Geog)

187. Spatial Structure of Society (3)
Location factors and principles—theory and reality. Spatial systems in historical cultural context. Models. (Former Geog 131)

188T. Topics in Geography (1–3; max total 9)
Selected topics in cultural, physical, and economic geography. (Former Geog 100T)

190. Independent Study (1–3; max total 9)
See *Academic Placement—Independent Study*

192. Directed Readings (1–3; max total 6)
Prerequisite: permission of instructor. Supervised readings in a selected field of geography. Combined units of Geog 190 and 192 may not exceed 6 units.

195. Field Geography (1–6; max total 6)
Prerequisite: permission of instructor. Week-end, semester break, or summer field trips. (Former Geog 180)

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

200. Methods in Geographic Research and Writing (3)
Prerequisite: permission of instructor. Bibliographic technique with emphasis on statistical, map, aerial photograph sources; research writing; preparation of manuscripts including illustrative material.

203T. Seminar in Economic Geography (3; max total 6 if no topic repeated)
Prerequisite: permission of instructor. Theory, concepts, and methods in economic geography. Each offering will be chosen from the fields of transportation, industrial, agricultural or resource geography.

206T. Seminar in Physical Geography (3; max total 9)
Prerequisite: permission of instructor. Principles, concepts, and theories in the systematic study of physical geography and its methodology. Each offering chosen from the fields of geomorphology, climatology, biogeography, water, or soils.

230. Seminar in Contemporary Geographic Thought (3)
Prerequisite: permission of instructor. Current theories of geography and their evolution.

260T. Seminar in Human Geography (3; max total 9)
Prerequisite: permission of instructor. Principles, concepts, and theories in the systematic study of a field of human geography and its methodology: political, cultural, urban, historical or population and settlement geography.

270T. Seminar in Selected Regions (3; max total 12 if no region is repeated)
Prerequisite: undergraduate course dealing with the region under study. Study of geographic conditions in relation to economic, social and political problems in a selected region of the world.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

292. Directed Readings in Geography (1–3; max total 6)
Prerequisite: graduate standing. Supervised reading in a selected geographical topic.

299. Thesis (2–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

HISTORY

FACULTY

W. Hudson Kensel, Department Chairman

Norman A. Baxter, Stephen Benko, D. Loy Bilderback, Roger C. Bjerk, John W. Bohnstedt, James M. Brouwer, Sidney H. H. Chang, Jack D. Christensen, Carlos A. Contreras, Robert J. Dinkin, Warren E. Gade, H. Marshall Goodwin, Jr., David C. Hudson, David N. Jones, John C. Kendall, Peter J. Klassen, Robert M. Smetherman, Ephraim K. Smith, Jr.

DEGREES OFFERED: BA, MA

Minor

DEPARTMENTAL PROGRAMS

A primary function of the History Department is to give students a liberal education in world and American civilization. It proposes to bring to them an understanding of modern society by reviewing the achievements of the past. Thus the department expects to prepare students to be enlightened citizens equipped with the broad cultural background essential to studies in the fields of education, philosophy, literature, law, government, journalism, public service, and business; all of which today demand a grasp of vital domestic and foreign problems.

The department offers a major and a minor in history for the bachelor of arts degree, a graduate program in history for the master of arts degree, courses for use in teaching credential programs as well as in the nondepartmental Asian Area Studies, the Social Science, and Latin American Studies majors. (See *Special Programs—Asian Area Courses, Classical Studies Courses, Latin American Studies*)

THE AMERICAN HISTORY REQUIREMENT

The American history requirement for graduation may be fulfilled by taking (a) the Advanced Placement Examination (See *General Information—Advanced Placement*), (b) the no-credit departmental examination, (c) Hist 11 or 12, or (d) one of the following upper division courses: Hist 171, 172, 173, 174A or B, 176, 181A or B, 184A or B. No course used to fulfill the American history requirement may be used to satisfy the general education requirements.

BACHELOR OF ARTS DEGREE REQUIREMENTS

The bachelor of arts degree with a major in History consists of 124 units.

	Units
General Education	40
Lower division history prerequisites	
Hist 1, 2, 3, 6	12
(may be used to meet general education requirements)	
Upper division history courses	
Hist 100W	3
27 units of upper division history electives	27
6 units approved upper division electives in related fields	
such as other social sciences or literature	6
Other upper and lower division electives, including	
those necessary to meet the foreign language requirement	36
	124

No upper division history course for the history major nor any of the 6 units of approved upper division electives in related fields may be used to fulfill the general education requirements.

The upper division history electives must be selected from the 3 fields listed below. At least 1 course must be selected in each field, but no more than 18 units in any one field. At least 1 course must deal primarily with history prior to 1700.

Fields

Western Hemisphere: Hist 101, 117, 137, 153, 160, 161, 165, 166, 169T, 171, 172, 173, 174A, 174B, 176, 177, 178, 179T, 181A, 181B, 183, 184A, 184B, 186, 189A, 189B, 190.

European: Hist 103A, 103B, 103C, 106, 111, 112, 116, 119T, 120, 121, 122, 124T, 125, 126, 129T,

130, 131, 132, 133, 134, 135, 136, 138, 140, 141, 142, 143, 144, 145, 147, 148, 149T, 150, 151, 156T, 190.

Oriental and African: Hist 106, 107, 108A, 108B, 109T, 110, 114, 115, 157, 190, 191, 192 193, 194, 199T.

Foreign Language Requirement or Alternative

Select one: (1) Give evidence of a satisfactory degree of competence in one foreign language. Students may meet this requirement by completing two years of satisfactory collegiate study (or equivalent), passing a departmental reading examination, or completing a two-semester reading course in the Department of Foreign Language or the Department of Linguistics, (2) Students who choose not to take a foreign language may substitute 15 units, of which at least 9 must be upper division, in courses approved by the Department of History. This 15 unit substitute is to be worked out in conjunction with the student's adviser and approved by the Department Chairman. Students may be permitted to use these 15 units as a partial fulfillment of a minor in other fields and/or general education requirements. A student may also elect to take up to 6 of these 15 units in history. If a student's overall history units are heavily concentrated in one area, it is expected that these 6 units would be completed in other fields of study.

See the general statement in section on *Degrees and Credentials—Foreign Language Requirement* for equivalents and alternative ways of meeting the requirement. Any student planning advanced study is advised also to meet the foreign language requirement of the school he plans to attend.

HISTORY MINOR

The following minor requirements are in addition to the general education requirement in social science.

	Units
Hist 1, 2, 3, 6, 11, 12	6–12
Elect from: Oriental and African	3–6
Elect from: Western Hemisphere	6–9
Elect from: European	6–9
	24

CREDENTIAL PROGRAM

See *Social Science Major* for the single subject waiver program in Social Science.

GRADUATE PROGRAM

The master of arts degree program in history is designed to extend the competence of persons engaged in a wide variety of fields requiring a broad grasp of historical knowledge, techniques, and interpretation, for those in public service, for teachers at various levels, and for those anticipating advanced graduate study in history.

Prerequisites: Admission to the master of arts degree program in history assumes undergraduate preparation equivalent to a CSUF major in history. Majors from other disciplines may also qualify for admission depending on grade point average and other factors deemed pertinent for success in historical studies. The department determines in each case whether the applicant needs additional preparation, such as History 100, before receiving classified standing.

MASTER OF ARTS DEGREE REQUIREMENTS

(See also *University-wide requirements, Qualifying Examinations, and Advancement to Candidacy.*)

Under the general supervision of the departmental graduate adviser, each student submits an approved program. The department offers two paths to the master's degree, each option requiring a minimum of 30 units. Basic requirements include: *Option A* (Thesis)—History 200 (3 units), History 201 (3 units), History 202T (3 units), combined History 290/292 (9 units), approved upper-division (6 units) History 299 (6 units); *Option B* (Non-Thesis) History 200 (3 units), History 201 (3 units), History 202T (3 units), combined History 290/292 (9 units), approved upper-division (12 units), written comprehensive examinations in three fields. Comprehensive examinations are given during the first week in November and the first week in

April of each year. For other specifics, consult the departmental graduate adviser; for general requirements see the *Division of Graduate Studies and Research.*

Foreign Language Requirement. This is an optional requirement determined at the discretion of the Department of History and is contingent upon the research needs of the individual. Candidates writing a thesis based on foreign language sources will be expected to pass a language competency examination to be administered by the Department of History. Language examinations will be given during the first week in November and the first week in April of each year. For details, see the departmental graduate adviser.

COURSES

HISTORY (Hist)

1. Western Heritage I (3)
The Mediterranean and European world from prehistoric to early modern times. Social, political, intellectual, and artistic movements in the ancient Fertile Crescent, classical Greece and Rome, and in Medieval, Renaissance and Reformation Europe.

2. Western Heritage II (3)
Survey of modern European culture since the 17th century. Impact of industrialization and urbanization; political revolutions and ideologies; intellectual, artistic and religious movements; European imperialism; the two world wars and changing patterns in contempoary European life.

3. Colonial America (3)
Western Hemisphere history from discovery to independence.

4. Great Figures in History (3)
The life and times of significant individuals such as Jesus, Alexander, Charlemagne, Elizabeth I, Napoleon, Washington, Bolivar, Gandhi, Hitler, and Mao Tse-tung. Examination of the concept of "greatness," and the influence of great figures in the shaping of history.

5. The World Today (3)
A consideration of selected current affairs in their historical perspectives. Topics change with each offering of the course.

6. East Asian Civilization (3)
Introduction to the history and cultures of the East Asian countries, particularly China, Japan, and Korea. Examination of the East Asian mind as reflected in Confucianism, Taoism, Buddhism and in resistance to the challenges of the West.

11. American History to 1865 (3)
Meets the American history requirement. The formation of the Union and the development of American society to 1865.

12. American History from 1865 (3)
Meets the American history requirement. The development of American society since 1865.

100W. Introduction to Historical Method (3)
Not open to students with credit in Hist 101 prior to Fall 1977. Prerequisite: upper division standing, preferably first-semester junior. (Consult department for more specific requirements of individual instructors.) Introduction to the theory and practice of historical inquiry. Students receive careful guidance and criticism in preparing papers on historical subjects. Emphasis is placed on research techniques, evaluation of evidence, documentation, bibliography, organization, style and mechanics of writing. Meets the upper division writing skills requirement for graduation.

101. Women in History (3) (Same as W S 101)
Not open to students with credit in Hist 118 prior to Fall 1977. Historical survey of women's roles in history, with an emphasis on the emergence of the feminist movement.

103A. History of Early Christianity (3)
Not open to students with credit in Hist 113A prior to Fall 1977. Early Christianity from the first century to Constantine the Great and the legalization of Christianity (313 AD). Origin of Christian movement from Judaic roots and its spread in the Graeco-Roman world. Development during the early patristic period.

103B. History of Medieval Christianity (3)
Not open to students with credit in Hist 113B prior to Fall 1977. Medieval Christianity from its legalization to eve of Reformation. Christian institutions and ideas, their impact upon society; reform movements and decline of Christian influence; gradual secularization of society.

103C. History of Modern Christianity (3)
An analysis of Catholicism, Orthodoxy and Protestantism in Europe from the Reformation to Vatican II. Areas of study include: religion in confrontation with science, secularism and Marxism; state-church relations; reform movements; totalitarianism and the church.

104. History of Education (3)
An examination of educational philosophies and institutions in the Western Tradition. Educational thought and practice will be viewed as a factor of social and cultural progress from ancient times to the present. (Former Hist 129T)

106. The Near East and Islamic Civilization to 1500 (3)
Not open to students with credit in Hist 134 prior to Fall 1977. Rise of Islam, its territorial expansion, teachings, and cultural contributions. Emergence of the Umayyad and Abbasid Caliphates and appearance of Seljuk and Ottoman Turks.

107. Modern Middle East (3)
Survey of Middle Eastern history since Muhammad, with emphasis upon the 19th and 20th centuries. The Middle East under European imperial domination; nationalist movements and revolutions; the Arab-Israeli conflict; the Middle East in contemporary world politics. (Former Hist 109T section)

108A. Armenian History to the Mongol Invasion (3)
Not open to students with credit in Hist 108 prior to Fall 1981. History of Armenia and Armenians from prehistoric times to the 13th century Mongol invasions will be considered from Armenia's point of view as well as from that of its neighbors: Assyria, Iran, Rome, Byzantium, the Arabs, and the Seljuk Turks.

108B. Armenian History from the Mongol Invasion to the Present (3)
Not open to students with credit in Hist 108 prior to Fall 1981. Discussion of the Armenian Kingdom of Cilicia, the rise of the Ottoman Empire, Armenia's subjugation to Turkish, Persian, and Russian Empires, the "Armenian Question," the massacres and Genocide, Soviet Armenia, and diasporic communities in America, Europe, and the Near East. (Former Hist 109T section)

109T. Studies in Middle East and Africa (1–3; max total 6 if no topic repeated)
Intensive study of special topics.

110. Ancient Near East (3)
Ancient civilizations of the Middle East. History and culture of the Sumerians, Assyrians, Babylonians, and Persians from the dawn of history to Alexander the Great and the ascendance of Greece.

111. Ancient Greece (3)
The history and culture of ancient Greece from the Minoan-Mycenaean periods through the Golden Age of Athens to the dissolution of the empire of Alexander the Great.

112. Ancient Rome (3)
The early history of Rome and the evolution of Roman society, politics, and culture through the republican and imperial periods.

114. The Ancient Mediterranean (3)
Culture and history of ancient inhabitants of the Southern and Western coast of the Mediterranean: the Egyptians, Carthaginians, Iberians, Celts and Phoenicians.

115. Ancient Israel (3)
Not open to students with credit in Hist 108 prior to Fall 1977. History of the Jewish people from earliest times to the fall of Jerusalem in 70 A.D.

116. Greek and Roman Religion (3)
Survey of the religious ideas, customs and practices of ancient Greeks and Romans from the time of Homer to the establishment of Christianity. (Former Hist 119T section)

117. South America (3)
Not open to students with credit in Hist 162 and 163 prior to Fall 1979. The history of South American republics, with an emphasis on such themes as instability, economic development, political parties and revolution.

119T. Studies in Ancient History (1–3; max total 6 if no topic repeated)
Intensive study of special topics.

120. Later Eastern Roman or Byzantine Civilization (3)
The Roman Empire in the East from the anarchy of the third century to the fall of Constantinople; political, military, and economic causes of its survival, the Church's role, and the Empire's relations with the Islamic, Latin, and Slavic world.

121. The Middle Ages (3)
Medieval Europe from the fall of the Roman Empire in the West to the Renaissance.

122. Medieval Culture (3)
Selected aspects of medieval life and culture such as warfare, commerce, art and architecture, learning and the university presented as manifestations of the medieval mind. Extensive use of visual materials.

124T. Studies in Medieval History (1–3; max total 6 if no topic repeated)
Intensive study of special topics.

125. Renaissance (3)
Not open to students with credit in Hist 131 prior to Fall 1977. Social, intellectual, political and economic factors that shaped Europe in the 14th and 15th centuries; humanism, foundations of the state; secularization and dissent within the church.

126. Reformation (3)
Not open to students with credit in Hist 132 prior to Fall 1977. Analysis of the political, social, and intellectual movements associated with the 16th century religious upheaval.

129T. Studies in Intellectual and Social History (1–3; max total 6 if no topic repeated)
Topics concerned with ideas and movements that have significantly shaped the course of history.

130. Europe in the 17th Century (3)
Not open to students with credit in Hist 141 prior to Fall 1977. European culture, society, and politics from 1600 to the death of Louis XIV.

131. Europe in the 18th Century (3)
Not open to students with credit in Hist 142A and 142B prior to Fall 1977. Intellectual, social, and political development of Europe from 1715 to the French Revolution and Napoleon Bonaparte.

132. Europe in the 19th Century (3)

Not open to students with credit in Hist 145 and 146 prior to Fall 1977. History of Europe (mainly Great Britain, France, Germany and Austria) from Napoleon to the outbreak of World War I. Social and cultural consequences of the Industrial Revolution; rise of modern national states; European imperialism and dominance in world affairs.

133. Europe in the 20th Century (3)

Not open to students with credit in Hist 147A and 147B prior to Fall 1977. Narrative and interpretive account of 20th Century Europe. Stress on the impact of World War I, the Communist and Fascist Revolutions, the economic recovery of Europe, and the loss of European significance in the world after World War II.

134. Europe Today (3)

An examination of recent European history, emphasizing the trauma of decolonization, adjustment to the reality of a divided Europe, the twisting path to European unification, and the revolution in European lifestyles caused by economic prosperity.

135. European Cultural History (3)

Survey of European thought from the Enlightenment to the present. Major movements in philosophy, religion, literature, art and architecture; ideologies such as conservatism, liberalism, socialism, communism, nationalism, racism and fascism. Emphasis on ideas of lasting and world-wide influence.

136. European Military History From Napoleon to Hitler (3)

Not open to students with credit in Hist 140 prior to Fall 1977. Examination of strategic planning, tactical innovation, military systems, and campaigns from the time of Napoleon to Hitler. World wars of the 20th century with particular attention on their causes and consequences.

137. Historic Preservation (3)

History of historic preservation in the United States from 1816 to the present, and an introduction to the methodology involved in identifying, researching, and protecting sites, buildings, and neighborhoods of architectural and historical significance. Includes tours of local historical sites.

138. History of the Second World War in Europe (3)

A detailed examination of the military, diplomatic, political, economic, social and cultural impact of the Second World War in Europe. The causes, conduct and consequences of the war will be analyzed. (Former Hist 149T section)

140. Modern France (3)

Not open to students with credit in Hist 144A and 144B prior to Fall 1977. The culture, politics, and society of France from the Old Regime to the Fifth Republic.

141. Modern Germany (3)

Not open to students with credit in Hist 143A and 143B prior to Fall 1977. Political and social developments from Bismarck to the present. Rise of Germany as a world power; failure of German democracy; Hitler and the Third Reich; politics of a divided Germany since 1945.

142. Russia (3)

Not open to students with credit in Hist 126 prior to Fall 1977. The political, economic, and social history of Tsarist Russia from 862 to 1917.

143. The Soviet Union (3)

Not open to students with credit in Hist 127 prior to Fall 1977. The political, economic, and social history of the Soviet Union since 1917.

144. Russian Culture (3)

Not open to students with credit in Hist 128 prior to Fall 1977. Russian art and literature in their historical context. Extensive use of visual material.

145. Spain and Portugal (3)
Not open to students with credit in Hist 160 prior to Fall 1977. Development of the Iberian Peninsula from prehistoric to modern times.

147. Eastern Europe (3)
Not open to students with credit in Hist 146 prior to Fall 1979. A survey of the history of East Central Europe and the Balkans.

148. Scandinavia (3)
Not open to students with credit in Hist 146 prior to Fall 1979. A survey of the history of Scandinavia from the age of the Vikings to the present.

149T. Studies in Modern European History (1–3; max total 6 if no topic repeated)
Intensive study of special topics.

150. England to 1688 (3)
Not open to students with credit in Hist 151 prior to Fall 1977. Structure of the British government, society, and economic life from Roman times to the Glorious Revolution.

151. England and the Empire (3)
Not open to students with credit in Hist 152 prior to Fall 1977. Rise of England and the British nation; spread of the English-speaking peoples and the transfer of British institutions; from Elizabeth I to the modern era.

153. Canada (3)
Not open to students with credit in Hist 158 prior to Fall 1977. Discovery, growth and expansion of Canada; social, economic and political institutions from the French regime through British rule to the Transcontinental Dominion.

157. Africa (3)
Not open to students with credit in Hist 136 prior to Fall 1977. Major movements in African history from ancient times to the present. Emphasis is given to the development of African civilization, relations between Africa and other continents, and Africa's rise in modern times to a position of prominence in world affairs.

160. The Great American Civilizations: Maya, Aztec, Inca (3)
Not open to students with credit in Hist 196 prior to Fall 1977. Historical examination of the rise and fall of the Maya, Aztec, and Inca empires. Social organization, religion, technology, art, and scientific achievements of the pre-Columbian great American civilizations.

161. Caribbean America (3)
Not open to students with credit in Hist 163 prior to Fall 1977. Origins and evolution of the Greater Antilles, Venezuela and Colombia, their struggle for self-determination and sovereignty from 1800 to the present.

165. Modern Mexico (3)
Not open to students with credit in Hist 165B prior to Fall 1977. Nineteenth century origins of Mexican nationality. Development of modern Mexican culture from the Mexican Revolution to the present as compared to that of the Mexican-American. Literature and art as an expression of the new Mexican culture.

166. United States—Latin American Diplomacy (3)
Not open to students with credit in Hist 170 prior to Fall 1977. History of the relations between the United States and Latin America, ranging from the Monroe Doctrine to Nixon Doctrine. Development of the inter-American system, resulting in the creation of Organization of American States.

169T. Studies in Latin American History (1–3; max total 6 if no topic repeated)
Prerequisite: permission of instructor.

171. Early American History, 1607–1789 (3)
Meets the American history requirement. First of a sequence of four courses covering the full period of history of the United States; colonial foundations; political and economic factors; social and cultural development through the founding of the new republic.

172. United States History, 1789–1865 (3)
Meets the American history requirement. Political, economic, social, and cultural developments from the beginning of the republic through the Civil War.

173. United States History, 1865–1914 (3)
Meets the American history requirement. The development of an increasingly urban and industrialized society from Reconstruction to the eve of WW I.

174A. United States History, 1914–1945 (3)
Meets the American history requirement. The United States in world affairs; political, economic, social, and cultural developments and problems from 1914 to 1945.

174B. United States History, 1945–Present (3)
Meets the American history requirement. The United States in world affairs; political, economic, social, and cultural developments, and problems from 1945 to present.

176. Cultural-Intellectual History of the United States (3)
Not open to students with credit in History 176A or 176B prior to Fall 1981. Analysis of the leading ideas and value systems shaping American culture and American character; from Puritanism to existentialism.

177. American History in Film (3)
Not open to students with credit in Hist 195 prior to Fall 1977. Analysis of significant films and documentaries on controversial aspects of American History. Emphasis given to placing film content in an historiographical framework. Offered especially, but not exclusively, for prospective teachers.

178. History of Black Americans (3) (See Bl S 178)

179T. Studies in United States History (1–3; max total 6 if no topic repeated) (Same as W S 179T)
Prerequisite: permission of instructor. Intensive study of special topics.

181A. Westward Movement to 1848 (3)
Not open to students with credit in Hist 181 prior to Fall 1977. The challenge of free land; development of British and United States western policies; problems of American migration to the interior, effects of the frontier environment upon the culture of the West.

181B. Westward Movement Since 1848 (3)
Not open to students with credit in Hist 182 prior to Fall 1977. Patterns of exploitation; role of the federal government in the West: land policy, Indian policy; problems of communication; economic growth.

183. The Hispanic Southwest (3)
Exploration, conquest, and settlement of the Spanish Borderlands from 1513 to the Mexican War; contributions of Hispanic culture to the Southwest.

184A. American Diplomatic History to 1898 (3)
Not open to students with credit in Hist 167 prior to Fall 1977. Principles, ideals, and policies of the United States in diplomatic relations from 1775 to 1898.

184B. American Diplomatic History, 1898–Present (3)
Not open to students with credit in Hist 168A and 168B prior to Fall 1977. Principles, ideals, and policies of the United States in diplomatic relations as a great world power in the twentieth century.

186. American Ethnic History (3)
The immigration of peoples from Europe, Asia, Africa and Latin America to the United States and the life they created here.

189A. Early California (3)
Not open to students with credit in Hist 188 prior to Fall 1977. Discovery, exploration, and early settlement of Alta California, founding of the missions; the Spanish, Mexican, and American periods; government, customs, habits, and influences of the various peoples who occupied California.

189B. Modern California (3)
Not open to students with credit in Hist 189 prior to Fall 1977. Social, cultural, economic, and political development of California from the 1860's to the present.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

191. China, 1644–1949 (3)
Not open to students with credit in Hist 103 prior to Fall 1977. An examination of the modern history of China from the Manchu conquest in 1644 to the conclusion of the Communist Revolution in 1949. An in-depth survey of Manchu rule, foreign encroachments, and the reform and revolutionary movements of modern times.

192. East Asian Communism (3)
Not open to students with credit in Hist 104 prior to Fall 1977. An historical analysis of the theoretical and practical aspects of the origin, growth, and development of communism in East Asia, and its interrelationship with traditional values, imperialism, colonialism, and modernization.

193. Japan and Korea (3)
Not open to students with credit in Hist 105 prior to Fall 1977. Topical analysis of external and internal developments in Japan and Korea from the beginning of their civilization to the present, covering religious, political, economic, social, and diplomatic aspects of life in the two countries.

194. Southeast Asia and the Modern World (3)
Not open to students with credit in Hist 107 prior to Fall 1977. Analysis of the history and cultures of the Continental and Insular Southeast Asian countries, focusing on problems of Indianization, Sinification, and the responses of the indigenous peoples to Western imperialism, colonialism, and Soviet and Chinese communism.

198. Directed Reading (1–3; max total 3 if no area repeated)
Prerequisite: upper division standing. Readings on selected themes, problems, and topics in consultation with a faculty adviser.

199T. Studies in Far Eastern History (1–3; max total 6 if no topic repeated)
Intensive study in special topics.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

200. Historiography (3)
The development of historical consciousness and historical methodology as manifested in the writings of great historians and philosophers of history from Herodotus to the present.

201. Seminar in United States History (3)
Prerequisite: permission of instructor. Intensive reading and discussion/analysis of significant historical literature and problems in United States history.

202T. Seminar in History (3)
Prerequisite: permission of instructor. Intensive reading and discussion/analysis of significant historical literature and problems in a particular area. The area to be studied will vary from term to term.

***290. Independent Study (1–3; max total 6 if no topic repeated)**
See *Academic Placement—Independent Study.*

***292. Directed Reading (1–3; max total 6 if no area repeated)**
Prerequisite: see instructor. Readings on selected themes and topics in consultation with a faculty adviser.

299A-B. Thesis (3-3)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree. A. Thesis design. B. Thesis writing. A and B may be taken concurrently.

IN-SERVICE COURSES
(See *Course Numbering System*)

300. Topics in History (2; max total 8 if no topic repeated)

* (max total for History 290 and 292 combined is 9 units if no area repeated)

LA RAZA STUDIES PROGRAM

FACULTY

Jesus Luna, Coordinator

Ernesto Martinez, Lea Ybarra-Soriano

MINOR OFFERED: Minor in La Raza Studies

The La Raza Studies Program is designed to meet several objectives. One of its objectives is to promote an awareness of the historical and cultural factors that characterize the Chicano as a unique group in the United States. Another is to cultivate an understanding and appreciation of ethnic differences among all people. A third is to critically analyze the Chicano experience in terms of significant issues, concepts, theories, and current problems. Finally, the program aims to integrate this knowledge into the major academic fields of study. With this aim, the courses offered in La Raza Studies are interdisciplinary in nature. They reflect the various areas of study that will give students an understanding and appreciation of the essence and diversity of La Raza. The program emphasizes Social, Psychological and Community Studies, Education, History and Culture, Art, Music, and Literature. In addition to those courses which offer a general knowledge of Chicano experience (La R 3, 5), courses for specific career areas are listed below:

Arts .....La R 3, 5, 7, 9, 104, 121A, 121B, 122, 130, 132
Counseling .....La R 3, 5, 109, 118, 124, 127
Criminology .....La R 3, 5, 105, 124, 127, 142, 145
Education .....La R 3, 5, 109, 110, 118, 142
Journalism.....La R 3, 5, 114, 118, 132, 145
Nursing, Health Science.....La R 3, 5, 117, 118
Politics .....La R 3, 5, 114
Psychology.....La R 3, 5, 124, 127
Social Welfare .....La R 3, 5, 105, 118, 124, 127, 142

LA RAZA MINOR

A student intending to pursue a minor in La Raza Studies should see the Coordinator of the La Raza Studies Program for assignment to a faculty adviser who will assist the student in planning his or her program.

	Units
Lower Division: La R 3, 5, 7, 9	12
Upper Division: 9 units of Approved La Raza Electives	9
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CREDENTIAL PROGRAM

Bilingual/Cross Cultural Emphasis in Liberal Studies

Students wishing to prepare to teach in Bilingual/Cross Cultural education settings should include the following courses in their Liberal Studies Major Program: In Area IV B, 9 units from La Raza *105, **110, and ***145.

* Prerequisite: La Raza 5
** Prerequisite: La Raza 3
*** Prerequisite: La Raza 3 or 5

Bilingual/Cross-Cultural Specialist Credential

The Bilingual Cross-Cultural Specialist Credential requires completion of a basic teaching credential program and approval of an application for admission to the Specialist Credential. Courses taken in the Bilingual/Cross-Cultural Specialist Program may be used to satisfy part or all of the fifth-year postgraduate semester units, providing prior approval is obtained from the Coordinator of the Bilingual Cross-Cultural Program and the Chairman of the Teacher Education Department. Students wishing to complete the Specialist Credential are required to take 9 units from La R: 109, 112, 114, 120, 121A, 124, 127, 142.

COURSES

LA RAZA (La R)

3. Introduction to Chicano Studies (3)
Introduction to the nature and scope of Chicano Studies. The course covers the history of Chicanos, the unique nature of their experience, social problems, contributions and potential of Chicanos in American Society.

4A-B. Spanish for the Bilingual Student (3–3)

5. Chicano Culture and Heritage (3)
An historical and cultural examination of the Chicano from the Pre-columbian to the Present. The values, customs, life concepts, and major historical figures and events are analyzed.

7. Development of Mexican Music and Dance (3)
A study of Mexico's musical culture starting from its precolumbian origins to the present and its impact on contemporary Chicano music.

9. Chicano Arts Orientation (3)
Introduction to the arts of the Chicano and their common themes; emphasis on literature, drama, art history, and music.

10A. Chicano Directed Writing (3)
Theory and practice of composition; research methods; emphasis on sentence structure, grammar, punctuation as related to the Chicano language abilities.

10B. Chicano Writing I (3)
Beginning workshop in creative writing, including poetry, fiction; discussion and analysis of poems and stories submitted by students; occasional readings by advanced writers from the community.

101. Chicano Art (3; max total 6)
Chicano Studio Arts: emphasis on individual development of artistic and technical expression.

104. Chicano Arts and Crafts (3)
Ceramics, weaving, sculpture, sand painting, and other creative works relating to the heritage of the Chicano.

105. Cultural Change and the Chicano (3)
Prerequisite: La R 5. An analysis of the continuities and the changes in the culture and daily life of the urban and rural Chicano in the 20th Century created by immigration, acculturation, urbanization and technological and scientific changes.

109. The Chicano and the Educational System (3)
Elements of the educational system and their effect on Chicano students.

110. Bicultural Education (3)
Prerequisite: La R 3. Investigation into what it means to be bilingual and bicultural; review of programs scaled toward a more meaningful education for the Chicano child.

112. Pre-Hispanic Civilizations (3)
Historical examination of the origins of the Maya-Aztec civilizations in Meso American until 1521. The values, social organization, religion and their daily lives, technological and scientific achievements will be examined.

114. La Raza 1810–1910 (3)
Nineteenth Century origins of Mexican Nationality from the period of Mexico's Independence from Spain to the Mexican Revolution of 1910. The experiences of La Raza in the U.S. after the Treaty of Guadalupe Hidalgo. (Former La R 114A)

115. La Raza 1910–Present (3)
Not open to students with credit in La Raza 114B prior to Fall 1981. A 20th Century historical perspective of the Mexican/Chicano in the U.S. from 1910 to the Present. Topics will include the immigration and deportation of Mexicans, Bracero Program, Mojados, and the Chicano movement in the sixties.

117. Health and Social Services in the Chicano Community (3)
An analysis of health and social service programs, their policies and effects on the Chicano community. Explores alternatives to dependent social services programs.

118. The Chicano Family (3) (Same as W S 119)
Traditional and changing relationships in the family structure of the Chicano; interaction with wider institutional social system.

120. Folklore of Mexico and the Southwest (3)
Indian folklore of Mexico and the Southwest and its fusion with Chicano and Hispanic folklore.

121A-B. Music and Dance of La Raza (3–3)
Development and performance of Mexican folk music and dance; Indian, Black, Spanish, and European influences; contemporary relationships to Chicano culture.

122. Music of Mexico and the Southwest: Performance (2; repeatable up to 16 units)
Examination of origins, composition, and performance of various type of music of La Raza; corridos, boleros, huapangos, sones, cumbias; emphasis on historical and cross-cultural influences on music of La Raza.

124. The Chicano Child (3)
General psychological principles and theories of growth and development and their applicability to the Chicano child.

125T. Topics of Chicano Society (1–3; repeatable with different topics)
Culture, art forms, economy, and societal organization.

126. Economics of Land Use and Farm Labor (3)
Examination of the social and economic consequences of current land tenure patterns. Historical foundations and implications of collective bargaining.

127. The Chicano Adolescent (3)
The adjustment of Chicano adolescents to American society and its impact on self, peer group relations, and family life; with emphasis on sources of conflict and tension. (Former La R 125T section)

130. Chicano Theatre (1–3; repeatable up to 12 units)
Production of Chicano Theatre for major performances. *Comedia del Arte,* Passion Plays, Theatre of the Absurd, Socially Popular Theatre: *Teatro Compesino.*

132. Chicano Literature (3)
Chicano literature: poetry, novels, essays.

133. Contemporary Political Issues (3)
Political philosophies, goals, and strategies of Chicanos as reflected in their attempts to gain political power.

140. Business and Economic Development in the Minority Community (3)
Business and economic development in minority communities and their relationship to the wider economic and social systems.

142. Chicano Research: Issues and Analysis (3)
An interdisciplinary approach to research techniques with special emphasis upon issues, problems, and research designs appropriate to the study of Chicano communities. Field application of research plans, techniques including methods of observation, gathering, and analyzing data.

145. Field Work in Community Settings (3; max total 6)
Prerequisite: La R 3 or 5. Supervised placement in community and educational settings. Provides a variety of learning experiences in community agencies, organizations, or educational institutions. (Bilingual candidates, see Coordinator)

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

POLITICAL SCIENCE

FACULTY

David H. Provost, Department Chairman

Philip F. Beach, Don R. Broyles, Marn J. Cha, Gholam H. Dargahi, Alfred B. Evans, Jr., Max B. Franc, Harold H. Haak, Lyman H. Heine, Jr., Bernard E. McGoldrick, Heyward Moore, John A. Rotstan, Karl A. Svenson, Freeman J. Wright

DEGREES OFFERED: BA in Political Science or Public Administration, MA in Political Science, MPA, Minor in Political Science or Public Administration

DEPARTMENTAL PROGRAMS

Democracy, more than any other form of government, depends for its success on the existence of an active and informed citizenry. Government in the United States today influences our lives more than ever before. The scope of its activities is broader and more pervasive, its decisions more important in how we live. In an ever more interdependent world, an understanding of the governments of other nations and their policies is of increasingly greater importance to us. Courses and programs offered by the Department of Political Science are designed to help students to become knowledgeable in political theory, American government, public administration, international relations and comparative government so that they may participate more fully in—and influence more effectively—our democratic system, as individuals who formulate and administer public policies and as citizens who are affected by them.

The Political Science Department offers courses leading to a Bachelor of Arts Degree with a major or minor in Political Science or Public Administration, the Master of Arts Degree in Political Science, and the Master of Public Administration Degree. Opportunities for practical applications of the knowledge of governmental processes and the skills of political analysis gained through course work are available through the Department's two internship programs. In addition to curricula designed to prepare students for careers in teaching, government or related fields, the Department offers courses for the non-major to meet general education requirements.

The Department cooperates with other departments in providing concentrations in Asian Studies, Armenian Studies, Latin American Studies, Classical Studies and Russian Area Studies. (See Special Programs—Asian Studies, Armenian Studies (see Ethnic Studies Program), Latin American Studies, Classical Studies, Russian Area Studies.)

UNITED STATES CONSTITUTION REQUIREMENT

The United States Constitution (including California State Constitution and local government) requirement for graduation should be fulfilled by Pl Si 2 or 101. Pl Si 1 does not fulfill the United States Constitution requirement.

CREDENTIAL PROGRAM

See *Social Science Major* for the single subject waiver program in Social Science.

BACHELOR OF ARTS DEGREE (Political Science) REQUIREMENTS

The department requires that students majoring in Political Science complete a course in quantitative political analysis. Political Science 90 or an equivalent course meets this requirement. The requirements for the Bachelor of Arts Degree in Political Science are:

	Units
Political Science Major	33
Required Core Courses:	
Pl Si 1, 110 or 111, 120, 140, 150 (15 units)	
Upper Division Political Science Electives:	
(excluding 101, 102, 158, 187) (18 units)	
Other University Requirements:	
General Education	40
Unrestricted Electives	51
Total Units	124

The department highly recommends that the student select upper division electives in at least three of the following disciplines: Anthropology, Black Studies, Economics, English,

Geography, History, La Raza Studies, Philosophy or Sociology, Consult adviser for specifically recommended courses.

BACHELOR OF ARTS DEGREE (Public Administration) REQUIREMENTS

The department requires that students majoring in Public Administration complete a course in quantitative political analysis. Political Science 90 or an equivalent course meets this requirement. The requirements for the Bachelor of Arts Degree in Public Administration are:

	Units
Public Administration Major	33
Required Core Courses: Pl Si 1, 181, 182 (9 units)	
Elect from: Pl Si 110, 111, 114, 115, 170 (3 units)	
Pl Si 150, 151, 159T (3 units)	
Pl Si 160, 163, 169T (3 units)	
Pl Si 183, 188T, 189T (9 units)	
Pl Si 186, 187, 190, 191 (6 units)	
Other University Requirements	
General Education	40
Unrestricted Electives	51
Total Units	124

The department highly recommends that the student take upper division electives in at least three of the following disciplines: Anthropology, Black Studies, Economics, English, Geography, History, La Raza Studies, Philosophy, Psychology or Sociology. Consult adviser for specifically recommended courses.

MINORS

The following minor requirements are in addition to the general education requirement in social science.

POLITICAL SCIENCE

	Units
Pl Si 1, 110 or 111	6
Political science electives (ud), excluding Pl Si 101, 102, 158, 187	9
Electives (ud) in Anthropology, Economics, English, Geography, History, Philosophy, Psychology, or Sociology	6
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PUBLIC ADMINISTRATION

Elect from Pl Si 1, 181, 182, 188T	12
Elect from Pl Si 110, 111, 114, 150, 151, 170	3
Elect from Pl Si 160, 163, 183, 189T	3
Electives (upper division) in Anthropology, Economics, English, Geography, History, Philosophy, Psychology or Sociology	3
	21

MASTER OF ARTS DEGREE IN POLITICAL SCIENCE

The program leading to a Master of Arts degree in Political Science is designed chiefly, but not exclusively, for students preparing for careers involved with global and international politics (e.g., political aspects of: international business, agriculture, health services, education, U.S. foreign service, etc.). The interdisciplinary nature of the program is derived from: (1) the five seminars in Political Science each of which requires the student to master concepts and materials from other disciplines closely related to global politics, and from (2) the nine-unit component of the program which each student selects from the approved list of extra-departmental courses related to his or her career objectives.

The program's flexibility, however, also accommodates the needs of those students who plan to use the Master's degree for teaching careers or to pursue a Ph.D. in Political Science, or both. After completion of 15 of the required 30 units of the program, each student is requested to submit to the Graduate Advisor a written statement of career objectives so that remaining requirements may be tailored to the needs and desires of the individual.

REQUIREMENTS FOR INTERDISCIPLINARY MASTER OF ARTS DEGREE

Admission to the program is open to all graduates of a duly accredited college or university who meet the requirements for admission (see CSUF Bulletin). Background deficiencies in Political Science usually may be remedied by fulfillment of prerequisites required by Political Science 200 and/or 210. Any prerequisites required by extra-departmental courses must also be fulfilled unless waived by the department or program concerned.

All candidates for the Master of Arts degree in Political Science must complete the 15 units of graduate seminars specified as the core program. Nine units of approved electives from outside the department are also required along with an additional six units within the discipline of Political Science.

The additional six units of Political Science may be earned in one of the following four ways, depending on the interests and career objectives of the candidate:

A. students declaring their intention to pursue a Ph.D.: a Master's thesis amounting to six units of credit is required.
B. students declaring their intention to teach Political Science at other than the university level may meet the six-unit requirement by:
   (1) thesis, or
   (2) project equivalent to six units of thesis.
C. students declaring their intention to pursue careers in fields other than political science may meet this six-unit requirement by:
   (1) thesis, or
   (2) approved project equivalent to six units of thesis, or
   (3) six units of additional course work in Political Science and choice of written or oral comprehensive examination.
D. students declaring their intention to pursue a career in the U.S. Foreign Service may meet this six-unit requirement by:
   (1) thesis, or
   (2) approved project equivalent to six units of thesis, or
   (3) six units of additional course work in Political Science (courses must be in International Relations and/or Comparative Politics) and choice of written or oral comprehensive examination.

A thesis or project must be primarily in the field of Political Science and under the direction of the Political Science Department. One Reader or assistant project advisor may be chosen from outside Political Science where the topic makes this appropriate.

Exclusive of the core courses and thesis or project, a maximum of 3 units may be gained through Independent Study. Basic competence in written translation from a foreign language into English is a prerequisite for the M.A. degree in Political Science. Foreign students may offer English in fulfillment of this requirement.

Specific Requirements for M.A. in Political Science: One of the following plans is available to the student in consultation with the Graduate Advisor:

Plan A (students declaring their intention to pursue a Ph.D.)

	Units
1. Core Program	15
2. Thesis	6
3. Electives from approved list of extra-dept'l courses	9
Total	30

Plan B (students declaring their intention to teach Political Science at other than University level)

1. Core Program	15
2. Thesis or Project	6
3. Electives from approved list of extra-dept'l courses	9
Total	30

Plan C (students declaring their intention to pursue careers outside Political Science)

1. Core Program	15
2. Thesis, project, or six additional units of course work in Political Science	6
3. Electives from approved list of extra-dept'l courses	9
4. Written or oral comprehensive examination if 6 additional units in Political Science are chosen	
Total	30

Plan D (students declaring their intention to pursue a career in the United States Foreign Service)

1. Core Program 15
2. Thesis, project, or six units of electives in Political Science drawn from the International Relations and/or Comparative Government series..... 6
3. Electives from approved list of extra-dept'l courses 9
4. Written or oral comprehensive examination if 6 additional units in Political Science are chosen

Total 30

GRADUATE PUBLIC ADMINISTRATION PROGRAM

The Graduate Public Administration Program offers a multi-discipline Master of Public Administration (MPA) degree. The MPA program is built on the belief that effective leadership of public agencies requires a basic set of abilities and public values irrespective of the particular characteristics of the agency. Consistent with this belief, all students in the program complete a common core program of 33 units within the 36 units required for the MPA. At the same time, the core courses encourage students to pursue individual interests and needs through assignments which involve the application of general principles to particular administrative and programmatic issues and problems.

The curriculum of the program follows the guidelines established by the National Association of Schools of Public Affairs and Administration (NASPAA) and was designed following consultation with over a dozen senior public administrators in the Fresno area. Consistent with the NASPAA guidelines, the program seeks to prepare administrative specialists who understand the place and role of public agencies and their staffs in the political, social, and economic systems of the United States; who have the analytic tools, both quantitative and qualitative, to diagnose problems and analyze alternative courses of public action; who have the leadership abilities to develop and make effective use of the talents and abilities of agency staffs; who have the abilities required to formulate, implement, and evaluate public policies which are responsible and effective; and who are able to manage an agency in such a way as to make responsible and efficient use of its resources now and in the future.

The core program is indicated below in the sequence recommended for part-time students. Following completion of the core or during the last semester of enrollment in the core program the student will elect either to do a thesis (3 units) or to take a comprehensive examination. If the latter is chosen, the student will take an approved three unit elective prior to or in the same semester the comprehensive examination is taken. A student will be able to complete the program by taking courses at night and on weekends.

First Semester

GPA 200 Administration and Government 3
Bus 205 Financial and Managerial Accounting 3

Second Semester

GPA 210 Public Organization Theory and Dynamics 3
Bus 261 Accounting for Non-Profit Organizations 3

Third Semester

GPA 220 Quantitative Applications for Public Administrators 3
Bus 250 Seminar in Personnel Management 3

Fourth Semester

GPA 230 Public Revenue and Expenditure Analysis 4
GPA 240 Public Management and Budgeting 3

Fifth Semester

GPA 250 Ethics and Public Administration 3
GPA 255 Socio-Cultural Impacts of Government Activity 2

Sixth Semester

GPA 260 Public Policy Administration 3
Thesis, or Comprehensive Examination and approved elective (elective may be taken earlier) 3

Total Units for MPA 36

Admission

Applicants may qualify for admission to the program and thereby take program courses by achieving classified graduate standing. Classified standing requires:

1. An acceptable baccalaureate degree from an institution accredited by a regional accrediting association;
2. Good standing at the last college attended;
3. Submission to the University of transcripts of college work; scores from the Graduate Record Examination Aptitude Test (GRE) or the Graduate Management Admission Test (GMAT); a written statement indicating why the applicant wishes to pursue an MPA degree; and, if any, evidence of work performance in a public or nonprofit agency (see 4 (d) below).
4. Recommendation for admission by the Admissions Committee of the Graduate Public Administration Program. Candidates will be recommended on the basis of the promise they show for successfully completing the program and achieving a successful career in public management and administration. Candidates will be evaluated using a combination of (a) grade point average (those with averages of less than 2.75 overall or 3.0 on the last 60 semester units attempted must have compensating strength in other areas); (b) aptitude for academic work (those with scores of less than 475 on either part of the GRE or on the GMAT must have compensating strength in other areas); (c) professional goals of the applicant; and (d) successful performance in public or nonprofit agency employment as demonstrated by the character of work accomplished, distinctions achieved, and letters of recommendation from persons who can knowingly and comparatively evaluate the on-the-job performance of the candidate over a period of time (this basis for evaluation may be waived for candidates showing great strength in (a) or (b) above). Applicants whose native language is not English must also achieve a minimum score of 550 on the Test of English as a Foreign Language.
5. Applicants, otherwise admissible to classified standing, who have not been employed full-time for at least six months in a public or nonprofit organization nor completed a supervised internship of at least 120 hours in such an agency, will be allowed to take courses for one semester as a conditionally classified student. Pl Si 186–187 (5 units) internship experience must be completed before enrollment in second semester courses.

COURSES

POLITICAL SCIENCE (Pl Si)

1. Modern Politics (3)

An introduction to modern politics through the study of subjects such as political interests, parties, and movements; democracy, communism, and nationalism; the individual and the state; power and government.

2. American Government and Institutions (3)

Not available for CR/NC grading. Meets the United States Constitution requirement and the federal, California state and local government requirement. Not open to students with credit in Pl Si 101. The development and operation of government in the United States; study of how ideas, institutions, laws, and people have constructed and maintained a political order in America.

7. Politics of Natural Resources (3)

Development and implementation of public policies with respect to such natural resource issues as land use, water and air pollution, energy; interactions of public opinion, government and special interest groups; conservation and waste.

8. Human and Civil Rights (3)

Examination of the ethical, ideological, religious and legal foundations of human and civil rights; development of human rights in the Western and non-Western world; the nature and manner of discrimination and oppression; protection and enforcement of civil and human rights.

10T. Contemporary Issues in Politics (1–3; max total 9 if no topic repeated)

Significant contemporary uses in political theory, world politics, comparative government, American government, local government, public administration, or public opinion.

70. Introduction to Law (3)

Examination of roles and functions of law; jurisprudence (theory of law); legal education and the court system—structure and rationale; criteria for selecting judges; factors influencing judicial decisions; resistance and compliance; changes and challenges to the judicial system.

90. Methods of Analysis of Quantitative Political Data (3)

An introduction to hypothesis testing in political science, with applications to the analysis of quantitative political data; the formulation of research problems and hypotheses; accuracy and precision in measurements; problems of evidence and inference; basic techniques of statistical analysis.

101. American Constitution, Institutions and Ideals (3)

Not available for CR/NC grading. Meets the United States Constitution requirement. Not open to students below second semester sophomore or with credit in Pl Si 2. Executive, legislative, and judicial functions of our government under the constitution; federal, California state and local governmental relationships.

102. California Government and Institutions (1)

Not available for CR/NC grading. Not open to students with credit in Pl Si 2, 101. Open only to students who have satisfied United States Constitution requirement but have not satisfied California state and local government requirement. Examination of legislative, executive, judicial, and local government problems in California.

103. California Politics (3)

Emphasis on the historical development of politics in California and the factors and institutions important to contemporary politics: characteristics of the electorate, voter registration, primaries and general elections, candidates and campaigning, party organizations and leaders, interest groups, and current issues.

POLITICAL THEORY (Pl Si)

110. Seminar in History of Political Thought to Machiavelli (3)

Development of political thought from Plato to Machiavelli: law, justice, the state, authority, forms of government, and church-state relations in light of the philosophy of history.

111. Seminar in History of Political Thought Since Machiavelli (3)

Freedom and individual rights, democracy, majority rule, equality, law and authority, power, constitutionalism, property, social class and structure, and revolution traced through the writings of Hobbes, Locke, Rousseau, Hume, Burke, Bentham, Hegel, Tocqueville and Mill.

114. Seminar in American Political Thought (3)

Analysis of democracy, majority rule and minority rights, constitutionalism, federalism, representation, pluralism, property, separation of powers, and judicial review based on the perspectives of representative early and contemporary American thinkers.

115. Approaches to Political Science (3)

Historical development of Political Science as a discipline; emphasis on theories of classical analysis compared with contemporary political and administrative sciences.

116. Contemporary Political Ideologies (3)

Historical inquiry into socialism, capitalism, conservatism, liberalism, varieties of fascism and contemporary communism; special emphasis on these ideologies in the classical tradition of political thought.

119T. Topics in Political Theory (1–4; max total 8)

Possible topics include theories of democracy; the Marxian tradition; political thought of specific authors, historical periods and countries; peace and war; church-state relations; the nature of politics and of political science.

INTERNATIONAL RELATIONS (Pl Si)

120. International Relations (3)
Dynamics of relations among nations; nationalism, imperialism and interdependence; national power and diplomacy; types of conflict, including war; peaceful settlement of disputes; current issues involving competing foreign policies, national development, energy and national liberation movements.

121. American Foreign Affairs (3)
Prerequisite: Pl Si 2. Formulation and execution of American foreign policy; constitutional framework; role of the President and the executive branch, Congress, pressure groups and public opinion; contemporary problems and policies.

122. Contemporary World Politics (3)
World affairs from 1914 to the present; present foreign policies of the major powers from historical, political, and economic viewpoints; events leading to World War II and United Nations organizations.

125. Soviet Foreign Policy (3)
Sources of Soviet foreign policy, historical and ideological; continuity and change in methods, strategy and tactics; policy formulation and application in specific geographic and subject matter areas.

126. International Law and Organization (3)
The sources and subjects of international law; state jurisdiction and responsibility; international agreements; the regulation of force and the peaceful settlement of disputes through international law and organization, including the League of Nations, the United Nations, and regional organizations.

128T. Topics in International Relations (1–4; max total 8 if no topic repeated)
Politics of military power; arms limitation and control; peace theory; ecopolitics; regionalism and cooperation; shifts in balance of power; nationalism; imperialism; neutralism and nonalignment; foreign policies of specific nations.

COMPARATIVE GOVERNMENT (Pl Si)

140. Approaches to Comparative Politics (3)
Prerequisite: Pl Si 1. Exploration of theories, models, and conceptual frameworks for the comparative study of political systems and subsystems; methodological rather than an area emphasis.

142T. Area Studies in Western Europe (1–4; max total 8 if no topic repeated)
Government and politics of Western Europe (Britain, France, Germany, and Italy), Northern European Countries (Finland, Denmark, Norway, Sweden); or government and politics, of selected countries.

143T. Area Studies in Eastern Europe (1–4; max total 8 if no topic repeated)
Government and politics of Soviet Union, Eastern Europe; or government, politics, and institutions of selected countries.

144T. Area Studies in Africa and Middle East (1–4; max total 8 if no topic is repeated)
Government and politics of Sub-Sahara Africa, Middle East; or government, politics, and institutions of selected countries.

146T. Area Studies in Latin America (1–4; max total 8 if no topic repeated)
Possible topics include politics of South America; politics of Central America and Caribbean countries; roles of selected groups in Latin American politics.

149T. Seminar in Comparative Government (1–4; max total 8 if no topic repeated)
Parliamentary systems, problems and goals of developing nations, federal systems, comparative local government, parties and pressure groups, and multi-party systems.

AMERICAN GOVERNMENT (Pl Si)

150. Public Policy Making (3)
The relationship of persons, groups, and institutions to the making and implementing of public policy in the United States; consideration of the participants and the modes of analysis and thought influencing public policy.

151. Political Participation and Political Parties (3)
Political parties; nature and extent of citizen political activity; election of public officials; political organization of government.

156T. Topics in Political Behavior (1–4; max total 8 if no topic repeated)
Voting behavior, political alienation, leadership, political perceptions and knowledge, environmental effects on political participation, group processes, and political socialization.

157. Political Science Internship Seminar (2)
Pl Si 158 concurrent enrollment. Advanced analysis of citizen-government linkage from a theoretical perspective.

158. Internship in Political Science (2–6; max total 6)
Pl Si 157 concurrent enrollment. Supervised work experience in legislative offices and political campaigns to provide the student with an opportunity to fuse theory and practice.

159T. Seminar in American Government and Politics (1–4; max total 8 if no topic repeated)
Congressional committee operations, policy making by the courts, political implications of civil service, executive initiation of legislation, minority groups and politics, political implications of news reporting; jurisprudence and legal philosophy; legal institutions; conflict resolution.

LOCAL GOVERNMENT (Pl Si)

160. State and Local Governments (3)
The organization, structure, powers, and functions of state and local governments.

163. Municipal Government (3)
Organization, powers, and functions of city government; types of city charters, relationship between city and state government; police and fire protection, education, water supply, health and sanitation, city planning, debts and taxation, public utilities.

169T. Seminar in Metropolitan Government and Politics (1–4; max total 8 if no topic repeated)
Regional and area intergovernmental relations, urban renewal, human relations agencies, and taxation methodologies.

PUBLIC LAW (Pl Si)

170. United States Constitution: Growth and Development in Theory and Practice (3)
Law of the Constitution and its underlying political theory, with leading cases.

179T. Seminar in Public Law (1–4; max total 8)
Administrative law, international law, judicial administration, jurisprudence, legal institutions.

PUBLIC ADMINISTRATION (Pl Si)

181. Public Administration (3)
General analysis of the field of public administration; administrative theories; policy and administration; behavioralism; budgeting, planning, and legal framework.

182. Administrative Analysis: Management and Organization (3)
Administrative organization; methods; systems and procedures; problem solving; systems analysis; reports and records; resources management.

183. Comparative Administration (3)
Theories of comparative public administration; cross-national comparisons of administrative processes; institutions, policy formation, and behavior with consideration of cultural, social, and economic environments.

186. Public Administration Internship Seminar (2)
Prerequisite: Pl Si 181. Seminar to be taken concurrently with Pl Si 187. Advanced analysis of public administration theory and administrative practices from a theoretical perspective.

187. Internship in Public Administration (2–6; max total 6)
Prerequisite: Pl Si 181. Internship to be taken concurrently with Pl Si 186. Maximum credit toward public administration major, 3 units. Supervised work experience in public agencies to provide the student with an opportunity to fuse theory and practice.

188T. Topics in Public Administration (1–4; max total 9 if no topic repeated)
Treatment of current topics and problems in fiscal administration, public personnel administration, and planning.

189T. Seminar in Public Administration (3; max total 6 if no topic repeated)
The values and philosophy of administration; management and dynamics of change; public relations and communication problems in public administration; planning problems and techniques; systems approach to resource management.

190. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

191. Directed Readings (1)
Directed readings and supplemental and original source material for enrichment of regular offerings in the subdiscipline.

Core Program for Master of Arts Degree in Political Science

200. Seminar in Methods and Political Systems (3)
Prerequisite: Pl Si 1 or 115 or equivalent; permission of instructor. Systematic analysis of major political cultures and economic systems. Emphasis upon methods of cross-cultural research from an interdisciplinary viewpoint such as convergence, interdependence and comparative indices.

210. Seminar in Politics and Values (3)
Prerequisite: Pl Si 110 or 111 or equivalent; permission of instructor. Critical analysis of philosophical and ethical questions arising from current and future models and policies in a multi-cultural world. Issues to be explored include human rights, political liberties, freedom and technology, justice and economic values, politics and ethics.

220. Seminar in Politics and Conflict (3)
Prerequisite: permission of instructor. Analysis of sources of international violence, e.g., war and terrorism. Modes of conflict resolution and peaceful settlements will be applied to arms control and disarmament, security systems, international law and organization.

240. Seminar in Politics of Human and Natural Resources (3)
Prerequisite: permission of instructor. Analysis of global interdependence in such areas as ecology, energy and agriculture. Emphasis upon impact of demographic trends upon relations between rich and poor nations and upon the roles of international authorities in global resource policies. Review of current literature.

250. Seminar in Politics and Policy (3)
Prerequisite: permission of instructor. National and international policy-making from a methodological and comparative perspective. Issues such as centralization and decentralization, interdependence and dominance explored at local, regional and global levels. Includes survey of bureaucratic and administrative models and behavior at national and international levels.

270. Seminar in Public Law (3)

Prerequisite: Pl Si 114, 170, and permission of instructor. Role and function of the judiciary and judicial systems in the formulation of governmental policy; problems in constitutional law, administrative law, international law, judicial process, and judicial administration. Not part of Core Program.

280. Seminar in Public Administration (3)

Prerequisite: permission of instructor. Problems in administrative analysis and organization, tools and techniques of administrative research, interpretation and application of research findings. Not part of Core Program.

290. Independent Study (3)

See *Academic Placement—Independent Study.*

299. Thesis or Project (6)

Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

GRADUATE PUBLIC ADMINISTRATION (GPA)

200. Administration and Government (3)

Prerequisite: Completion of a diagnostic test on writing skills and the principles of American Government and public administration; see advisor concerning content of examination. The nature, role, performance, and problems of public agencies in the American political, social, and economic context; critical review of significant literature and concepts in public administration. Student preparation and presentation of written and oral proposals and reports.

210. Public Organization Theory and Dynamics (3)

An analysis of the structure, processes, and dynamics of complex public organizations. Topics of analysis include theoretical approaches, organizational types, impacts of personality, individual and group behavior, problems of public access, and, with special emphasis, organizational change.

220. Quantitative Applications for Public Administrators (3)

Prerequisite: A college level statistics course in last five years or permission of instructor. The gathering, evaluation, and use of quantified information in the design and evaluation of public programs and administrative activities. Data collection; measurement; sampling; data analysis, including regression, structural equation models, and linear programming; computer applications.

230. Public Revenue and Expenditure Analysis (4)

Prerequisite: Economics 1A and 1B or permission of instructor. The use of economic analysis in the resolution of major problems in revenue collection and expenditure choices. Critical examination of: burdens and effectiveness of taxation measures; conflicts between efficiency and equity; users charges; cost calculations; and cost-benefit analysis.

240. Public Management and Budgeting (3)

Prerequisites: GPA 220, 230, and Bus 261 (GPA 230 and Bus 261 may be taken concurrently). Directing and controlling public agency performance through budgeting, planning, and legal processes. Administrative planning and decision-making; design and analysis of public organization; management control systems; public macro- and, specially, micro-budgeting; program definition and evaluation; law and public management.

250. Ethics and Public Administration (3)

Prerequisites: GPA 210, concurrent with GPA 255. The moral dimensions of public administrative decision-making. The nature of public and private morality; psychological and ethical egoism; relativism; utilitarianism and deontological theories; rights and goods in the public service context; sensitive applications of rules in public agencies.

255. Socio-Cultural Impacts of Government Activity (2)

Prerequisites: GPA 210, concurrent with GPA 250. The external effects of public administrative processes on the life styles and life changes of different populations. A critical examination of: culture; cultural integration, organization, and change; social impact assessment of the effects of planned and unplanned social change.

260. Public Policy Administration (3)

Prerequisites: GPA 210, 240. The role of politics, values, expertise, and information in the initiation, formulation, implementation, and evaluation of government programs. Developing, in a democratic context, effective programs which are politically and administratively feasible as well as amenable to post implementation evaluation.

290. Independent Study (1–4; max total 6)

See *Academic Placement-Independent Study*

299. Thesis (3)

Prerequisite: See *Master's Degree-Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the Master's degree.

SOCIAL SCIENCE MAJOR

The major consists of a minimum of 39 units of approved upper division courses selected in such a way as to insure a breadth of exposure to the Social Sciences. Students electing the major must satisfy all the requirements listed below.

Preparatory Work

Since the major is comprised of upper division courses, some of which, in addition, have prerequisites, the student must have some exposure to introductory work in the Social Sciences. And, while no specific number of units are mandated, it is assumed that such preparation will encompass more than the minimal exposure guaranteed by the General Education requirements.

Courses appropriate for this purpose include, but are not limited to: Anth 2, Econ 1A, 1B, Eth S 1, Geog 2, Hist 1, 2, Pl Si 1, and Soc 1.

BACHELOR OF ARTS DEGREE REQUIREMENTS

In satisfying the unit requirements listed below, students shall arrange their programs to insure completion of a minimum of 6 units in at least 4 but no more than 6 disciplines, and no more than 15 units in any one. These disciplines include Anthropology, Economics, Ethnic Studies (Black Studies, La Raza, etc.), Geography, History, Political Science, Psychology, Sociology, and Urban and Regional Planning.

Units

I. *The Record of Human Societies*

A. Western Societies 6

Econ 110, 111
Geog 161, 166T, 170T, 174T, 176
Hist 111, 112, 120, 121, 122, 125, 126, 130, 132, 133, 171, 172, 173, 174A, 174B, 176, 178, 186
Pl Si 142T, 143T, 146T, 170
U R P 102

B. Non-western Societies 6

Anth 120, 121, 123, 124, 131
Econ 114
Ethnic Studies: La R 112
Geog 177T, 179, 180, 181T
Hist 106, 110, 157, 192, 194
Pl Si 144T

II. *Social Processes* 6

Anth 142, 145
Econ 117, 131, 150, 161, 174, 178, 179, 180
Ethnic Studies: Bl S 144; La R 118
Geog 127, 150, 160, 162, 164, 165
Pl Si 120, 150, 151, 181

Psych 121, 122, 134, 154, 166
Soc 111, 122, 131, 143, 145, 151, 157, 158, 161, 162, 163, 164, 165
Spch 108, 160, 162, 163

III. *Social Theory* 6
Anth 104
Econ 100A, 100B, 101, 108
Hist 135
Pl Si 110, 111, 114, 115, 140
Psych 112
Soc 152, 153

IV. *Methods and/or Techniques in the Social Sciences* 3
Hist 100W
Psych 144
Soc 175
Spch 166

V. *Special Topic* 12
The special topic shall consist of a program of upper division Social Science courses, approved by a Social Sciences adviser, which, as a unit or in conjunction with courses taken to satisfy the above requirements, explores a single topic of interest to the student. With the exception of those listed below, all upper division courses offered in Anthropology, Economics, Ethnic Studies (Black Studies, La Raza, etc.), Geography, History, Political Science, Psychology, Sociology, Speech Communication and Urban and Regional Planning may be employed to satisfy this requirement.

Statistics Requirement

All Social Science majors shall complete 3 units of statistics or quantitative methods in any one of the following courses: Econ 120, Geog 110, Math 11, Pl Si 90, Psych 142, Soc 25, or Spch 106.

In addition to the requirements of the major (39 units) and the statistical requirement (3 units), the student is responsible for the completion of the General Education requirement special course requirements and electives, which may include a minor (82 units), totaling 124 units for the BA degree.

Courses which may not be applied to the Social Science Major:
Anth 161, 162, 190, 192
Econ 120, 185, 190
Ethnic Studies: As Am 150, 190; Bl S 125, 148, 190; La R 101, 121A, 121B, 130, 132, 190; NAS 190
Geog 100, 104, 105, 106, 111, 112, 114, 117, 118, 120, 121, 190, 192
Hist 190
Pl Si 190, 191
Psych 101, 102, 103, 120T, 124, 125, 130T, 132, 142, 143, 149, 150T, 155, 160T, 162, 167, 168, 170T, 171, 174, 175, 176, 180T, 190, 199
Soc 190
Spch 103, 106, 114, 115, 140, 142, 165, 189, 190
U R P 190, 191

CREDENTIAL PROGRAM

The single subject waiver program in Social Science consists of the following minimum requirements:

15 units in upper division courses in one social science discipline; choose from Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology.
9 units in upper division courses in Geography, History, or Political Science; do not duplicate 15-unit discipline above.
12 units of courses at any level in three additional disciplines, including 3 units in Ethnic Studies.
Consult the departmental chairman for teacher education.

SOCIOLOGY

FACULTY

Joel Best, Department Chairman

Alfred J. Claassen, S. John Dackawich, Robert D. Fischer, Albert I. McLeod, Edward E. Nelson, Elizabeth N. Nelson, John N. Tinker, Chandler Washburne, William L. York

DEGREES OFFERED: BA

Minor

DEPARTMENTAL PROGRAMS

The Sociology Department offers a course of study leading to the Bachelor of Arts degree with a major or minor in Sociology. Training in sociology gives students a special perspective on human development and on social life which is an especially important part of a liberal education. In the sociology major, a sound foundation in theory and methods is provided. On this foundation can be built different programs of electives which will meet the needs of students with different goals. In consultation with a faculty adviser in the Sociology Department, a student can build a program which will prepare him or her thoroughly for graduate work in sociology, urban planning, social work, or law. In addition, sociology provides valuable supplementary training for students in such professional fields as business, criminology, child development, nursing, journalism, and education as well as general background for a variety of civil service and social service occupations.

BACHELOR OF ARTS DEGREE REQUIREMENTS

SOCIOLOGY MAJOR

The following degree major requirements are in addition to general education requirements.

Sociology	*Units*
Soc 1, 25, 151, 153, 162, 175	18
Sociology upper division electives (Soc 3 may be substituted for 3 of these units)	21
	39

In addition to the requirements of the major (39 units), the student is responsible for the completion of the General Education requirement special course requirements and electives, which may include a minor, (85 units), totaling 124 units for the BA degree.

SOCIOLOGY MINOR

The following minor requirements are in addition to general education requirements.

Sociology	*Units*
Soc 1, 25	6
Sociology upper division electives (Soc 3 may be substituted for 3 of these units)	15
	21

COURSES

SOCIOLOGY (Soc)

1. Principles of Sociology (3)

Introduction to the principles and theoretical perspectives of sociology and their application to the fundamental problems of social life. Discussion of sociological methods and findings in such areas as: family, race relations, deviance.

2. Social Problems (3)

Introduction to major sociological perspectives on social problems. Analysis of causes and possible solutions to such problems as poverty, discrimination, crime, delinquency, alcoholism, drug abuse, suicide, family disorganization, and pollution.

3. Analysis of Social Life (3)

Introduction to sociology through participation in research. Individual and group projects based on observation, experimentation, survey research, or other techniques. Training in analyzing social situations and developing sociological explanations. Topics covered and assignments vary with instructor.

25. Quantitative Methods in the Social Sciences (3)

Introduction to quantitative methods as an aid to the understanding of research in the social sciences. Application of basic descriptive and inductive statistics to the social sciences.

105. Orientation to Gerontology (3)

Orientation to the professional and personal requirements for work with the aging, including an introduction to the problems and potentials of the aged and regular visits with an aging individual. (Not for credit toward sociology major)

111. Sociology of Minority Relations (3)

Prerequisite: Soc 1. Dominant and minority group relations historically, cross-culturally, and in contemporary American society. Primarily, the bases examined are in terms of ethnicity-race, religion, nationality, country-of-origin, nativity, and language—and secondarily the bases are non-ethnic such as age and gender.

112. Collective Behavior (3)

Prerequisite: Soc 1. An examination of types of collective behavior: crowds, mobs, panics, publics, fashion, fad, social movements, and transient and anonymous relationships; their increasing importance in modern society where violence, conflict, and social unrest are common.

122. Social Movements (3)

Discussion of goals, ideology, norms, organizational structure, leadership, strategy, tactics, and social roots of social movements. Emphasis on reformist and revolutionary movements for example, the Civil Rights Movement, Black Revolutionary Movement, and the Women's Movement.

130W. Contemporary Social Issues (3)

A sociological perspective is used to examine currently debated public issues. Often public issues involve present or proposed public policies; the impact of these policies on different segments of society is assessed. Meets the upper division writing skills requirement for graduation.

131. Sociology of Sex Roles (3) (Same as W S 131)

The roles of women and men in contemporary social life, socialization and adult life—work roles, nuclear family, and other roles.

135. Sociological Perspectives on the American Past (3)

Prerequisite: Soc 1. Analysis of long-term changes in American society, including urbanization, industrialization, and other key developments. Topics to include stratification, sex roles, social problems, and social movements.

142. Sociology of Popular Culture (3)

Impact of popular media on modern society. Includes movies, television, fiction, and other forms of popular culture. The meaning, the creation and production, and the future of popular culture.

143. Deviance and Control (3)
Prerequisite: Soc 1. Rule-breaking behavior (such as crime, delinquency, mental illness) and responses to it. Examines deviance as a social phenomenon, its causes and consequences, and formal and informal social control activities.

144. Social Policy Analysis (3)
Interdisciplinary social science methods for approaching local and national social problems. Analysis of selected public issues emphasizing evaluation of social costs and benefits of alternative policies.

145. Social Organization (3)
Prerequisite: Soc 1. Study of the nature of social organizations, their types and varieties, and the factors producing their different forms. Causes of the growth and decline of social organizations. Problems of centralization, authority, communication, and conflict in organizations.

146. Sociology of Work (3)
Prerequisite: Soc 1. Work in modern industrial society, employment and unemployment, formal and informal characteristics of work, the relationship between work and leisure, and the investigation of work satisfaction and alienation.

147. Medical Sociology (3)
Political and economic organization of American medical health care system and cross-cultural comparisons. Analysis of social relations and interactions among members of the health professions affecting designations of persons as ill and their subsequent treatment.

148. Sociology of Education (3)
Prerequisite: Soc 1. A sociological examination of education as an institution, including its social determinants, functions, and consequences.

150T. Special Topics Seminar (1–3; max total 9)
Prerequisite: permission of instructor. Topics include those areas of advanced theoretical and empirical studies that will orient the student to contemporary sociological endeavors.

151. Social Classes and Inequality (3)
Prerequisite: Soc 1. Analysis of evaluational differentiation leading to social stratification. Criteria for differentiation, bases for evaluation, types of stratification, composition of strata and status systems, mobility, consequences of stratifications, and methods of studying stratification.

152. Classical Sociological Theory (3)
Prerequisite: Soc 1. Evolution of classical sociological theories. Consideration of their origins in society and culture. Examination of such theorists as Marx, Weber, Durkheim, Comte, St. Simon, and Simmel.

153. Contemporary Sociological Theory (3)
Prerequisite: Soc 1. Processes of theory construction. Major current sociological theories such as functionalist and conflict, interaction and interpretive, and behaviorist and exchange theories.

157. Social Change (3)
Analysis of directions, patterns, and processes of social and cultural change.

161. Population Analysis (3)
Prerequisite: Soc 1. Population theories and history; demographic processes and variables in contemporary society. Analysis of census data.

162. Social Psychology (3)
Social factors affecting the development of social personality, attitudes and behavior. Basic social processes involved in interpersonal interaction. Demonstrations and student observations to increase an understanding of social processes in everyday life.

163. Urban Sociology (3)

Prerequisite: Soc 1. The urban concept; form and development of urban areas; scientific study of urban places and populations; effect of urbanization on social institutions and social relations.

164. Political Sociology (3)

Prerequisite: Soc 1. The social causes and effects of political phenomena. The roles of social classes, movements, and institutions in shaping the political process; examination of political behavior and attitudes.

165. The Family (3)

Prerequisite: Soc 1. The family in historic and contemporary society, theoretical frameworks for analyzing the family, family dynamics; changes in family functions, structures, and roles.

166. Social Gerontology (3)

Prerequisite: Soc 1. Aging and the aged cross-culturally, with special emphasis on urban American society; demographic dynamics; problems of the urban aged; gerontological research methodology; disengagement and minority group theory.

167. Seminar in Self and Society (3)

Prerequisite: Soc 1, 162, or Psych 134. Analysis of the relation of the self-system to society; symbolic interaction theory; role identity and social interaction; types of self developed under varying social conditions.

169. Sociology of Religion (3)

Major sects, denominations, and churches; integrative and disintegrative processes in the United States; contemporary religious phenomena.

175. Sociological Research Methods (3)

The research process, with exercises in data collection, measurement, sampling, and analysis. Basic assumptions and dilemmas of social science research.

181. Small Groups (3)

Small groups as basic social units. Description of the types of groups, how they operate, and the important variables affecting them. Observation and participation to increase understanding of the many small groups to which we all belong.

183. Mass Society and Communications (3)

Prerequisite: Soc 1, 145 or 163. Analysis of social conditions producing mass society; its characteristics; communication systems; mass media and opinions formation.

190. Independent Study (1–3; max see reference)

See *Academic Placement—Independent Study*.

URBAN AND REGIONAL PLANNING

FACULTY

Wayne V. Merchen, (Acting) Department Chairman

Russell C. Fey, David T. Lee, Harold H. Tokmakian

DEGREES OFFERED: MCRP

DEPARTMENTAL PROGRAMS

The Department of Urban and Regional Planning offers a program leading to the professional master's degree in city and regional planning (MCRP) which is recognized by the American Planning Association. The program has a multidisciplinary approach which seeks to prepare planners to deal effectively with the structures, processes, and problems of community and regional planning and development. Program emphasis is on the development of a general theory and philosophy of planning applicable to any spatial or institutional setting, including the region, metropolitan area, medium-sized city, rural areas and their service centers, and all constituent communities of interest.

The department offers undergraduate courses to serve students interested in urban studies and environmental design. Students considering undergraduate work in planning should consult the department chairman to arrange an appropriate course of study.

MASTER OF CITY AND REGIONAL PLANNING DEGREE

The Master's degree program in city and regional planning (MCRP) is designed as preparation for a professional career in planning at a responsible level. Undergraduate degrees in a field related to planning, such as geography, political science, public administration, economics, sociology, architecture, social psychology, education, social welfare, recreation, or engineering are acceptable as the foundation for entrance. Other fields may be acceptable, depending on an evaluation of the candidate's record and career goals.

Two programs leading to the Master of City and Regional Planning Degree are offered: Plan A—Thesis Program and Plan B—Non-Thesis Program. Plan A is designed for the student who wishes to pursue significant independent research as a part of the graduate program and also serves as a preparation for additional graduate work leading to the doctorate. Plan B is designed to provide a broad background in city and regional planning as preparation for professional practice.

The 60 semester unit program is composed of a planning core and related supportive electives. In their first year, students generally follow a program which builds a common body of knowledge in planning theory, research methods, design, management, and professional practice. Beginning with the second semester and continuing into the second year, students are encouraged to develop an elective sequence which focuses on an area of interest. In order to promote excellence of achievement in each course, the program is designed to enable full-time students to limit the number of preparations to four per semester with Urban and Regional Planning Department electives being offered as four unit courses.

MCRP DEGREE REQUIREMENTS

Each applicant for admission to the planning program is evaluated on the basis of academic record, educational and vocational background, performance on the Graduate Record Examination Aptitude Test, and commitment to planning as a profession. Prospective students must make arrangements for a personal interview with a faculty member as a part of the admission process. Students outside the Central San Joaquin Valley should consult the department for alternative procedures. (Applicants must first meet the standards of the University and the Division of Graduate Studies and Research. See Division of Graduate Studies and Research, Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, and Thesis and Thesis Alternatives.)

Under the supervision of a faculty advisor, each student submits an approved program within one of the following frameworks:

Plan A—Thesis Program	*Units*
Core curriculum (see specific requirements)	32
Elective Sequence (see elective sequence)	22
Thesis	6
Total	60

Specific Requirements: URP 200, 201A–B, 202, 203T, 204, 215, 280T, 299, and an approved course in management and budgeting.

Plan B—Non-Thesis Program

	Units
Core curriculum (see specific requirements)	40
Elective Sequence (see elective sequence)	20
Total	60

Specific Requirements: URP 200, 201A–B, 202, 203T, 204, 215, 230, 239T (Environmental Impact Assessment), 280T, and an approved course in management and budgeting. Each candidate for the MCRP under Plan B must successfully complete a comprehensive examination covering both the central concepts and techniques of city and regional planning and the elective sequence.

Elective Sequence

Each student, in consultation with a faculty advisor, develops an elective sequence of courses acceptable to the department which focuses on an area of interest. Suggested areas include planning research; urban design; natural environment; built environment. Other focuses may be developed under the direction of a faculty advisor.

COURSES

URBAN AND REGIONAL PLANNING (U R P)

100. Introduction to Community Planning (3)

Prerequisite: junior standing. Introduction to and critical analysis of theory and practice of community planning; traditional and alternative roles of planning in contemporary society; perspectives on community problems; evaluation of concepts, literature, and history.

102. History of Urban Development Form (3)

Prerequisite: junior standing. Historical survey of urbanization; the evolution of urban form, spatial structure and systems.

103. Introduction to Urban Design (3)

Suggested for graduate students emphasizing design. Prerequisite: junior standing. Introduction to physical design and environmental communication. Basic sources of design information, formulation of design programs and solutions; supervised studio projects. (2 3-hour studios)

110T. Topics in Urban Planning Techniques (1–3; max total 6)

Selected topics such as analytical techniques; means for management of urban development, including transportation, public facilities, and activities in the private sector; public policy concerning issues of local and regional significance.

149T. Topics in Environmental Design (3; max total 6)

Prerequisite: junior standing. Selected topics on factors that influence environmental design problems, including environmental crisis areas and impact of public policies; design framework formulation and problem solving needed to achieve a quality environment.

190. Independent Study (1–3; max total see reference)

See *Academic Placement—Independent Study.*

191. Directed Readings (1–3; max total 6)

Supervised independent reading in a selected topic related to urban and regional planning.

GRADUATE COURSES

(See *Course Numbering System—Definitions and Eligibility*)

109GT. Presentation Techniques in Urban and Regional Planning (1; max total 3)

Concurrent enrollment in U R P 200 series courses. Topics in techniques and practice of oral, narrative and graphic presentation as related to urban and regional planning. (1 2-hour lab)

200. Seminar in Planning Theory and Process (3)

Prerequisite: permission of instructor. Pursuit and analysis of the essence of planning, study of traditional and contemporary theories of community, community development, the planning process.

201A-B. Seminar in Planning Research (3–3)

Prerequisite: permission of instructor. (A) Planning research methodology and technique including scientific method, statistical analysis of data, sampling, regression analysis; application of computer technology; sources of data. (B) Application of research methodology and technique to planning problems; special emphasis on the formulation of research designs.

202. Seminar in Design Theory (3)

Prerequisite: permission of instructor. Examination of urban design theory with attention to design philosophy and the underlying concepts that include man-environment relations, contemporary global impact upon design, design communications, the design process; case studies that range from the micro to macro arenas.

203T. Practicum: Topics in Community Planning (6; max total 12)

Prerequisite: U R P 200. Supervised studio and field projects in community design, the planning process, and research studies; application of principles and theories in preparation and analysis of conceptual and comprehensive plans and studies. Course may be repeated with different topics. (Former U R P 203)

204. Seminar in the Elements of Community Structure (3)

Prerequisite: permission of instructor. Analysis of the characteristics and interrelationships between selected elements of the physical structure of the community including land use, transportation, housing, and public facilities.

212T. Seminar: Topics in Urban Development (4; max total 8)

Prerequisite: U R P 200. Selected topics in the application of public policy to the solution of urban problems, including the renewal of blighted areas, the conservation and preservation of historic areas, the development and financing of new communities.

215. Seminar in Land Development Controls (3)

Prerequisite: U R P 200. The application of the police power—zoning, subdivision regulations and other techniques—used to implement land development plans and policies; historical and contemporary case studies.

219T. Seminar: Topics in Urban Theory and Public Policy (1–4; max total 12)

Prerequisite: Permission of instructor. Selected topics such as forces affecting urban development; means for guiding development; innovative development approaches; structure of the city and region; formulation, implementation, and evaluation of governmental policy making.

220. Seminar: Planning for Housing (4)

Prerequisite: U R P 200. Housing problems in America; the role of local, state and federal government and private enterprise; planning for adequate housing, carrying out policies and programs.

230. Seminar in Planning for the Region (4)

Prerequisite: U R P 200. Regional planning—approaches and methods; goal and policy implications of resource development, utilization and conservation; strategies for planning; case studies.

235. Seminar in Environmental Law (4)

Prerequisite: Permission of instructor. Contemporary environmental problems and programs; the interrelationship and impact of laws which affect and regulate the environment and its quality; case studies.

239T. Seminar in Regional and Environmental Planning (1–4; max total 12)
Prerequisite: Permission of instructor. Selected topics in regional and environmental planning, including land, air and water resources; consideration of federal, state, and local environmental laws and policies; case studies.

240. Seminar in Urban Design (4)
Prerequisite: U R P 202. Advanced and empirical study of urban design, environmental perception, and the person-environment relationship, case studies; supervised individual and group projects in the field and laboratory.

249T. Topics in Environmental Design (1–4; max total 12)
Prerequisite: U R P 202. Selected topics such as man-environment relations; the development of community form; physiographic and cultural influences on urban design; problems in policy making, implementation, and controls; cognitive mapping; design of prototypical environments. (2 hours studio weekly per unit)

259T. Seminar: Topics in Public Services and Resource Management (1–4; max total 12)
Prerequisite: Permission of instructor. Public facilities and services planning including transportation; physical planning and programming aspects of water supply, liquid and solid waste management systems, and education facilities; development of goals, policies, and plans for open space, parks, recreation facilities, and resource management.

260T. Seminar: Topics in Urban Development Process (1–4; max total 12)
Prerequisite: Permission of instructor. Selected topics such as theory of regional and urban spatial organization; theory of modeling and gaming simulation; application of modeling and simulation techniques to the urban development process; case studies, supervised projects. (Former U R P 260)

280T. Professional Planning Practice (2–5; max total 8)
Maximum total 8 units applicable toward the degree, provided that units in excess of 5 must be earned in topics taken concurrently with related elective seminar. Prerequisite: U R P 200, 201A, 203T. Individually supervised professional practice: preparation and implementation of comprehensive urban, regional or special purpose plans; study of interrelationships and roles of government, public agencies and private enterprise.

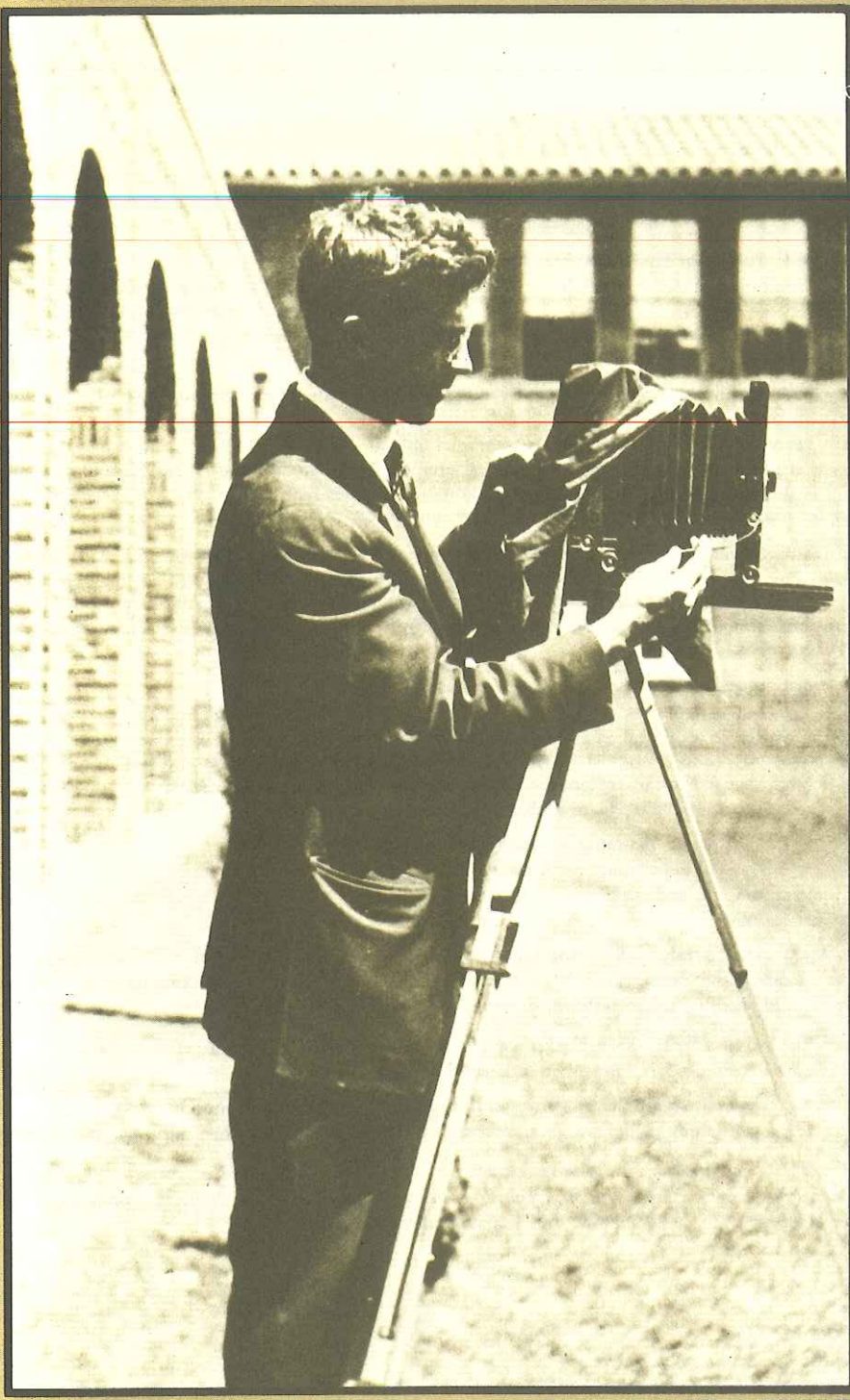
281T. Seminar in Planning Practice (1; max total 3)
Concurrent enrollment in U R P 280T, permission of instructor. Seminar to explore characteristics and problems of professional planning practice; written evaluations of work experience.

282T. Field Study of Selected Planning Topics (1–6; max total 12 if no topic repeated)
Prerequisite: permission of instructor. Field study of urban and regional phenomena in relation to urbanization, urban systems, housing, and resource development.

290. Independent Study (1–3; max see reference)
See *Academic Placement—Independent Study.*

291. Directed Readings in Urban and Regional Planning (1–3; max total 6)
Supervised independent reading in a selected topic related to urban and regional planning.

299. Thesis or Project (3–6; max total 6)
Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis or project for the master's degree.



DIVISION OF EXTENDED EDUCATION

Photo: *Hiram Edwards—Teacher, Physical Science*
Fresno State Normal School, circa 1917



Big Creek, 65 miles northeast of Fresno, was the site of the first summer school in 1914. The name, Sierra Summer School, was adopted following a move to Huntington Lake in 1916.

DIVISION OF EXTENDED EDUCATION

James A. Fikes, Dean

Assistant Dean.....John H. Martin

The Division of Extended Education offers programs designed to enhance and enrich the quality of life of individuals and their communities through the acquisition of skills, experience and knowledge. Programs serve both matriculated and nonmatriculated students through either credit or noncredit instruction.

EXTENSION

To meet the growing demand for continuing education a variety of courses is offered by Extension in the California State University, Fresno, service area. The service area covers Fresno, Madera, Kings and northern parts of Tulare counties.

The financially self-supporting Extension program offers a variety of courses in all disciplines. To provide flexibility and to better serve the needs of the entire community, regular college courses are offered for credit as well as other programs for noncredit. In addition, conferences, training seminars, workshops, and certification programs may be developed. Extension programs are administered by the Dean of Extended Education in accordance with admission and academic policies of California State University, Fresno, and the Trustees of The California State University and Colleges.

Admission Requirements

No matriculation is required for Extension classes. Enrollment in Extension courses does not constitute formal acceptance into the University. Extension courses are open to high school graduates, college students, and other individuals provided they have met the stated course prerequisites. Course prerequisites can be determined by contacting departmental advisers or the instructor, or by consulting the University Bulletin. Interested individuals should report directly to the classes where registration procedures will be explained.

Unit Restrictions

Baccalaureate Degree: Extension and correspondence credit limited to 24 units. Up to 24 semester units of Extension credit may be transferred from accredited institutions, provided the credit would have been acceptable toward a baccalaureate degree had it been earned as residence credit, and provided it would be acceptable toward a degree offered by the institution where it was earned.

Master's Degree: Transfer credit is limited to a maximum of 9 units of the 30 units required for the degree, provided the credit would have been acceptable toward a master's degree had it been earned as residence credit, and provided it would be acceptable toward a degree offered by the institution where it was earned. (Consult Graduate Studies for information concerning the use of specific courses.) Credit derived from 300-level Extension courses may not be used to meet the requirements of a master's degree.

Registration Procedures—

For regular classes:

1. Attend the first class meeting.
2. At the first class meeting, students will receive registration forms. Fees for Extension classes are set by the Board of Trustees of The California State University and Colleges and are subject to change without notice. Current fees are shown in the Extension Bulletin. Check and booklet must be sent together to the Business Office, California State University, Fresno, Fresno, California 93740.
3. Students are expected to attend all class meetings and will require permission from the instructor to enter any class after the first regular meeting.

For short workshops:

1. Note in the schedule any special preregistration instructions. Many of these workshops are limited in size because of staffing and classroom restrictions. Preregistration is required for some workshops and highly recommended for all. The University reserves the right to restrict registration in workshops in which physical facilities or the nature of the workshop makes this necessary. All workshops are designated with a "W" following the schedule number.
2. For registration materials and information contact the Division of Extended Education, California State University, Fresno. The completed registration forms and check or money order for payment of fees should be sent promptly. No registration is final until the forms and fees are received and processed by the University.

Withdrawal or Change of Program

For regular classes:

Any changes in the student's program or withdrawal during the session must be made by completing the official forms, as detailed below. These forms may be secured from the Division of Extended Education. There is no fee for a change of program. If a student withdraws from one or more courses by submitting a Request for a Change of Program Form prior to the first class meeting and submits a Request for Refund of Fees Form, the full fee is refunded. Withdrawal on or after the first class meeting, 65 percent of fees collected will be refunded until 25 percent of the course time has elapsed. After 25 percent of the course time has elapsed, no refund will be made. Courses of four meetings duration or less, no refund made. No refund of fees is made unless requested by the student.

For short workshops:

If a student withdraws from a workshop prior to the first class meeting, the full fee is refunded. On or after the second meeting no refund is made.

If a class is cancelled by the Division of Extended Education, all fees will be refunded. However, the student must request this refund.

Refund of Fees

Contact the Division of Extended Education for regulations concerning refund of fees. The student is responsible for the following procedures:

1. Complete and file a Request for a Change of Program Form.
2. Complete and file a Request for Refund of Fees Form.
3. The Dean of Extended Education must approve the Request for change of Program Form.
4. Submit the forms to the Division of Extended Education.

Permanent Records

The University permanent records will show Extension work only at the request of the matriculated student. Extension units do not count as residence credit. For information regarding courses, course fees and instructional costs write to the Dean of Extended Education, California State University, Fresno.

CONCURRENT ENROLLMENT—EXTENSION

Extension students may enroll in regular session classes. Such concurrent enrollment is limited to upper-division and graduate courses and to lower-division courses not readily available at nearby community colleges. Enrollment requires the approval of the instructor and the department chairperson. An Extension student is expected to meet all course prerequisites, to participate fully in the class, to meet all class requirements, and to pay the appropriate Extension fees. The grade received is entered on the student's Extension record. Concurrent enrollment does not constitute admission to CSUF. For further information contact the Dean of Extended Education.

COURSE NUMBERING SYSTEM—EXTENSION

Lower division courses are numbered 1–99 and are designed for first-and second-year students but open to others. Upper division courses are numbered 100–199 and are designed for third-, fourth-, and fifth-year students; enrollment is permitted by second-semester sophomores with adequate preparation who have completed a minimum of 45 units. They are counted as graduate work for students with graduate status; permitted for use on a master's degree program only with departmental approval. Courses numbered 100G–199G are for graduate students only; designed for use in the first year of two-year master's degree programs; intensive combination of material normally offered at the undergraduate level. Graduate courses are numbered 200–299 and are open to holders of baccalaureate degrees and, with prior approval of the instructor, to second-semester seniors with superior preparation and ability; designed for use on master's degree programs; when taught by Extension, count as upper division in master's degree programs. Courses numbered 300–399 are designed to meet professional needs which cannot be served by regular established course offerings. These courses are offered only through Extension and Summer Sessions. They assume completion of the bachelor's degree and/or appropriate professional service and are focused upon the problems that enrolled students encounter in their professional service. Although these courses are designed primarily for purposes other than the partial fulfillment of degree and credential

requirements, they may, with approval by the department, be applied toward the major. They may be used as part of the 40-unit upper division requirement for the BA degree and as electives in the fulfillment of the total requirements for a baccalaureate degree and/or credential. They may not be used to meet the requirements of a master's degree.

SPECIAL PROJECTS (NON-CREDIT)

Special projects may include a variety of activities. Non-credit workshops and professional conferences are conducted when sponsored by departments in cooperation with community agencies. Non-credit courses are offered for self-improvement, personal interest, cultural enrichment or developing skills. The Division of Extended Education is involved in special projects which include educational programs for older adults, summer sports programs for young people, foreign study programs conducted each summer and winter, English for foreign students, and external degree programs in several academic areas. Special projects and programs can be developed to meet various community needs and interests.

SUMMER SESSIONS

The California State University, Fresno, summer sessions offer an opportunity to students to take a variety of cultural, professional, vocational, and avocational courses. The summer courses are designed to meet the needs of a variety of interest groups, as well as teachers in service, our regular college students, and high school students. Others will find many courses of general, cultural and avocational interest. The program for teachers includes courses that satisfy the requirements for all standard professional credentials, as well as for various degrees and credentials. Work completed in the summer sessions counts as residence credit.

Summer session students are permitted to earn a total of 16 units by attending all three sessions. Students with proper justification and approval may earn units in excess of the maximum. All units earned are applicable towards a degree or credential program. Continuance of any course depends on the number of students enrolling.

Admission Requirements:

No matriculation is required for summer classes. The following are eligible to attend summer session:

High school graduates or 18 years of age (note exception: regarding high school juniors below).

Students at California State University, Fresno, or other collegiate institutions.

Other individuals who have met course prerequisites.

Teachers holding credentials valid for teaching in California.

For students attending summer session at CSU, Fresno, for the first time . . . registration in the summer sessions does not insure the privilege of enrolling as a regular student in the fall semester. Students planning to enroll full- or part-time for the fall semester should contact the Admissions Office for deadline dates and procedures. Students holding baccalaureate degrees who are attending CSU, Fresno, for the first time and who are planning to complete master's degrees at CSU, Fresno should consult the Dean of the

Division of Graduate Studies. Students planning to complete credential programs should consult with the Dean of the School of Education at their earliest opportunity. High school graduates planning to enter CSU, Fresno in the fall must file applications for admission and submit copies of their high school transcripts. It would be to the advantage of the entering freshmen to do this prior to the beginning of the summer sessions. High school students who have completed their junior year and upon recommendation of their principal or counselor may apply for admission to summer session classes at CSUF. Interested students should contact Dr. Carroll Cotten, Admissions Officer, to arrange for an interview. Credit earned during summer will be placed on permanent record and may be applied toward a degree at CSU, Fresno. Most lower division courses are open to high school students providing prerequisites are met where applicable.

Auditors:

Permission may be secured to enroll as an auditor for one or more courses without credit. Auditors must register in the usual way and pay the same fees that would be charged if the courses were taken for credit. Credit for courses audited may not subsequently be granted on the basis of the audit.

Credit Allowance:

Summer session students are permitted to earn units of credit in relation to the number of weeks in the various summer session programs. The following schedule indicates the number of units allowable for the number of weeks in each session: three-week session—4 units allowable; four week session—5 units allowable; five week session—7 units allowable; six week session—8 units allowable. Completion of a maximum of twelve weeks is possible in a single summer.

Excess Program:

Students may register and receive credit for more than the allowable number of units each summer session by obtaining prior approval from the department head in which the major program of summer credit is to be taken. All excess units earned are applicable to a degree or credential. Any student denied permission to take an excess program may request a review of the action by the dean of the school in which the department is located.

Minimum Class Size:

Summer sessions must be financially self-supporting. While it is a desire of the administration to publish in the schedule accurate faculty assignments, changes are necessary because of late resignations and insufficient class registrations. Therefore the university reserves the right (1) to cancel a course if not justified by sufficient enrollment; (2) to change the hour at which a class is scheduled; (3) to close class to further enrollment; and (4) to change the previous published staff assignment.

Fees:

Registration and payment of fees must be made in person by the student during the registration period, and are not accepted by mail. No out-of-state fee is required of non-resident students in the summer sessions. A $5 fine is assessed for late registration at any time after days and hours announced for registration. Registration is complete only when all required forms are

completed, filed and fees are paid. For registration procedures see *Summer Session Bulletin.* See *Summer Session Bulletin* for Summer Fee Schedule and Refunds.

Advising:

Academic advisement by departments offering courses is available during registration periods to assist students in course selections. It is recommended that students in the categories indicated proceed as follows—Regular semester students attending summer session should confer with faculty advisers during the spring semester. Students attending summer session who are planning to complete a degree at CSUF should go to the Office of Advising Services (SR 3-136) for specific advising at the beginning of summer session. Students attending summer sessions only, who are planning to complete degree requirements at another institution should confer with academic advisers at that institution. Students may during the session confer with the Counseling Center about future educational plans and/or personal concerns.

Degrees and/or Credentials:

Students planning to complete degree requirements during the summer session must file degree application at the Evaluations Window #1 or in the Evaluations Office, Room 109, Joyal Administration Building at the beginning of the summer session. Students completing work for a credential during summer must file application with the Credential Analyst in room 120, Education/Psychology Building. There is only one date on which master's degrees are granted during the summer, the end of the Post Session.

Housing:

The Residence Halls on campus are available to students during any summer session or workshop on campus. The halls are modern, air-conditioned buildings and are attractively furnished and decorated throughout. The majority of students are housed two to a room; however a limited number of single rooms and suites are available. There are no cooking facilities in the halls. Meals can be obtained from the campus cafeteria. Summer housing applications are available in the Housing Office beginning in May. Applications can be requested by writing to the Housing Office, CSU, Fresno, Fresno, CA 93740. Confirmation of housing will be determined based on the receipt date of completed application which requires advance payment of fees. To facilitate the processing of applications, all requirements should be met at least two weeks prior to occupancy.

Faculty Responsibility:

Summer session instructors are responsible for maintaining standards of academic performance consistent with those prescribed for regular campus courses.

A Summer Session Bulletin may be obtained from the Office of Extended Education (Thomas Building, room 132) or by writing to the Dean of Extended Education, CSU, Fresno, Fresno, CA 93740



DIVISION OF GRADUATE STUDIES AND RESEARCH

Photo: *May Eldred—Teacher, Training School*
Fresno State Normal School, circa 1917



Students at Fresno State Normal School, circa 1919

DIVISION OF GRADUATE STUDIES AND RESEARCH

Vivian A. Vidoli, Dean

Assistant Dean..... David A. Ross

The Division of Graduate Studies and Research embraces all graduate programs and activities in the university, including programs leading to the master of arts degree in 24 fields, the master of science degree in 12 fields, the master of business administration, the master of city and regional planning, and the master of social work. Graduate degree curricula are designed both as the first graduate degree for students contemplating doctoral study and as terminal degrees for persons engaged in business administration, public school teaching including community college, social work, employment in government agencies, and other fields in which the master's degree is ordinarily the highest degree earned.

The master's degree program at CSUF is administered through the Division of Graduate Studies and Research and is under the general supervision of the Dean, Division of Graduate Studies and Research, who is guided by the policy recommendations of the Graduate Council. Each school or department offering curricula for the master's degree has a graduate committee whose function is to develop and recommend school or departmental graduate curricula and policy and to screen students for admission and for advancement to candidacy.

GRADUATE DEGREES OFFERED AND AUTHORIZED OPTIONS

- Agriculture, MS
  - Agricultural Chemistry, Animal Science, Plant Science
- Art, MA
- Biology, MA
- Business, MBA, MS
- Chemistry, MS
- City and Regional Planning, MCRP
- Communicative Disorders, MA
  - Audiology, Speech Pathology, Education of the Deaf
- Counseling, MA
- Criminology, MS
  - Corrections, Law Enforcement
- Education, MA
  - Administration and Supervision, Educational Theory, Reading, Elementary Education, Secondary Education
- Engineering, MS
  - Civil
- English, MA
  - Composition
  - Creative Writing
- Geography, MA
- Geology, MA
- Health Science, MS
  - Environmental Health, Administration and Supervision, Teaching
- History, MA
- Home Economics, MS
  - Dietetics and Nutrition, Teaching
- Industrial Arts, MA
- Linguistics, MA
  - Bilingual Studies, French, German
- Marine Sciences, MS
- Mass Communication, MA
  - Electronic Media, Print Media
- Mathematics, MA, MS
- Microbiology, MA
- Music, MA
  - Music Education, History and Literature, Theory and Composition, Performance
- Nursing, MS
  - Administration-Supervision, Clinical, Teaching
- Physical Education, MA
  - Recreation Administration
- Physics, MA, MS
- Political Science, MA
- Psychology, MA, MS
- Public Administration, MPA
- Rehabilitation Counseling, MA
- Social Work, MSW
- Spanish, MA
- Special Education, MA
- Special Major, MA
- Speech, MA
  - Theatre Arts, Speech Communication

TYPES OF GRADUATE CURRICULA

Master of arts degree (M.A.) curricula are offered in art, biology, communicative disorders, counseling, education, English, geography, geology, history, industrial arts, linguistics, mass communications, mathematics, microbiology, music, physical education, physics, political science, psychology, Spanish, special education, special major, and speech. These curricula are designed to improve professional competence in educational service; to develop ability for continued formal or self-directed study in a field of specialization; and to afford an opportunity to broaden cultural background, develop personal and social responsibility, and prepare for community leadership.

Master of science degree (M.S.) curricula are offered in agriculture, business, chemistry, civil engineering, criminology, health science, home economics, marine sciences, mathematics, nursing, physics, and psychology. These curricula are designed to improve competence in occupational fields.

Professional master's degree curricula. The master of business administration, the master of public administration, the master of arts in rehabilitation counseling, the master of social work, and the master of city and regional planning are professional two-year degrees designed to provide a high level of competence and preparation for leadership in their respective fields.

GRADUATE ASSISTANTSHIPS

A number of graduate assistantships are available to graduate students who are enrolled in the master's degree program and whose previous records show outstanding achievement in academic work, outstanding subject matter competence in the major field, and the special qualities necessary to the duties assigned. The graduate assistant, working under the direction of a regular staff member, assists in such functions as supervising laboratories or other small groups, evaluation of student work, preparation of course materials, or conduct of authorized research. A beginning graduate assistant devoting twenty hours a week in service to the university receives a stipend of $4,710 for the academic year. Some assistantships may be for reduced time and carry prorated stipends.

For information write to the Dean, Division of Graduate Studies and Research, specifying field of graduate study and any special abilities that might justify assignment as a graduate assistant.

DEFINITION OF FULL-TIME STUDENT

Depending on the use of the term, there are several definitions of full time. *For the purposes of reporting enrollments,* students taking 12 or more units are considered full-time and students taking less than 12 units are considered part-time. *For purposes of financial aid* (loans, veterans assistance, etc.), a full-time student takes 12 "equivalent units" wherein each graduate unit (200-level) attempted by a graduate student is considered as 1.5 units and each undergraduate unit (100-level or below) counts at face value. For example, a student enrolled for eight 200-level units would be considered a full-time student. Three-quarter time and half-time are defined to be 9 to 11½ and 6 to 8½ "equivalent units" respectively.

FOREIGN GRADUATE STUDENT PROGRAMS

The university's Division of Graduate Studies and Research accepts graduate students from abroad, with strong academic preparation. During the first semester at CSUF, foreign graduate students whose native language is not English and who are studying in this country for the first time, must enroll in special courses in the International Study program designed to speed their adaptation to the new environment and to provide the greatest possibility of success in their graduate studies. For further information, see *Other Graduate Curricula and Special Programs—International Study.*

ADMISSION TO POST-BACCALAUREATE AND GRADUATE STANDING

Admission standards are stated in the *California Administrative Code,* Title 5, which provides uniform admission regulations for all California State University and Colleges. Two main admission categories are defined in terms of the student's educational objectives at the time of planned enrollment. These are *post-baccalaureate standing* and *graduate standing.*

It should be noted that a post-baccalaureate student who has been admitted to the university will receive notice of such admission in *unclassified standing* by the Office of Admissions, regardless of his or her application to pursue a credential or a master's degree program. Admission to classified standing involves the additional step of an evaluation of the student's record and other documents in accordance with the admission criteria of the program in question. Admission to classified standing is the responsibility of the Office of the Division of Graduate Studies and Research for master's degree programs, and in the case of a credential program the School of Education and Human Services.

UNCLASSIFIED (Post-Baccalaureate Standing)

For admission to unclassified post-baccalaureate standing, a student must: (a) hold an acceptable baccalaureate degree from an institution accredited by a regional accrediting association or have completed equivalent academic preparation as determined by an appropriate campus authority (see *unvalidated standing,* below); (b) have attained a grade-point average of at least 2.5 (on a four-point scale) in the last 60 semester units attempted; and, (c) have been in good standing at the last college attended. Students in unclassified standing may pursue objectives such as course work for professional growth, the completion of the requirements for an additional major at the baccalaureate level, or completing undergraduate requirements.

Admission to a State University or College with post-baccalaureate unclassified standing does not constitute admission to graduate degree curricula.

Post-baccalaureate students interested in pursuing a second bachelor's degree or a second undergraduate major should contact the appropriate department or the Division of Graduate Studies and Research.

A graduate of a nonaccredited college may be granted admission with *unvalidated unclassified post-baccalaureate standing,* upon the filing of the application and two copies of official transcripts of all college work. Such a student may be eligible for placement in regular post-baccalaureate or

graduate standing when he or she has cleared all undergraduate deficiencies and has maintained, in residence at CSU, Fresno, a grade-point average of 3.0 on 12 units of approved upper division work or an average of 2.5 on 24 units of approved upper division work. (Prospective applicants to master's degree programs, see also *Master's Degrees—Grade Requirements.*) When a student with unvalidated post-baccalaureate standing has met the above requirements, it is his or her responsibility to request a new statement of standing from the Admissions Office.

CLASSIFIED (Graduate Standing)

A student who is eligible for admission to a State University or College in unclassified standing may be admitted to classified post-baccalaureate standing for the purpose of enrolling in a particular post-baccalaureate credential or certificate program; provided, that such additional professional, personal, scholastic, and other standards, including qualifying examinations, as may be prescribed for the particular program by the appropriate campus authority are satisfied. In addition to the application for admission to the university, an application for admission to the credential program must be filed with the School of Education. *(See School of Education and Human Services—Application for Admission to Credential Programs.)*

FOREIGN GRADUATE STUDENT ADMISSION

Graduate students from abroad follow the same procedures as do other graduate students except that the Test of English as a Foreign Language (TOEFL) is required of all students whose native language is not English. Exception may be made for students transferring from American colleges and universities with grades that demonstrate full competency in English. The TOEFL scores, applications, and academic documents should reach the university Admissions Office at least six months before the semester for which admission is desired. The TOEFL is administered at various centers throughout the world. For further information about the TOEFL, write to the Test Office, California State University, Fresno.

The minimum acceptable TOEFL score for admission to graduate study at CSUF is ordinarily 500; however, students desiring to enter the MBA or MPA programs are required to attain a score of 550 or better. The university may also request the student to arrange an interview with a representative of the Institute for International Education, which maintains offices in many parts of the world. Exception to the minimum TOEFL score requirement may be made for students who are otherwise admissible and who satisfactorily complete an approved intensive program in English as a foreign language at another institution. The university cannot, however, commit itself until the work has been completed and an acceptable score earned on a retake of the TOEFL.

Inquiries and requests for applications should be directed to the Dean, Division of Graduate Studies and Research. Such letters should include the following information:

(1) Anticipated field of study.
(2) TOEFL score or date the TOEFL will be taken.
(3) Quality of undergraduate work (rank in class, grade average, etc.), the institution in which it was taken, and the highest degree held.
(4) The semester for which admission is requested.

(5) The extent to which full financial resources are available ($6000 a year).

The Office of the Dean will inform the appropriate department and refer to it inquiries about programs and assistantships. It will also arrange with the Office of Admissions to have application forms sent.

ADMISSION TO MASTER'S DEGREE PROGRAMS

Applicants to all master's degree programs gain admission in either classified or conditionally classified graduate standing under standard universitywide policies. Many programs impose additional requirements beyond the criteria stated here. To be eligible to receive the master's degree at CSU, Fresno, students must be advanced to candidacy and complete all other requirements specified by the Division of Graduate Studies and Research and the specific program, thereby demonstrating a command of the field of specialization and a competence in independent investigation, analysis, and synthesis beyond the scope of individual courses. Students wishing to change their major must contact the Division of Graduate Studies and Research and apply for the change formally. Students are not admitted to master's degree programs unless they have received an admission notice from the Division of Graduate Studies and Research.

Graduate Standing-Conditionally Classified

Students eligible for admission to a California State University or College under unclassified postbaccalaureate standard above, but who have deficiencies in prerequisite preparation which in the opinion of the appropriate campus authority can be met by specified additional preparation, including qualifying examinations, may be admitted to an authorized graduate degree curriculum with conditionally classified standing.

Those students who indicate on the application for admission that he or she wishes to pursue a master's degree objective is considered for classified graduate standing. Applicants who do not meet all the specified criteria for admission to a master's degree program with full classified standing may be recommended for conditionally classified standing by the graduate committee of the program in question. Such a recommendation is accompanied by a statement of the additional requirements which must be met before full classified standing is granted. This information is communicated to the student by the Office of the Division of Graduate Studies and Research. It is the student's responsibility to request a change in classification status as soon as the specified conditions have been met. Forms for this purpose may be obtained in the Office of the Division of Graduate Studies and Research.

Graduate Standing-Classified

Only those applicants who show promise of success and fitness will be admitted to master's degree curricula, and only those who continue to demonstrate a satisfactory level of scholastic competence and fitness shall be eligible to proceed in such curricula. (See also, *Grade Requirements.*)

Admission to classified graduate standing in a master's degree program at CSUF normally requires satisfactory scores on the Graduate Record Examination Aptitude Test, or for business students, the Graduate

Management Admission Test (GMAT). These tests plus the Advanced Test are part of a nationally standardized group of examinations prepared and scored by the Educational Testing Service and are given several times a year in various parts of the world; students taking the test at any of the testing centers may request that their scores be sent to the CSUF Test Office. The Test Office administers the tests on the Fresno campus. Information about dates, fees, and application procedures may be obtained from the Test Office or the Office of the Division of Graduate Studies and Research.

GRE Aptitude Test or GMAT score reports should be on file in the CSUF Test Office in time for consideration along with the application for admission to graduate standing. Since classified standing is required in some programs in order to register for graduate courses, it is important that the appropriate test be taken well in advance of the first semester of graduate study. While the Aptitude Test is a general requirement, in the absence of satisfactory test scores, departments have the option of recommending other types of diagnostic tests or substituting other measures of aptitude for those students whose records otherwise indicate probable success in graduate study.

Not more than 10 units (including transfer and post-baccalaureate credit) completed before achieving full classified standing at CSU, Fresno, may be applied to the master's degree program. Work taken during the semester of classification is considered to be completed in classified standing. In 60-unit programs the above limitation applies only to the last 30 units.

ADVANCEMENT TO CANDIDACY

Classified graduate standing gives a student permission to work towards qualifying for candidacy. Advancement to candidacy gives a student permission to proceed toward qualifying for the degree. Requirements for advancement to candidacy include the following:

1. Classified graduate standing.
2. Completion of any additional prerequisites which the adviser specifies in writing.
3. Satisfactory completion of the Graduate Record Examination Advanced Test or departmental qualifying examination. The Graduate Record Examination Advanced Test in the major subject field is required of students working toward the master of arts degree in biology, counseling (Advanced Test in education), education, English, geology, history, political science (government), psychology, special education (Advanced Test in education); and the master of science degrees in mathematics and physics. A departmental qualifying examination is required in lieu of the Advanced Test in agriculture, art, business, chemistry, communicative disorders, criminology, geography, health science, home economics, industrial arts, linguistics, mass communication, microbiology, music, nursing, physical education, political science, public administration, rehabilitation counseling, social work, Spanish, speech, and city and regional planning.
4. A minimum grade point average of 3.0 (both overall and at CSU, Fresno) on all upper division and graduate course work from the date of embarking on the first course of the proposed master's degree program. (See also, *Grade Requirements,* below.)

5. Satisfactory completion of the foreign language requirement for those programs having such a requirement. (See *Foreign Language Requirement.*)
6. Departmental recommendation for advancement to candidacy on a petition form available in the Office of the Division of Graduate Studies and Research. In making this recommendation, the department takes into account professional and personal standards as well as scholastic achievement as revealed by grades and performance on examinations. The student is responsible for ensuring that the adviser has sufficient information other than grades and scores on which to make this recommendation. On this petition form the student, in consultation with his adviser, lists the coherent set of courses which, when approved, will constitute his degree program.
7. Completion at CSU, Fresno, of at least 9 units of the proposed program with a 3.0 average on all completed work appearing on the program.
8. Submission to the Office of the Dean, Division of Graduate Studies and Research, of the properly signed petition for advancement to candidacy prior to the completion of the last 9 units of the proposed program.
9. In keeping with the university writing skills requirement, all graduate students must demonstrate their competence with regard to writing skills prior to advancement to candidacy. The department will note on the Petition for Advancement to Candidacy form the means by which the student has met the writing skills requirement. (See also University Writing Skills Requirement.) Credit earned on the undergraduate university examination assigned solely to meet this requirement may not be used on a graduate student's approved program. Certain 200 series courses with significant assignments indicative of a successful graduate level writing proficiency may be used to meet the writing requirement. These courses, if approved, may be included on a student's program for the master's degree. For a list of courses approved for this purpose consult either the Graduate Dean or the program adviser. The written departmental qualifying examination may be used to meet this requirement.

New Directions Admissions

Students with a bachelor's degree in one field may work on a master's degree in an unrelated field by completing certain minimal undergraduate prerequisites. Special consideration for admission to such a program of study is provided through a departmental graduate adviser and the dean of Graduate Studies.

FOREIGN LANGUAGE REQUIREMENT

Foreign language is not a general requirement for admission to or completion of the master's degree program at California State University, Fresno.

However, for advancement to candidacy, demonstration of competence, usually equivalent to that achieved through two years of collegiate study of one foreign language, is required in specified majors in which upper division and graduate courses demand such competence. Consult your graduate

adviser or the Chairman of the Foreign Language Department for information about placement tests.

Competence in the use of a foreign language is required for advancement to candidacy for the master of arts degree in English, geography (Plan A), music (voice and musicology), and political science. Ordinarily the requirement calls for demonstration of the ability to read materials of the major in one appropriate foreign language. Geology and history, however, specify that a student doing a thesis involving a foreign country must have a reading knowledge of the language of that country. Curricula not specified above do not require a foreign language.

MAXIMUM STUDY LOAD

Graduate courses require substantially more concentrated study than do undergraduate courses. A normal load is from 9 to 12 units and the maximum allowable load is 16 units for full-time master's degree students when one or more courses in the 200 series are included. Students employed full time may take a maximum of 6 units. For maximum units for summer session see the *Summer Session Bulletin.*

PROGRAM REQUIREMENTS

The program requirements for the master of arts and master of science degrees assume substantial undergraduate preparation in the field. See college, school and department statements in this catalog for particulars. A student lacking this preparation will find it necessary to exceed the minimum requirements indicated below. (Consult departments for MBA, MSW, and MCRP minima.)

The approved degree program for the master's degree is a coherent pattern of (1) specific requirements for the program and (2) additional courses selected to meet the student's particular needs. It consists of at least 30 units completed after the bachelor's degree and within five years just preceding the granting of the master's degree. Only graduate courses (200 series) and such upper division courses (100 series) as are recommended by the schools or departments and approved by the Graduate Council are acceptable on the unit requirement. Other courses are counted in calculating the student's study load, but cannot be counted toward the unit requirement for the master's degree. The total approved program must include the following:

1. At least 21 units of the program must be CSU, Fresno, residence credit.
2. Transfer credit may be used toward a master's degree only if the institution offering the work would use it on a comparable master's degree program and if it is judged by appropriate university authorities to be particularly relevant to the individual student's program. Extension credit is not regularly used on master's degree programs. In the event that the extension course is offered under conditions similar to those for a course normally usable on a master's program, a student may request special permission to use such an extension course on his program. If approved, a maximum of 9 units may be used on a 30 unit program. Student teaching credit is not ordinarily used on master's degree programs. In unusual circumstances, if student teaching is demonstrably appropriate to a program, up to 3 units of such work may be approved by the Graduate Council. Credit by examination may be used to fulfill

prerequisites, but may not apply toward the 30 units. Saturday-School courses may not be used on a student's program for the master's degree. A maximum of 6 units of CR-NC evaluated credit may be applied to a 30-unit master's degree program and a maximum of 12 units CR-NC credit may be applied to a 60-unit program.

3. With approval of the departmental graduate adviser, post-baccalaureate credit allowed for work taken in the semester or summer in which the baccalaureate degree is granted may be applied toward a master's degree, if it meets master's degree criteria in all respects. See *Post-Baccalaureate Credit.*
4. A minimum of one-half of the courses in a student's program for the master's degree must be graduate level courses numbered in the 200 series. Most programs require more than the minimum 15 units in a 30-unit program, or more than 30 units in a 60-unit program.
5. At least 9 units must be completed after advancement to candidacy. Work taken during the semester or summer of advancement may apply on this requirement.
6. Appropriate course work from a field other than the major may be required at the discretion of the major department.
7. Appropriate provision must be made for a thesis, a project, or, when permitted, an alternative to the thesis, unless the department offers "Plan B" (nonthesis), in which case provisions must be made to conform to departmental requirements. Comprehensive examinations are required in all "Plan B" programs.
8. Students having a special interest that cannot be met within the stated requirements of a given master's degree program may, with written permission of appropriate university authorities, make further program adjustments to meet their needs. Consult the Dean, Division of Graduate Studies and Research.
9. In addition to the qualifying examinations required for advancement to candidacy for the master's degree, all departments reserve the right to require written or oral comprehensive examinations when circumstances demand. A few departments require final comprehensive examinations of all candidates, and most departments requiring a thesis also require an oral defense of the thesis. Graduate students are urged to consult the chairman of the department or school graduate committee or the Division of Graduate Studies and Research about examination requirements for specific master's degree programs. The programs which provide for course work in lieu of a thesis ("Plan B") require final oral and/or written comprehensive examinations.

It is the student's responsibility to complete the specific courses listed on his /her approved program and to assure that the Degree Clearance form has been forwarded to the Graduate Division from the department. Once a program has been approved by the Graduate Council, it may be changed only on the written request of the student and his department or school adviser and with the approval of the Dean, Division of Graduate Studies and Research. Forms for requesting such program adjustment are available in the Office of the Division of Graduate Studies and Research.

THESIS, PROJECT, AND THESIS ALTERNATIVE

Most master's degree curricula at CSU, Fresno require the preparation of a thesis or a project. Some departments permit thesis alternatives.

DEFINITIONS

The university has adopted the following definitions of the terms "thesis," "project," and "thesis alternative":

1. A thesis is the systematic study of a significant problem. The problem, its major assumptions, its significance, the methods and sources for gathering data, the analysis of data, and the conclusions and recommendations are clearly stated.
2. A project may take either of the two following forms: a) the systematic development of a plan for, or the critical evaluation of, a significant undertaking, or b) a creative work such as a novel, a musical composition, or a group of paintings.
   In either type of project, criteria employed in developing the plan, or in making the evaluation of the task, the details of the plan or evaluation, the methods used, and the supporting data are clearly stated.
3. A thesis alternative is a specially designed or selected seminar designated by a department as acceptable in lieu of the thesis. It could also consist of a performance or exhibit plus specially selected compensating graduate course work such as in music and art. Some departments provide for non-thesis programs under a "Plan B" designation and require a comprehensive examination plus compensating course work.

CRITERIA

No academic distinction is made between a thesis and a project. Either one is equally acceptable as a means of fulfilling the requirements for the master's degree. Specific departmental instructions or requirements should, however, be ascertained by the candidate before enrollment in Course 299.

Whether a student is preparing a thesis or a project it should be noted that quality of work accomplished is a major consideration in judging acceptability. The finished project must evidence originality, appropriate organization, clarity of purpose, critical analysis, and accuracy and completeness of documentation where needed.

Critical and independent thinking should characterize every project. Mere description, cataloging, compilation, and other superficial procedures are not adequate.

The quality of writing, format, and documentation must meet standards appropriate for publication in the scholarly journals of the field, or consistent with the dictates of an authorized stylebook.

1. To be eligible to enroll for thesis or project (299), a student must have
   (a) been advanced to candidacy for the master's degree.
   (b) maintained a B (3.0) average on his approved program.
   (c) completed at least 6 units of his approved program on the Fresno campus.
   (d) completed any course in research techniques required by his major department.

(e) secured a thesis committee, consisting of a chairman and at least two other members.

(f) secured approval of his thesis plan from the division or department graduate committee and filed in the Office of the Division of Graduate Studies and Research, an official thesis committee assignment.

If it is impossible to meet one or more of these requirements before the semester or summer session of thesis registration, the student must submit to the Office of the Division of Graduate Studies and Research, prior to the close of late registration, a recommendation from the department that special permission to register for thesis be granted.

2. Registration for thesis may be processed during either the regular or late registration periods of any semester after the requirements listed in (a) through (f) above have been met or special permission for exceptions has been granted. If, however, a student fails to enroll within one semester (excluding summer sessions) after his official acceptance by a thesis committee, the committee chairman has the option of dissolving the committee, in which case a new committee must be appointed before registration can be processed. A student planning to register for thesis after a break in regular session attendance must be readmitted to the university. (See *General Information—Registration.*)

3. A student whose thesis work is planned to extend over more than the semester in which he first enrolls may select one of the following options (with the approval of his graduate adviser): (a) he may register in 299 each term he is working on the thesis with the number of units for each registration reduced so that the total number of units accumulated in 299 does not exceed the limit set by the department; (b) he may register for the total number of units of 299 in one semester and complete his work in subsequent semesters under Graduate Studies 299, a zero-unit course required for enrollment purposes; (c) option (a) supplemented by GS 299 when the maximum number of units is attained with the thesis still incomplete. (See *Special Programs—Graduate Studies.*)
4. If work in 299 is not completed at the end of the term of registration, but is progressing satisfactorily, an SP (Satisfactory Progress) grade is recorded. Such a grade must be replaced within two years by a letter grade or a CR-NC grade. Exceptions to the two-year limit may be made by appropriate campus authorities only upon evidence of extenuating circumstances. Otherwise, a student must reregister for the course.
5. The student and his thesis chairman should set a deadline for the completion of the semifinal draft, no later than seven weeks before the last day of scheduled final examinations. This date should be early enough so that the chairman and the other members of the committee can clear the draft before the student must meet the deadline for clearance by the Dean of the Division of Graduate Studies and Research.
6. Before a thesis is officially accepted by the Graduate Division, it must meet Graduate Division criteria on matters of format, documentation, and quality of writing. The semifinal draft, signed by the thesis committee members as acceptable and ready for final typing should be submitted to the Office of the Division of Graduate Studies and

Research at least six weeks before the last day of scheduled final examinations. This deadline has been set as late as possible in the semester to accommodate the student; late manuscripts will be accepted, but the student runs the risk of a delay in the granting of the degree. Students are urged to follow meticulously Specifications and Instructions for the Master's Thesis or Project; copies are available in the Kennel Bookstore.

7. The final thesis (an original plus 2 photocopies) signed by the thesis committee and ready for binding, together with the school or departmental clearance and a receipt for the binding fee (payable in the California State University, Fresno Association office) must be submitted to the Office of the Division of Graduate Studies and Research, one week before the last day of scheduled final examinations. A student who wishes to retain a bound copy may arrange for the extra binding by paying an additional fee.

CONTINUOUS ENROLLMENT

It is the policy of the Division of Graduate Studies and Research that a graduate student who makes use of university resources while completing course work under an SP grade must be enrolled at the university. Two special courses, Graduate Studies 295 and 299, have been created to make this enrollment possible when the student is not registered in any regular course. GS 295 is to be used when the student is continuing work in any course besides a thesis (299) or is preparing for comprehensive examinations. GS 299 is to be used for thesis continuation only. The courses carry zero units and are to be used only to maintain enrollment at the university. A student who must suspend work for more than one semester on the thesis or other courses in which the SP grade was given should apply for a planned educational leave of absence. Summer sessions are exempt from the continuous enrollment policy. (See also *Other Graduate Curricula—Graduate Studies and Planned Educational Leave of Absence.*)

TIME LIMITATIONS

A period of five years is allowed for the completion of all requirements for the master's degree. A student whose program has been interrupted by military service should consult the Dean of the Division of Graduate Studies and Research about provisions for military extensions. Otherwise, time may be extended only by the substitution of recent courses for outdated ones or by validation of outdated course work, provided the student has been advanced to candidacy, such as through the passing of comprehensive examinations in the relevant courses or subject field.

The Dean, Division of Graduate Studies and Research, is authorized to grant extensions of time for the completion of work in graduate courses in which the assigned grade is SP (Satisfactory Progress). Petition forms for applying for an extension on an SP grade are available in the Office of the Division of Graduate Studies and Research. A student will normally be considered ineligible for an extension unless continuous enrollment has been maintained since the term of registration in the course. (See *Special Grades—Satisfactory Progress and Continuous Enrollment.*)

GRADE REQUIREMENTS

All graduate students will be held to the scholarship standards listed under *General Information. The following provisions also apply to master's degree programs.*

A student admitted to a master's degree program in conditional classified or classified standing is required to maintain a B average on all work taken subsequent to admission to the program.

No course with a grade below C may apply on a master's degree approved program.

To be eligible for advancement to candidacy, a student must have earned a B average (both overall and at CSU, Fresno) on all upper division and graduate course work completed after the date of embarking on the first course to be included in the master's degree program.

To be eligible for enrollment in the thesis or project or in an alternative to the thesis, a student must have been advanced to candidacy and must have maintained a B average on his approved program.

To be eligible for the granting of the degree, a student must have maintained a B average on his complete approved program. Any grade earned in a course on the approved program continues to figure in the grade-point average, even if that course is for any reason later dropped from the program.

To be eligible to receive the master's degree *with distinction* a student must be nominated by his department and must have earned at least a 3.9 grade-point average on all course work taken from the first semester of the approved master's degree program.

REQUEST THAT MASTER'S DEGREE BE GRANTED

A request that the master's degree be granted (which includes the graduation fee payable in the Business Office) must be filed in the first two weeks of the semester in which the work is to be completed. During the summer sessions the request should be filed before the end of the first week of the second session. (See *Academic Calendar, Schedule of Courses, and Fees and Expenses.*) Application forms are available in the Student Records and Graduate Studies Offices. Prior to filing a request for the master's degree to be granted, the student should check with the Office of the Division of Graduate Studies and Research to ensure that all program requirements have been completed. Diplomas for those completing degree requirements during summer sessions and at midyear will be awarded approximately four months after the end of the term.

Failure to complete requirements for the degree during the semester of the application necessitates the filing of a new application, including a nominal re-application fee, for the semester of actual completion. Such reapplication is subject to the same time schedule as is the original application.

GRADUATE STUDENT CHECK SHEET FOR THE MASTER'S DEGREE A USEFUL SUMMARY

The completion of a master's degree at CSUF involves four major steps:

A. Admission to the University;
B. Admission to a master's degree program (classified standing);
C. Advancement to Candidacy;
D. Completion of final requirements.

To move from one step to the next, it is recommended that the procedures as listed on this checksheet be followed in order to avoid problems arising from a failure to comply with all of the requirements for the master's degree.

PROCEDURES	DATE COMPLETED
Admission to the University	
1. File completed application for admission to the California State University and Colleges within the appropriate filing period.	_____
2. Have official transcripts sent WHEN REQUESTED TO DO SO BY CSUF.	_____
Admission to a Master's Degree Program—Classified Standing	
(Most students are admitted to the university with unclassified standing and must become classified for admission to a specific program of study. This step is important because an approved master's degree program may include only 10 units earned prior to achieving classified standing.)	
3. If your initial admission did not grant classified standing and you have not already taken GRE or GMAT, apply for and take the appropriate Aptitude Test and have the scores sent to the Testing Office, CSUF.	_____
4. Fill out a Request for Change in Classification Status, consult your graduate adviser, obtain appropriate signatures on the form, and make out a tentative program, noting correction of any deficiencies.	_____
Advancement to Candidacy. Advancement to Candidacy should be completed after the first 9 units of graduate study have been passed satisfactorily, and before registering for the last 9 units.	
5. Apply and take departmental qualifying examination, if required.	_____

PROCEDURES	DATE COMPLETED
6. Demonstrate competence in foreign language, if required for major.	
7. When eligible to petition for advancement to candidacy (completion of 9 units), consult your graduate committee adviser, design a final program, and file a Petition for Advancement to Candidacy for the degree with the Graduate Office. Once this Petition has been approved by the Graduate Council, any necessary course changes must be submitted to the Graduate Office on a Program Adjustment Request form.	
8. It is recommended that a thesis committee be established early in the program. Thesis Committee Assignment forms are available in the Division of Graduate Studies and Research.	
9. Completed writing proficiency requirement.	

Completion of Final Requirements. All degree requirements must be completed within a five-year time period, starting with the first semester of your master's degree program.

10. Complete course work listed on the approved Advancement to Candidacy form.	
11. Enroll for Thesis or Project (299) within one semester of being assigned a thesis committee; if "Plan B" (nonthesis) is being followed, consult your adviser about arranging to take the comprehensive examination and meeting other departmental requirements.	
12. Prior to the deadline date listed in the Schedule of Courses for the session in which requirements will be completed, file an APPLICATION FOR THE MASTER'S DEGREE TO BE GRANTED.	
13. In conference with your thesis or project chairman, set a deadline for completion of the semifinal draft no later than seven weeks before the last day of scheduled final examinations.	
14. At the time specified in the letter of instructions mailed to graduates, order a cap, gown, and hood if you plan to participate in the commencement ceremonies.	

PROCEDURES	DATE COMPLETED
For all Thesis/Project 299 the Following Applies:	
15. a. Submit the SEMIFINAL DRAFT of the thesis or project, which has been approved by your thesis committee as ready for final typing, to the Thesis Consultant in The Office of the Dean, Division of Graduate Studies and Research. This is due at least six weeks prior to the last day of scheduled final examinations.	_____
b. After obtaining committee members' signatures on the Approved Page, submit the thesis or project in FINAL FORM to the Office of the Dean, Division of Graduate Studies and Research, for a last check by the Thesis Consultant.	_____
c. Submit at least four copies of the thesis or project to the Office of the Dean, Division of Graduate Studies and Research, no later than one week before the last day of final examinations.	_____
d. Pay the binding fee at the California State University, Fresno, Association Office by the posted date for final submission, as established by the Division of Graduate Studies and Research.	_____
16. Arrange and take any final examination that may be required.	_____
17. Check with your department to be sure your CLEARANCE FOR THE MASTER'S DEGREE has been sent to the Office of the Dean, Division of Graduate Studies and Research.	_____

FACULTY AND ADMINISTRATION 1980–81

Full-Time Faculty and Administration

Adjunct and Visiting Professors

Part-Time Faculty

Emeriti

FACULTY AND ADMINISTRATION 1980–81

Note: Numbers in parentheses indicate year of appointment at California State University, Fresno.

HAAK, HAROLD H. (1980), President; Professor of Political Science
BA, MA, University of Wisconsin; PhD, Princeton University

ABOU-GHORRA, IBRAHIM M. (1956), Professor of Psychology
BA, Cairo University; Diploma, Ain-shams University (Egypt); Diploma, Cairo Institute of Higher Studies; MA, Ohio State University; PhD, University of Southern California; Licensed Psychologist.

ADAMS, ROBERT C. (1965), Professor of Radio-Television, Acting Coordinator, Radio-Television Program (Fall 1978).
BA, Idaho State College; MA, PhD, University of Oregon.

ADAMS, RONALD G. (1980), Coaching Specialist, Athletics
BA, Fresno Pacific College; MA, California State University at Fresno.

ADRIAN, MERLE S. (1973), Associate Professor of Industrial Arts and Technology
BS, Fresno State College; MA, California State University, Fresno; EdD, University of Southern California.

AGNEW, ALLEN M. (1965), Assistant Dean, School of Business and Administrative Sciences; Professor of Information Systems and Decision Sciences
BA, MA, San Jose State College; EdD, University of California at Los Angeles.

AIKEN, JOYCE B. (1956–1958; Spring 1962), Professor of Art; Chairman, Art Department
BA, MA, Fresno State College.

ALDEN, H. LEE, JR. (1960), Associate Professor of Radio-Television
BA, University of Virginia.

ALDRICH, LESLIE L. (1955), Professor of Industrial Arts and Technology
BA, Willamette University; MA, Oregon State College.

ALEXANDER, KATHY C. (1979), Lecturer in Social Work
BA, MSW, California State University at Fresno.

ALI, MIR K. (1968), Professor of Mathematics
BS, MA, Osmania University; MS, Montana State Univesity; PhD, Washington State University.

ALLEN, DERYLE K. (1961), Counselor
BA, Southwestern State College (Oklahoma); MEd, EdD, University of Oklahoma.

ALLEN, JOHN E. (1977), Lecturer in Information Systems and Decison Sciences
AS, Olympic College; BS, Univesity of Washington; MS, University of California at Los Angeles.

ALLEN, TERRENCE L. (1971), Professor of Art
BFA, Chouinard Art Institute.

ALLISON, ROBERT J. (1967), Professor of Economics
BA, MS, PhD, University of Colorado.

ALVARADO, ANDREW J. (1978), Associate Professor of Social Work; Field Director
BS, MSW, Fresno State College; EdD, University of California at Los Angeles.

ANABO, JON (1979), Assistant Coach, Athletics
BA, Fresno State College; MA, California State University at Fresno.

ANDERSON, DAVID C. (1966), Professor of Management and Marketing
BS, MS, West Virginia University; DBA, Georgia State University.

ANDERSON, LAWRENCE L. (1971), Associate Professor of Art
BA, MA, San Jose State College.

ANDERSON, R. GENE (1970), Professor of Speech Communication
BA, MA, Baylor University; PhD, University of Colorado.

ARCE, GINA (1957), Professor of Botany
BA, MA, George Peabody College; PhD, Vanderbilt University.

ARCINIEGA, TOMAS A. (1980), Vice President for Academic Affairs
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AVERY, GEORGE E. (1959), Professor of Teacher Education
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BADVAGANIAN, DENNIS L. (1977), Lecturer in Management and Marketing
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BALL, WILBUR P. (1958), Professor of International Agriculture and Education
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BALLARD, O. DUANE, JR. (1968), Associate Professor of Physical Education
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BATHURST, LEONARD H., JR. (1954), Professor of Education;
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BATTENBURG, JOSEPH R. (1981), Professor of Engineering
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BAWANAN, RITA (1978), Coordinator of International Programs (Overseas)
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BERRETT, RICHARD D. (1969), Associate Professor of Home Economics
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BILLINGS, ROBERT S. (1957), Professor of English; Chairman, English Department
BA, University of New Hampshire; MA, Boston University; PhD, State University of Iowa.

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COUGHRAN, WILLIAM M. (1959), Academic Budget Officer
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COWLING, WILLIAM H. (1967), Professor of English
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DOMINICK, WAYNE P. (1964), Professor of Engineering
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MACK, SEYMOUR (1957), Professor of Geology
BS, College of the City of New York; MS, PhD, Syracuse University.

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BS, MEd, University of Pittsburgh; EdD, University of California at Los Angeles.

MADDEN, HARRISON E. (1956), Professor of Psychology
BS, MA, PhD, University of Kansas; Licensed Psychologist.

MAHANTY, SATYA DIWAKAR (1978), Associate Professor of Engineering
MTech, Indian Institute of Technology; Kharagpur (India); MS, PhD, University of California at Santa Barbara.

MAHONEY, RONALD J. (1968), Associate Librarian
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MAJORS, KERN T. (1969), Senior Assistant Librarian
BS, MLS, University of California at Berkeley.

MALLORY, THOMAS E. (1968), Professor of Biology
BS, University of Redlands; MS, PhD, University of California at Davis.

MANATT, KAREN A. (1979), Lecturer in Nursing
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MANGAN, JERROME (1970), Professor of Biology; Chairman, Biology Department
BA, MS, University of Cincinnati; PhD, Brown University.

MARGOSIAN, ARTHUR H. (1956–1959; 1961), Professor of Journalism; Interim Chairman, Journalism Department (Spring)
BA, MA, Fresno State College; EdD, University of Southern California.

MARHENKE, RONALD LEE (1970), Professor of Chemistry
BS, Valparaiso University; PhD, Purdue University.

MARQUEZ, IRMA A. (1980), Lecturer in Education
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MARTIN, GERALD D. (1980), Professor of Finance and Industry
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MARTIN, HOWARD J. (1965), Professor of Agricultural Industry and Education; Chairman, Agricultural Industry and Education Department
BSAE, California State Polytechnic College; MA, Fresno State College.

MARTIN, JOHN E. (1959), Professor of Teacher Education
BA, Central State College (Oklahoma); MEd, EdD, University of Oklahoma.

MARTIN, JOHN H. (1962), Dean, School of Professional Studies; Professor of Music
BS, MA, Ohio State University; EdD, University of Arizona.

MARTINEZ, ERNEST A. (1971), Associate Professor of La Raza Studies
BA, MA, Fresno State College.

MARTINEZ, TOMAS (1980), Associate Professor of Criminology
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MASTERS, RUTH (1972), Associate Professor of Criminology
BA, University of California at Berkeley; MS, California State University Fresno; EdD, University of Southern California.

MATHENY, JAMES D. (1973), Dean, School of Engineering; Professor of Engineering
BS, University of South Carolina; BS, Ms, Phd, University of Texas.

MATHIESEN, MARJEAN J. (1979), Lecturer in Nursing
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MAUGHELLI, MARY L. (1962), Professor of Art
BA, MA, University of California at Berkeley.

McCLINTIC, J. ROBERT (1954), Professor of Biology
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McCOMAS, WAYNE L. (1953), Professor of Industrial Arts and Technology
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McDERMOTT, JOHN J. (1969), Professor of English
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McDOUGALL, THOMAS (1966), Associate Professor of Art
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McFERRIN, WILLIAM D. (1970), Professor of Accounting
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McGOLDRICK, BERNARD E, (1969), Professor of Political Science
BA, MA, Fordham University; BD, Woodstock College; MA, PhD, Georgetown University.

McKNIGHT, H. RAY (1965), Professor of English
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McLEOD, ALBERT I. (1968), Associate Professor of Sociology
BA, Evangel College; MA, University of Omaha; PhD, University of Nebraska.

McMENAMIN, GERALD R. (1980), Lecturer in Linguistics
BA, Don Bosco College at Newton, New Jersey; BA, University of California at Irvine; MA, California State University at Fresno; PhD, El Colegio of Mexico.

MERCHEN, WAYNE V. (1969), Professor of Urban and Regional Planning; Acting Chairman, Urban and Regional Planning Department
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MERRIFIELD, ALEANOR R. (1969), Professor of Social Work
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MERRILL, ROBERT D. (1970), Professor of Geology; Chairman, Geology Department
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MEYERS, MARILYN L. (1974), Lecturer in Information Systems and Decision Sciences
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MEYER, RONALD W. (1966), Professor of Botany
BS, MA, University of Missouri; PhD, University of California at Berkeley.

MEYERSON, MARION D. (1971), Professor of Communicative Disorders
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MIKELL, ROBERT S. (1972), Professor of Ethnic Studies; Coordinator, Ethnic Studies Program
BS, MBA, Fresno State College; EdD, University of Southern California.

MIKNUK, HARRY J. (1980), Lecturer in Accounting
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MILLER, DAVID N. (1976), Assistant Professor of Physical Education-Recreation
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MILLER, ELWYNN J. (1980), Professor of Accounting
JD, LLM, Boston University; BBA, Northeastern University at Boston; PhD, California Western University at Santa Ana.

MILLER, JAMES B. (1971), Director of Public Affairs
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MILLER, TERRY C. (1969), Associate Professor of Theatre Arts
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MINICK, ROBERT A. (1962), Professor of Economics
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MINSCHEW, WILLIAM E., JR. (Spring 1963), Professor of Art
BS, Atlantic Christian College; MFA, University of North Carolina.

MISHERGHI, AYOUB H. (1980), Lecturer in Engineering
BS, University of Cardiff, England; MS, University of Manchester Institute of Technology, England.

MISTRY, P. J. (1969), Professor of Linguistics
BA, MA, Elphinstone College (Bombay); MA, University of Pennsylvania; PhD, University of California at Los Angeles.

MITCHELL, C. DEAN (1975), Professor of Chemistry
BA, Monmouth College; PhD, University of Illinois.

MITCHELL, COLLEEN A. (1968), Senior Assistant Librarian
BA, College of the Holy Names; MA, Washington University; MLS, University of California at Berkeley.

MITCHELL, T. RUSSELL (1967-Fall 1973; 1980), Coordinator of Relations with Schools
BA, MA, Fresno State College; EEd, University of Southern California.

MIZUNO, WALTER K. (1979), Lecturer in Engineering
BSME, MSME, University of California at Berkeley.

MODRCIN, JUDITH (1977), Lecturer in Physical Education-Recreation
BA, Washburn University; MA, University of North Carolina.

MOERK, ERNST (1967), Professor of Psychology
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MOGHADDAM, JAHANGUIR M. (1979), Lecturer in Management and Marketing
BA, Iranian Institute of Advance Accounting (Tehran, Iran); MBA, Saint Mary's University.

MOLEN, DAYLE H. (1965), Professor of Journalism; Interim Chairman, Journalism Department
BA, University of Idaho; MS, University of Oregon.

MONDS-BURKARD, PATRICIA A. (1977), Lecturer in Nursing
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MONKE, ROBERT H. (1969), Professor of Advanced Studies; Chairman, Advanced Studies Department; Coordinator, Graduate Degrees Program
BS, MS, Illinois State University; PhD, Arizona State University.

MONSON, WILLIAM N. (1968), Associate Professor of Radio-Television
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MONTGOMERY, RICHARD C. (1966), Professor of Geography
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MOORE, HEYWARD, JR. (1965), Professor of Political Science
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MORGAN, DONALD L. (Spring 1972), Professor of Geography
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MORI, NOBUO (1967), Professor of Social Work
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MORTIMER, DELL L. (1968), Professor of Accounting
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MULLER, CARLOS J. (1978), Associate Professor of Enology and Food Science
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NAGY, ELEMER J. (1962), Professor of Foreign Languages
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NATHARIUS, DAVID T. (1966), Professor of Speech Communication
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NISHIO, KAREN H. (1959-Fall 1962; 1963), Professor of Nursing
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NIXON, ARNE J. (1961), Professor of Teacher Education
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NOLAN, MARY E. (1978), Lecturer in Nursing
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NORSWORTHY, STANLEY F. (1966), Professor of Geography; Chairman, Geography Department BA, University of California at Los Angeles; MA, Miami University; PhD, University of California at Los Angeles.

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NURY, FRED S. (1969), Professor of Food Science and Enology
BS, University of California at Berkeley; MS, American University; PhD, Utah State University.

O'BRIEN, JOHN C. (1965), Professor of Industrial Economics
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OGDEN, PAUL W. (1979), Associate Professor of Communicative Disorders
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OLGIN, MANUEL J. (1974), Coordinator of Tutorial Services
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OLNEY, ARTHUR J. (Spring 1969), Professor of Ornamental Horticulture
BS, University of Rhode Island; MS, PhD, Michigan State University.

OLSON, JOHN C. (1981, Lecturer in Engineering
BS, South Dakota State College.

O'NEIL, ROBERT M. (1957), Professor of English
BA, MA, Montana State University; PhD, University of Washington.

ONO, HOWARD K. (1972), Professor of Chemistry
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OPPER, S. MICHAEL (1965), Professor of Art
BS, Southern Connecticut State College; MA, Columbia University; PhD, Institute of Asian Studies.

OROZCO, CECILIO (1975), Professor of Teacher Education; Bilingual/Cross-Cultural Education Coordinator
BS, MA, Northern Arizona University; PhD, University of New Mexico.

OSBORN, JOHN P. (1979), Lecturer in Accounting
BS, MBA, Arizona State University.

OSLAND, ROBERT B. (1977), Associate Professor of Animal Science
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OSTERBERG, RICHARD F. (Spring 1971), Associate Professor of Teacher Education
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OVERSTREET, LEILANI (1970), Associate Professor of Physical Education and Recreation
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BA, MA, San Jose State College.

PAIGE, BECKY (1980), Lecturer in Physical Therapy
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PAINE, PAMELA C. (1980), Lecturer in Home Economics
BA, Concord College, West Virginia; MS, Florida State University.

PALACIO, ROBERT S. (1980), Lecturer in Social Work and La Raza Studies
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PALOMINO, ERNEST (1970), Associate Professor of Art
BA, Fresno State College; MA, San Francisco State College.

PAN, SHEN-DER (1980), Professor of Accounting
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PANICO, VICTOR G. (1970), Professor of Management and Marketing
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PAPE, LAURENCE A. (1951), Professor of Physical Education
BA, MA, Ohio State University; EdD, Columbia University.

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BA, Lewis and Clark College; MA, University of Hawaii; MA, California State University, Fresno; Licensed Marriage Counselor.

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PETESCH, WILLIAM J. (1968), Senior Assistant Librarian
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PETRUCCI, VINCENT E. (1948), Professor of Viticulture
BS, MS, University of California at Davis.

PEYVANDI, ALI (1979), Lecturer in Accounting
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PHERSON, CARL L. (1972), Professor of Agricultural Economics; Chairman, Agricultural Economics Department
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PICKEL, DONNA RAE (1967), Associate Professor of Physical Education
BS, Oklahoma Baptist University; MS, Smith College; PhD, University of Oregon.

PICKERING, JEAN E. (1970), Professor of English
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PIERCE, WALTER J. (1972), Assistant Director, Office of Advising Services
BS, Grambling State University.

PIERSOL, ROBERT J. (1968), Professor of Management and Marketing
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PINCU, LESTER P. (1970), Professor of Criminology
BS, Tufts University; MA, DCrim, University of California at Berkeley.

PIRIE, VIOLA (1980), Lecturer in Social Work
LVN, College of San Mateo; BA, San Francisco State University; MSW, California State University at Fresno.

PISCIOTTOLI, LOUIS F. (1967), Professor of Economics
BA, Boston College; PhD, Duke University.

PITT, JACK A. (1957), Professor of Philosophy
BS, Sir George Williams College (Canada); BA, MA, McGill University (Canada); PhD, Yale University.

PLUNKETT, JOSEPH (1977), Associate Professor of Engineering; Coordinator, Electrical Engineering Program
BS, Middle Tennessee State University; BSEE, University of Tennessee; MSEE, Georgia Institute of Technology, PhD, Texas A & M University; Registered Professional Engineer.

POOLE, PATRICK H. (1966), Counselor
BA, University of Tulsa; MS, Kansas State College. Licensed Marriage Counselor; School Psychologist; PhD, University of Southern California; Licensed Psychologist (South Carolina).

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POSTON, BILLIE L. (1966), Professor of Physical Education
BS, MS, University of Tennessee; PhD, University of Utah.

POWELL, FRANK V. (1955), Professor of Psychology
BA, University of Redlands; MS, PhD, University of Wisconsin; Licensed Psychologist.

POYTHRESS, RANSOM H. (Spring 1962), Associate Professor of Foreign Languages
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POZOVICH, GREGORY J. (1979), Lecturer in Education
BS, University of Illinois; MA, California State University at Fresno; PhD, Southern Illinois University at Carbondl.

PRESTON, ROBERT L. (1980), Professor of Engineering
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PRIEBE, PAUL M. (1976), Assistant Librarian
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PRONIN, ALEXANDER (1965), Professor of Foreign Languages
BA, University of California; PhD, Georgetown University.

PROVOST, DAVID H. (1958), Professor of Political Science; Chairman, Political Science Department
BA, Pomona College; PhD, University of Queensland (Australia).

PUTTGEN, HANS B. (1976), Professor of Engineering
Ingenieur Diplome EPEL, Ecole Polytechnique Federale de Lausanne; Certificate de Gestion Industrielle, Universite de Lausanne; PhD, University of Florida.

QUADRO, DAVID F. (1970), Professor of Speech Communication
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QUINN, JOHN R. (1969), Professor of Criminology
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RN, PGH School of Nursing, University of the Philippines; BSE, University of Sto. Tomas (Philippines); MA, Northwestern University; MS, EdD, Indiana University.

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RANEY, GEORGE W. (1969), Associate Professor of Linguistics
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RAY, D. N. (1959–62; Spring 1969), Professor of Criminology
BA, Yankton College; MA, Washington State University.

READ, WALTER (1969), Professor of Mathematics
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REHART, B. SCHYLER, JR. (Spring 1963), Professor of Journalism
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REICHERT, RAPHAEL X. (1971), Associate Professor of Art
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RENZI, DOROTHY (Spring 1968), Professor of Music
AB, Mills College.

RICE, WILLIAM C. (1970), Associate Professor of Home Economics
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RICHTER, BERTINA (1967), Senior Assistant Librarian
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RIES, JOACHIM S. (1964), Professor of English
BA, Syracuse University; MA, PhD, University of Washington.

RILEY, GARY L. (1980), Lecturer in Social Work
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RITENOUR, GARY L. (1969), Professor of Agronomy
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ROBERTS, HENRY L. (1952), Financial Manager
BA, Occidental College.

ROBERTSON, JANINE (1972), Medical Officer
BA, Hunter College; MD, New York Medical College.

ROBINSON, WILLIAM JAY (1981), Coaching Specialist, Athletics
BA, California State University at Fresno

ROBISON, DELBERT E. (1977), Professor of Engineering
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ROCKWELL, JAMES H. (1957), Professor of Industrial Arts and Technology
BS, Stout Institute; MS, Bradley University.

RODEMEYER, STEPHEN A. (1967), Acting Dean, School of Natural Sciences; Professor of Chemistry
BS, St. Thomas College; PhD, University of California at Berkeley.

ROGERS, RICHARD A. (1978), Associate Professor of Agricultural Industry and Education
BS, Fresno State College; MS, California Polytechnic State University, San Luis Obispo; PhD, Iowa State University.

ROSENTHAL, JUDY A. (1971), Associate Professor of English
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ROSS, DAVID A. (1968), Associate Professor of Foreign Languages; Assistant Dean, Graduate Studies
BA, MA, PhD, University of California at Los Angeles.

ROTH, LESTER J. (1956), Professor of Teacher Education
BS, Kent State University; MA, Western Reserve University; EdD, Stanford University.

ROTSTAN, JOHN A. (1967), Professor of Political Science
BA, MEd, Whittier College; MA, PhD, Claremont Graduate School.

ROUSEK, EDWIN J. (1948), Professor of Animal Sciences; Chairman, Animal Science Department
BS, University of Nebraska; MS, Cornell University.

ROWE, IVAN H. (1969), Professor of Teacher Education; Coordinator, Liberal Studies Program
BA, DipEd, MA, University of Auckland; MA, Fresno State College; EdD, University of Southern California.

ROWLAND, WALTER F. (1967), Professor of Engineering
BS, MS, University of Illinois, PhD, Stanford University, Registered Civil Engineer.

RUHL, ERVING C. (1967), Professor of Social Work
BA, Monmouth College; MA, University of Chicago; DSW, University of Southern California.

RUPCICH, MICHAEL L. (1976), Coach, Athletics
BA, MS, Arizona State University.

RUSSELL, KENNETH H. (1963), Professor of Chemistry
BS, Portland State College; PhD, Washington State University.

RYAN, JAMES T. (1980), Lecturer in Agricultural Economics
BS, University of Kentucky, Lexington; MS, New Mexico State at Las Cruces.

SAAKE, ROBERT D. (1969), Professor of Criminology
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SALEHI, MERRY W. (1972), Professor of Psychology; Director of Reentry Program
BA, University of Iowa; MS, PhD, Iowa State University.

SANTIGIAN, M. MARTY (Spring 1970), Professor of Teacher Education
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SATIN, JOSEPH (1973), Dean, School of Humanities; Professor of English
BS, Temple University; MA, PhD, Columbia University.

SAUER, KEITH (1971), Professor of Foreign Languages
BA, MA, University of California at Berkeley; PhD, University of Washington.

SCHAEFER, GEORGE (1977), Lecturer in Music
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SCHECHTER, PAUL M. (1973), Coach, Athletics
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SCHROEDER, JOAN G. (1970), Professor of Accounting; Director, Business Graduate Program; Chairman, Academic Senate
BS, Marquette University; MBA, PhD, University of Wisconsin; CPA.

SCHROETER, FRANK E. (1949), Professor of Industrial Arts and Techology
BS, MS, Stout Institute.

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BA, MA, Fresno State College.

SCHUBERT, PHYLLIS (1977), Lecturer in Nursing
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SCHWARTZ, MARVYN S. (1958), Chief of Medical Staff
BA, Fresno State College; MD, University of California at Berkeley; Board-Certified Pediatrician.

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BA, MA, New Mexico Highlands University; EdD, Washington State University.

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SHANAB, MITRI E. (1968), Professor of Psychology
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SHANKS, SUSAN J. (1970), Professor of Communicative Disorders
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AS, Monroe Community College; BA, MS, SUNY Brockport; EdD, University of California at Los Angeles.

SHAW, JOHN A., JR. (1965), Professor of Economics
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SHIELDS, JOHN R. (1978), Lecturer in Agricultural Economics
BA, San Francisco State University; MA, Michigan State University.

SHIPLEY, KENNETH G. (1980), Associate Professor of Communicative Disorders
BA, MA, California State University at Los Angeles; PhD, Wichita State University.

SHOCKLEY, JAMES T. (1956), Professor of Physics
BA, MA, Fresno State College; PhD, University of Southern California.

SIEFIEN, HODA G. (1980), Lecturer in Engineering
BS, MS, Cairo University, Egypt; PhD, Auburn University, Alabama.

SILVANI, HAROLD (1975), Lecturer in Education
BA, MA, California State University at Fresno.

SIMIS, PETER (1970–1974; 1977), Professor of Information Systems and Decision Sciences; Director, Bureau of Business Research and Service
BS, MBA, California State University, Fresno; DBA, Arizona State University.

SIMMONS, ANDREW M. (1970), Associate Professor of English
BA, MA, PhD, University of Missouri.

SIMPSON, DOUGLAS B. (1971), Professor of Management and Marketing
BC, University of British Columbia; MBA, University of California at Berkeley; PhD, University of Washington.

SKEI, ALLEN B. (1970), Professor of Music
BA, St. Olaf College; MMus, PhD, University of Michigan.

SLANICEANU, ADRIANA N. (1969), Associate Professor of Foreign Languages
BA, University of Alberta; MA, University of Washington; PhD, University of Michigan.

SLINGER, JAMES W. (1969), Professor of Philosophy
BS, PhD, University of Wisconsin.

SLOAN, FORREST E. (1954), Professor of Teacher Education
BS, Illinois State University; MA, EdD, Northern Colorado University.

SLOAN, F. RUSSELL, (1980), Director of Athletics
BS, MEd, University of Missouri.

SMALL, LILY B. (1972), Associate Professor of Ethnic Studies; Coordinator of Affirmative Action
BA, MA, Fresno State College; EdD, University of the Pacific.

SMALLEY, R. GAYLE (1963), Professor of Art
BFA, Rochester Institute of Technology; MFA, Indiana University.

SMALLWOOD, CHARLES M. (1978), Dean, School of Agriculture and Home Economics; Professor of Animal Science
BS, Oklahoma State University; MS, PhD, Texas A & M University.

SMARDAN, LAURENCE E. (1966), Professor of Home Economics
BA, MS, University of Southern California; PhD, Cornell University.

SMETHERMAN, ROBERT M. (1967), Professor of History
BA, Claremont Men's College; MA, Los Angeles State College; PhD, Claremont Graduate School.

SMITH, CHARLENE K. (1960), Professor of Teacher Education
BA, Western College (Ohio); MS, Butler University; EdD, Colorado State College.

SMITH, CHARLES R. (1980), Professor of Finance and Industry
BS, MS, Kansas State University, Manhattan; PhD, Pennsylvania State University.

SMITH, DORIS O. (1979), Lecturer in Teacher Education
BS, Adelphi University; MA, Pacific Oaks College.

SMITH, EPHRAIM K., JR. (1966), Professor of History
BA, Hillsdale College; MA, University of Nebraska; PhD, Johns Hopkins University.

SMITH, H. DAN, JR. (1978), Assistant Professor of Advanced Studies
BS, MEd, University of Texas at El Paso; EdD, University of Northern Colorado.

SMITH, JAMES MARVIN (1959–1966; 1969), Chairman, Philosophy Department; Professor of Philosophy
BA, University of Southern California; MA, PhD, Brown University.

SMITH, JAMES MITCHELL (1965), Associate Professor of Psychology
BA, PhD, University of California at Los Angeles.

SMITH, LAWRENCE E. (1967), Professor of Industrial Arts and Technology
BS, MS, Stout State University; EdD, University of Southern California.

SMITH, VINCENT J., JR. (1971), Librarian
BA, Sacramento State College; MLS, University of California at Berkeley.

SNIDER, JAMES C. (1976), Professor of Advanced Studies
BS, MS, University of Idaho; PhD, Stanford University.

SNYDER, MELANIE J. (1980), Lecturer in Communication Arts and Sciences
BA, MA, University of California at Los Angeles.

SOBOLIK, GAYLE A. (1969), Professor of Information Systems and Decision Sciences
BA, Concordia College; MA, PhD, University of North Dakota.

SOLLIE, ALICE J. (Spring 1959), Associate Professor of Home Economics
BS, MS, Oregon State University.

SOMMERS, PAUL (1981), Lecturer in Agricultural Industry and Education
BS, California State University at Fresno; MS, University of the Philippines.

SOWBY, SHERMAN (1977), Lecturer in Health Science
BS, MHEd, Brigham Young University.

SPARKS, RICHARD K. (1961), Professor of Advanced Studies; Coordinator, Administrative Services Credential Program
BA, University of Washington; BA, Central Washington College of Education; MA, EdD, University of California at Berkeley.

SPIELER, RICHARD A. (1968), Professor of Biology
BA, PhD, University of Chicago.

SPRENGEL, HELEN (1978), Lecturer in Nursing
BS, Loma Linda University; MPH, University of California at Los Angeles; Public Health Nursing credential.

STANDING, KEITH M. (1958), Professor of Biology
BS, MS, Brigham Young University; PhD, Washington State University.

STELTING, KATHLEEN M. (1973), Associate Professor of Chemistry
BS, Eastern N.M. University; PhD, University of Missouri—Columbia.

STEWART, DARLENE L. (1980), Professor of Physical Therapy Program; Coordinator, Physical Therapy Program
BS, University of Kansas; MS, California State University at Fresno.

STEWART, WILLIAM (1976), Assistant Coach, Athletics
BS, Allen University, Columbia SC.

STITTICH, ELEANOR M. (1964), Professor of Nursing
BSNE, MLitt, University of Pittsburgh; Registered Nurse.

STOCK, EDITH H. (1969), Professor of Foreign Languages
AB, Western Reserve University; MA, University of Arizona; PhD, University of Kansas.

STOCK, WILLIAM P. (1971), Psychometrist
BS, University of California at Berkeley; MEd, University of California at Santa Barbara.

STONE, BERNICE A. (1980), Lecturer in Education
BA, University of California at Berkeley; MA, California State University at Fresno.

STORY, SYDNEY R. (1963), Professor of Anthropology
BA, MA, PhD, University of California at Los Angeles.

STRUMWASSER, GINA (1971) Associate Professor of Art
BA, University of California at Berkeley; MA, California State College at Los Angeles; PhD, University of California at Los Angeles.

STUART, MERRILL M. (1967), Professor of Geography
BA, Carroll College; MA, University of Hawaii; EdD, Teachers College, Columbia University.

STUART, ROBERT G. (1976), Professor of Aerospace Studies; Chairman, Aerospace Studies Department
AB, University of Massachusetts; MPA, Golden Gate University; Lt. Col. USAF.

STUART, WALTER H. (1967), Professor of English
BA, Harvard; MA, PhD, University of Wisconsin.

STUDE, EVERETT W. (1971), Professor of Rehabilitation Counseling; Coordinator, Rehabilitation Counseling Program
BA, Pasadena College; MS, California State College at Los Angeles; EdD, University of Southern California.

STULL, SARAH L. (1959–1966), Librarian II; (1967–1977), Assistant Librarian Education; (1978) Senior Assistant Librarian
BA, MA, University of Illinois.

STUTZMAN, CARL R. (1969), Professor of Teacher Education
AB, MA, EdD, University of the Pacific.

SUN, HUGO S. (1970), Professor of Mathematics
BA, University of California at Berkeley; MA, University of Maryland; PhD, University of New Brunswick.

SUPERSAD, JANKIE N. (1970), Professor of Engineering; Coordinator, Civil Engineering and Surveying and Photogrammetry Program
BSc, Glasgow University (Scotland); MS, Northwestern University; PhD, Arizona State University.

SUTHERLAND, LAWRENCE R. (1969), Professor of Music
BMusEd, University of Tulsa; MA, University of Missouri; DMA, University of Arizona.

SVENSON, KARL A. (1954), Professor of Political Science
BA, University of Wyoming; MA, Indiana University; PhD, State University of Iowa.

SWANSON, JAMES W. (1977), Assistant Professor of Criminology
BS, MS, California State University, Fresno; JD, San Joaquin College of Law.

SWEENEY, JAMES (1976; 12/1979), Head Coach, Athletics
BA, University of Portland.

TABBERT, WYNN C. (1970), Professor of Social Welfare
BA, University of Minnesota; MSW, DSW, University of Southern California.

TANIGUCHI, IZUMI (1963), Professor of Economics; Chairman, Economics Department
BBA, MBA, University of Houston; PhD, University of Texas.

TATARIAN, H. ROGER (1972), Professor of Journalism
BA, Fresno State College; LLD (Honorary), Windham College.

TATE, MICHAEL G. (1970), Professor of English
AB, University of California at Berkeley; MA, PhD, Indiana University.

TELLIER, RICHARD D. (1973), Professor of Management and Marketing; Chairman, Management and Marketing Department
BSEE, Drexel University; MBA, DBA, Florida State University.

TERRY, EDWIN F. (1969), Professor of Economics
BS, University of Oklahoma; MA, University of Kansas; PhD, Iowa State University.

THATCHER, MILDRED W. (1979), Lecturer in Education
BA, University of California at Los Angeles; MS, Pepperdine University.

THOMSON, PATRICIA L. (1967), Professor of Physical Education; Interim Chairman, Physical Education—Recreation
BA, University of Washington; MS, University of California at Los Angeles; PhD, University of Southern California.

THORBURN, MARGARET C. (1971), Associate Professor of Nursing
BS, University of California at San Francisco; MS, Fresno State College; Registered Nurse.

THRASH, JAMES D. (1978), Coach, Athletics
BS, Eastern New Mexico University.

THURGOOD, GRAHAM W. (1979), Lecturer in Linguistics
BA, MA, San Jose State University; PhD, University of California at Berkeley.

TINKER, JOHN N. (1969), Professor of Sociology
BA, Fresno State College; MA, PhD, University of California at Los Angeles.

TITUS, CHARLES B. (1963) Professor of Accounting
BS, MA, University of Oklahoma; PhD, University of Texas.

TOCCHIO, OCTAVIO J. (1959), Professor of Criminology
BA, Suffolk University; MA, PhD, American University.

TOKMAKIAN, HAROLD H. (Spring 1968), Professor of Urban and Regional Planning
BA, MA, Stanford University; MRP, Cornell University.

TONEY, JOE D. (1969), Professor of Chemistry
BS, Agricultural, Mechanical and Normal College; MS, PhD, University of Illinois.

TOWLE, JERRY C. (1971), Associate Professor of Geography
BA, Valparaiso University; MA, Southern Illinois University; PhD, University of Oregon.

TOWNSEND, JOSEPH L. (1970), Professor of Rehabilitation Counseling
BM, MEd, Colorado State University; EdD, University of Northern Colorado.

TRIBBEY, BERT A. (1965), Professor of Biology
BA, University of California at Santa Barbara; PhD, University of Texas.

TROSTLE, LOIS M. (1970), Associate Professor of Theatre Arts
BS, Manchester College; MA, University of California at Los Angeles.

TUCKER, JAMES B. (1968), Associate Professor of Journalism
BA, MA, University of Iowa.

TURNER, LOUISE P. (1970), Professor of Home Economics
BS, MA, PhD, Texas Woman's University.

TURNQUIST, E. JOAN (1971), Professor of Physical Therapy
BS, University of Minnesota; MA, RPT, Stanford University; MPH, University of California at Berkeley.

TWISSELMAN, SHEREE L. (1980), Lecturer in Communication Arts and Sciences
BA, California Polytechnic State University at San Luis Obispo; MA, California State University at Fresno.

ULLMANN, W. RICHARD (1968), Professor of Speech Communication
BA, Fresno State College; MA, Colorado State University; PhD, University of Southern California.

UYOE, IMEH W. (1978), Lecturer in Ethnic Studies
BS, Kearney State College (Nigeria); MCRP, California State University, Fresno; MA, PhD, Claremont Graduate School.

VALETT, ROBERT E. (Spring 1970), Professor of Advanced Studies
BS, George Williams College; MA, University of Chicago; EdD, University of California at Los Angeles; Licensed Psychologist; Diplomate, American Board of Professional Psychology.

van der ELST, DIRK H. (1969), Professor of Anthropology
BA, MA, University of Utah; MA, PhD, Northwestern University.

VANDER MEER, PAUL (1971), Professor of Geography
BA, Hope College; MA, PhD, University of Michigan.

VANDRICK, JOHN (1978), Medical Officer
BA, University of British Columbia (Canada); MD, McGill University, Montreal; Board-Certified Psychiatrist.

VAN ELSWYK, MARINUS, JR. (1957), Assistant Dean, School of Agriculture and Home Economics; Professor of Agronomy
BS, Fresno State College; MEd, University of California at Davis; PhD, University of Arizona.

VAN GALDER, ROBERT B. (Spring 1963), Professor of Physical Education; Assistant Athletic Director (NCAA Programs)
BA, MA, Fresno State College; EdD, University of Northern Colorado.

VARLEY, BARBARA K. (1965), Professor of Social Work
BS, MSW, University of Utah; DSW, Western Reserve University.

VARNER, DUDLEY M. (1974), Associate Professor of Anthropology
BA, MA, University of Texas; PhD, University of Arizona.

VATHAYANON, BOVORNASAK (1978), Lecturer in Engineering
BS, University of Texas, Austin; MS, PhD, University of Illinois, Urbana.

VAVOULIS, ALEXANDER (1963), Professor of Chemistry
BA, MA, Brooklyn College; EdD, University of the Pacific.

VEMURI, SESHAGIRI RAO (1980), Associate Professor of Information Systems and Decision Sciences
Be, Andhra University (India); MSIE, Purdue University; PhD, University of Virginia.

VIDOLI, VIVIAN A. (1970), Dean, School of Graduate Studies; Professor of Biology
BS, Southern Connecticut State College; MS, PhD, Arizona State University.

VISWESWARAN, GANESHA (1969), Professor of Social Work
BS, University of Madras (India); DSSA, Madras School of Social Work; MSW, University of Illinois.

VOLPP, LOUIS D. (1976), Professor of Management and Marketing
BS, Iowa State University; MA, PhD, State University of Iowa.

WADSWORTH, STEVEN D. (1968), Professor of Communicative Disorders; Chairman, Communicative Disorders Department
BS, MS, Utah State University; EdD, Brigham Young University.

WAGONER, RONALD L. (1969), Professor of Mathematics
BA, MA, Fresno State College; PhD, University of Oregon.

WALKER, PHILLIP N. (1950), Professor of Theatre Arts
BA, MA, University of Washington; PhD, University of Southern California.

WAMPLER, MARVIN B. (1969), Professor of Advanced Studies
BA, College of Idaho; MA, EdD, Stanford University.

WARE, ROBERT G. (1978), Associate Professor of Theatre Arts
AB, Amherst College; MA, University of Nevada at Reno; PhD, Stanford University.

WASHBURNE, CHANDLER (1968), Professor of Sociology
BA, MA, PhD, Michigan State University.

WASSER, GAIL M. (1979), Lecturer in Women's Studies; Coordinator, Women's Studies Program
BA, MA, California State University at Fresno.

WATNEY, LON M. (1980), Coach, Athletics
BS, California State University at Fresno.

WAYNE, WILLIAM C. (1954), Professor of Business
BS, MA, Ball State Teachers College; MS, Indiana University; EdD, University of Southern California.

WEBER, RALPH W. (1980), Lecturer in Physical Education-Recreation
BS, MA, California State University at Fresno.

WEILER, JOHN H., JR. (1962), Professor of Plant Science
BS, University of Nebraska; PhD, University of California at Berkeley.

WEINSTOCK, IRWIN (1971), Professor of Management and Marketing
BA, University of Washington; MBA, PhD, Louisiana State University.

WEITZMAN, RAYMOND S. (1968), Professor of Linguistics; Chairman, Linguistics Department
BA, University of California at Los Angeles; MA, PhD, University of Southern California.

WETMORE, CHARLES H. (1970), Professor of Management and Marketing
BA, Pomona College; MSBA, DBA, Arizona State University.

WHALEY, JULIAN W. (1970), Professor of Plant Science
BS, West Liberty State College; MS, West Virginia University; PhD, University of Arizona.

WHEELER, CHARLES L., JR. (1959), Counselor
BA, Pasadena College; BD, Nazarene Theological Seminary; MA, Fresno State College; EdD, University of Southern California; Licensed Marriage Counselor.

WHITE, ANITA R. (1980), Lecturer in Information Systems and Decision Sciences
AB, Harvard University; MBA Stanford Graduate School of Business.

WHITEHEAD, JAMES W. (1970-1971; 1972), Professor of Social Work
BA, Morehouse College; MA, MSW, Atlanta University.

WHITFIELD, A. EARL (1961), Director of Student Activities, College Union Director
BA, Fresno State College.

WIDGER, JULIA R. (1979), Lecturer in Nursing
BSN, California State University at Fresno; MSN, University of California at San Francisco.

WILCOX, R. JACK (1968), Professor of Physical Education
BA, MA, Fresno State College; PhD, University of Utah.

WIGHT, DEL R. (1979), Coach, Athletics
BS, Med University of Wyoming.

WILEY, LORRAINE (1972), Associate Professor of Biology
BA, Sacramento State College; MS, PhD, University of California at Davis.

WILKIN, BRUCE M. (1967), Professor of Advanced Studies
BA, University of Redlands; MA, University of California; EdD, Colorado State College.

WILLIAMS, WESLEY M. (1961), Professor of Home Economics
BA, MA, University of California; EdD, Stanford University.

WILLIAMSON, HUGH A. (1967), Professor of Physics
BA, North Texas State College; PhD, University of Texas.

WILLIS, T. HILLMAN (1975), Professor of Information Systems and Decision Sciences
BS, Louisiana State University; MBA, Memphis State University; PhD, Louisiana State University.

WINEGAR, GARY H. (1969), Professor of Industrial Arts and Technology
BS, Brigham Young University; MEd, DEd, Texas A & M University.

WINTER, JAMES H. (1947), Professor of Music
BA, Carleton College; MMus, Northwestern University; PhD, State University of Iowa.

WOHL, MILTON (1967), Professor of Linguistics
BBA, City College of the University of New York; MA, PhD, University of Michigan.

WOO, NORMAN T. (1968), Professor of Mathematics
BA, Wabash College; MS, Southern Methodist University; PhD, Washington State University.

WOODCOCK, CATHERINE (1968), Professor of Social Work; Coordinator, Social Welfare Program
BA, University of Manchester; Mental Health Certificate, University of London.

WOODWICK, KEITH H. (1955), Professor of Biology
BS, Jamestown College; MS, University of Washington; PhD, University of Southern California.

WRIGHT, FREEMAN J. (1969), Professor of Political Science
BS, MS, Montana State University; PhD, Johns Hopkins University.

YBARRA-SORIANO, LEA (1972), Associate Professor of La Raza Studies
BA, MA, PhD, University of California at Berkeley.

YEARY, PATRICIA C. (1980), Lecturer in Home Economics
BS, University of California at Los Angeles; MS, California State University at Fresno.

YEUNG, CHI-DAK NGAI (1976), Lecturer in Mathematics
BA, MA, University of Oregon; PhD, Kansas State University.

YEUNG, HENDERSON C. (1971), Professor of Mathematics
BS, University of Illinois; PhD, Kansas State University.

YORK, WILLIAM L. (1968), Professor of Sociology
BS, East Texas Baptist College; MA, Stephen F. Austin State College; EdD, University of Pacific.

YOUSEF, LENORE (1980), Lecturer in Biology
BA, Mount Holyoke College; PhD, University of California at Berkeley.

YOUSEF, MOHAMAD (1978), Associate Professor of Engineering
BSCE, Ain Shams University (Egypt); MSCE, PhD, University of California at Berkeley.

ZANE, BURKE (1962), Professor of Mathematics
BA, Fresno State College; MA, PhD, University of Oregon.

ZELDIS, JACK B. (1969), Professor of Linguistics
BA, PhD, University of Pennsylvania.

ZELLMER, DAVID L. (1969), Professor of Chemistry
BS, University of Michigan; MS, PhD, University of Illinois.

ZENDER, MICHAEL J. (1966), Professor of Physics
BA, St. John's University; PhD, Vanderbilt University.

ZIEGLER, STANLEY M. (1968), Chairman, Chemistry Department; Professor of Chemistry
BA, University of California at Riverside; PhD, University of California at Los Angeles.

ZITTERKOPF, MARILYN R. (1969), Senior Assistant Librarian
BA, Eastern Washington State College; MLS, University of Hawaii.

ZUIEBACK, STEVEN L. (1978), Lecturer in Health Science
BS, MS, California State University, Northridge.

ZUMWALT, EUGENE E. (1959), Professor of English
BA, MA, University of Oregon; PhD, University of California at Berkeley.

ADJUNCT AND VISITING PROFESSORS 1980–81

ADAMS, HUGH N. (1980), Visiting Coach, Track and Cross Country, Physical Education and Recreation
AB, MA, California State University at Fresno.

ADKINS, HAZEL V. (1979), Adjunct Assistant Professor of Physical Therapy
BA, Stanford University; MA, University of Southern California at Los Angeles.

AMOS, J. THOMAS (1980), Adjunct Professor of Information Systems and Decision Sciences
BS, MBA, University of Santa Clara.

ANDREWS, DANA L. (1980), Adjunct Professor of Physical Therapy
BS, California State University at Long Beach.

ANTON, RONALD JOSEPH (1980), Visiting Coach, Football, of Athletics
BA, California State University at Fresno; MA, University of Redlands.

ARIETA, JOAN M. (1977), Adjunct Assistant Professor of Physical Therapy
BA, University of California at Berkeley; MPT, U.S. Army-Baylor.

BANDY, JAMES A. (1978), Adjunct Assistant Professor of Physical Therapy
BS, Iowa State University; MA, University of Iowa.

BARRON, MILTON L. (1980), Adjunct Professor of Sociology
BA, MA, PhD, Yale University.

BLOCK, BEATRICE (1980), Adjunct Assistant Professor of Physical Therapy
BS, University of Colorado.

BLOHM, DONNA (1980), Adjunct Professor of Nursing
BSN, California State University at Fresno.

BONHAM, MARLENE L. (1980), Adjunct Assistant Professor of Physical Therapy
BS, Temple University at Philadelphia.

BORETA, MARTHA K. (1979), Adjunct Assistant Professor of Physical Therapy.

BROOKS, CHARLES (1980), Visiting Coach, Swimming, of Athletics
BS, Dartmouth College; MEd, William and Mary.

BRESHER, FRANCES A. (1980), Adjunct Assistant Professor of Physical Therapy
BS, MS, Indiana University.

BRUMM, PAUL D. (1980), Visiting Coach, Aquatics, of Athletics

BUTLER, DENA C. (1980), Adjunct Assistant Professor of Physical Therapy
BS, University of California at San Francisco Medical Center.

BREWSTER, CLIVE (1980), Adjunct Assistant Professor of Physical Therapy
BS, MS, University of Nevada at Reno.

CANADAS, JEAN M. (1980), Adjunct Assistant Professor of Physical Therapy
BS, California State University at Fresno.

CANALES, JOSE (1980), Adjunct Professor of History
BA, Manhattan College; MA, PhD, University of California at Berkeley.

CAPALARE, KRISTEN (1980), Adjunct Assistant Professor
BS, University of Washington.

CARLIN, RANDI M. (1980), Adjunct Assistant Professor of Physical Therapy
BS, California State University at Fresno.

CARNEY, DARLENE (1980), Adjunct Assistant Professor of Physical Therapy
BS, Loma Linda University.

COUSENS, GEORGE E. (1976), Adjunct Assistant Professor of Physical Therapy
AB, University of California at Berkeley.

DOWLER, LLOYD (1979), Adjunct Professor Agricultural Industry and Education
BS, MS, University of Wyoming.

ECKERT, PRUDENCE L. (1980), Adjunct Assistant Professor of Physical Therapy
BS, University Southern California at Los Angeles.

ENSMINGER, M. E. (1980), Adjunct Professor of Animal Science
BS, MS, University of Missouri at Columbia; PhD, University of Minnesota at St. Paul.

FISHER, LAWRENCE (1980), Adjunct Professor of Psychology
BS, Pennsylvania State University; MA, Temple University; PhD, University of Cincinnati.

FORAN, PAULA J. (1979), Visiting Coach, Volleyball, of Athletics
BA, California State University at Fresno.

FRITZEMEIER, RICK JOE (1980), Visiting Coach, Track and Cross Country, of Athletics
BA, California State University at Fresno.

FRYE, PAUL F. (1979), Adjunct Faculty-Team Physician of Athletics
BS, San Francisco State University; MD, Medical College of Wisconsin.

GEORGE, ROGER DALE (1980), Visiting Coach, Track, of Athletics
BS, California State University at Fresno.

GIFFEN, TERRENCE MARTIN (1980), Visiting Coach, Swimming and Water Polo, of Athletics
BA, California State University at Fresno.

GONZALES, VICTOR (1978), Volunteer Coach, Wrestling, of Athletics
BA, California State University at Fresno.

GRUSS, SARAH E. (1980), Adjunct Assistant Professor of Physical Therapy
BA, Gustavus Adolphus College at Minnesota.

HADDEN, DAVID M. (1981), Adjunct Professor of Anthropology and Criminology
BA, Stanford University; MD, University of Maryland.

ILG, GEORGE F. (1978), Adjunct Professor of Agricultural Industry and Education
BS, University of California at Davis; MS, Ohio State University.

KINDELL, WILLIAM A. (1977), Adjunct Professor of Nursing

LARSEN, LELAND M. (1980), Adjunct Professor of Animal Science
BS, Fresno State University; MS, PhD, Oregon State University at Corvallis.

LEWIS, DENNIS C. (1980), Adjunct Professor of Psychology
AB, MA, PhD, University of Notre Dame.

LINDSAY, JUDILYNN FOSTER (1980), Adjunct Professor of Home Economics
AB, MS, PhD, University of Southern California.

MADDEN, HENRY M. (1979), Adjunct Professor of Bibliography in the University Library
BA, Stanford University; BLS, University of California at Berkeley; MA, PhD, Columbia University.

MANN, LEWIS T. (1978), Adjunct Associate Professor of Chemistry
SB, Massachusetts Institute of Technology; MA, PhD, Columbia University.

MAURY, ELIZABETH H. (1980), Adjunct Professor of Psychology
AB, Radcliffe College; MS, PhD, Yale University.

MILLER, MICHAEL (1980), Adjunct Assistant Professor of Physical Therapy
BS, Loma Linda University.

MORAN, JAMES P. (1980), Adjunct Assistant Professor of Physical Therapy
BS, California State University at Fresno.

OLSON, WILLIAM J. K. (1980), Adjunct Assistant Professor of Physical Therapy
BS, Long Beach State.

PHENE, CLAUDE J. (1980), Adjunct Professor of Plant Science
BA, PhD, University of California at Riverside.

RAUSCH, JOE ROBERT (1980), Visiting Coach, Football, of Athletics
BA, California State University at Fresno.

ROBINSON, WILLIAM J. (1980), Visiting Coach, Football, of Athletics
BA, California State University at Fresno.

SANCHEZ, MANUEL (1979), Adjunct Professor of Teacher Education
BA, California State University at Fresno.

SCHROEDL, ALAN R. (1978), Adjunct Professor of Anthropology
BA, Macalester College at St. Paul; MA, PhD, University of Utah at Salt Lake City.

SELKIRK, ROBERT J. (1980), Adjunct Professor of Animal Science
BS, MEd, University of California at Davis.

SHERWIN, JOHN E. (1980), Associate Adjunct Professor of Chemistry
BS, University of Arizona; PhD, University of California at Santa Barbara.

SMITH, DON E. (1980), Adjunct Assistant Professor of Physical Therapy
BS, Loma Linda University.

SMITH, MARY LOU (1977), Adjunct Assistant Professor of Physical Therapy
BA, Williamette University.

STANNARD, RICHARD D. (1978), Volunteer Coach, Football
BA, California State University at Fresno.

STODDARD, ROBERT G. (1977), Adjunct Assistant Professor of Physical Therapy
BS, Loma Linda University.

STOLLER, B. B. (1980), Adjunct Professor of Agricultural Industry and Education
PhD, University of Wisconsin at Madison.

SWANSON, CHARLES E. (1980), Adjunct Professor of Management and Marketing Department
BA, San Diego State College; MA, PhD, State University of Iowa.

SYMONS, ROBERT M. (1980), Adjunct Assistant Professor of Physical Therapy
BA, California State University at Chico.

THAXTER, THOMAS H. (1977), Adjunct Faculty-Team Physician of Athletics
MD, University of California at Los Angeles School of Medicine.

TRAYNOR, PAT (1980), Adjunct Assistant Professor of Physical Therapy
BS, University of Tulsa at Oklahoma.

TYNER, TONI (1980), Adjunct Assistant Professor of Physical Therapy
BS, California State University at Fresno.

ADJUNCT AND VISITING PROFESSORS 1980–1981

VICE, KAREN LYNN (1980), Visiting Coach, Volleyball, Athletics
BS, California State University at Fresno.

YARRIS, ROBERT P. (1980), Adjunct Assistant Professor of Physical Therapy
BSI, State University of New York at Cortland.

YODER, CAROL KRUSE (1980), Visiting Coach, Basketball, of Athletics
BS, Ball State University.

YODER, GARY LYNN (1980), Visiting Coach, Basketball, of Athletics
BS, University of Cincinnati.

PART-TIME FACULTY 1980–81

ADDISON, THOMAS E., Lecturer in Social Work
AGUILAR, ELEANOR J., Lecturer in La Raza Studies Program
ALBRIGHT, W. DONALD, Lecturer in Sociology
ALDREDGE, JAMES, Lecturer in Social Work
ALFORD, DARLYS, Lecturer in Women's Studies Program
ALVARADO, MARIA, Lecturer in Women's Studies
AMACHER, MARY L., Lecturer in Social Work
ANDERSON, WILLIAM K., Lecturer in Engineering
ANTON, RONALD JOSEPH, Coaching Assistant in Athletics
APARICIO, IRENE A., Lecturer in La Raza Studies
ARMBRUSTER, SHIRLEY JEAN, Lecturer in Journalism
ARNOLD, JAMES, Lecturer in Engineering
ARROYO, HOPE, Lecturer in La Raza Studies
ASHLEY, JONATHAN J., Lecturer in Mathematics
AVAKIAN, ARRA, Lecturer in Ethnic Studies Program
BADERSTSCHER, LYNN, Lecturer in Communication Arts and Sciences
BARR, DONALD E., Lecturer in Animal Science
BEAVERS, PENNY L., Lecturer in Music
BECKER, STEPHEN A., Lecturer in Industrial Arts and Technology
BELANGER, MICHELE, Lecturer in Women's Studies
BENNETT, BRIAN R., Lecturer in Music
BENNETT, SUSAN F., Lecturer in Social Work
BENNINK, LYNN, Lecturer in Nursing
BERGMAN, AVA, Lecturer in Ethnic Studies Program
BIGGE, MORRIS L., Lecturer in Teacher Education
BIGLOW, MICHAEL J., Lecturer in Finance and Industry
BLAKE, BARRY K., Lecturer in Accounting
BLAKELEY, DONALD N., Lecturer in Philosophy
BLOHM, DONNA, Lecturer in Nursing
BLOOM, MELANIE M., Lecturer in Communication Arts and Sciences
BOLEN, HAL H., II, Lecturer in Finance and Industry
BONGIOVANI, SHELLEY, Lecturer in Women's Studies
BOOTH, WILLIAM P., Lecturer in Advanced Studies
BORDONA, MARI, Lecturer in English
BOREN, JERRY K., Lecturer in Engineering
BORREGO, RODOLFO, Lecturer in Social Work
BORTON, SUSAN, Lecturer in Accounting
BOYAJIAN, DAVID A., Lecturer in Chemistry
BROUGH, CHARLES N., Lecturer in Economics
BRUNBERG, VICKI WALKER, Lecturer in Home Economics
BURKE, CATHERINE, Lecturer in English
BURNETT, LYNN BARKLEY, Lecturer in Health Science
CLASON, MONTGOMERY LYNN, Lecturer in Music
CALITRI, ROBIN, Lecturer in English
CALMES, ROBERT L., Lecturer in Communicative Disorders
CAMPBELL, BLANCHE A., Lecturer in Animal Science
CARTER-DWOSKIN, SHARON, Lecturer in Nursing
CASE, KATHLEEN, Lecturer in Information Systems and Decision Sciences; Lecturer in Management and Marketing
CHAFFE, JOE, Lecturer in Accounting
CHENEY, JAMES, Lecturer in Agricultural Industry and Education
CHOLAKIAN, CATHY, Lecturer in Communicative Disorders

PART-TIME FACULTY 1980–81

CLANCY, KATHLEEN P., Lecturer in Rehabilitation Counseling
COLETTI, RENO, Lecturer in Communicative Disorders
COOK, GARY, Lecturer in Information Systems and Decision Sciences
COOPER, MINA, Lecturer in Teacher Education
CORMIER, LARRY J. Lecturer in Ethnic Studies Program
CRAMER, KENNETH R., Lecturer in Music
CRAYCROFT, JESSICA A., Lecturer in Communicative Disorders
CRENSHAW, JOHN, Lecturer in Teacher Education
D'ARCY-CLARKE, EDMUND T., Lecturer in Management and Marketing
DANIEL, LINZIE L., Lecturer in Crimonology
DAVIS, PHILLIP M., Lecturer in Physical Education-Recreation
DAY, CHARLES E., Lecturer in Education
DEAN, MARY, Lecturer in Women's Studies
DEAVER, RON, Coaching Specialist in Physical Education-Recreation
DeSOTO, RAUL, Lecturer in Agricultural Industry and Education
DIVELBISS, BRUCE A., Lecturer in Finance and Industry
DONLON, JAMES A., Lecturer in Communication Arts and Sciences
DOROUGH, J. DONALD, Lecturer in Education
DOW, GREGORY, Lecturer in Physical Education
DURANDO, DIANE, Lecturer in Nursing
ECKOLS, STEVEN L., Lecturer in Foreign Language
EHA, MARGARET B., Lecturer in Communicative Disorders
EMERZIAN, JANICE M., Lecturer in Education
ESQUIVEL, ABEL, Lecturer in Social Work
FEHER, MICHAEL, Lecturer in English
FELDMAN, SANDRA, Lecturer in Advanced Studies
FERGUSON, LARRY N., Lecturer in Psychology
FISCHER, DARRELL, Lecturer in Accounting
FLORES, SALLY O., Lecturer in Plant Science
FOBBS, PAMELA F., Lecturer in Criminology
FORAN, PAULA JEAN, Lecturer in Physical Education
FRANCIS, CHARLES, Lecturer in Ethnic Studies
FRANICH, JULIE, Lecturer in Nursing
FUGELSANG, KENNETH C., Lecturer in Agricultural Industry and Education
FUNK, DENNIS, Lecturer in Teacher Education
FURMAN, DUANE, Lecturer in Education
GAAB, CAROL ANN, Lecturer in Eduation
GARRETT, JAMES R., Lecturer in Economics
GARZA, IRMA, Lecturer in La Raza Studies
GERSTER, ROBERT G., Lecturer in Music
GLASSMAN, ROBERT B., Lecturer in Accounting
GLAVIS, EDWARD S., JR., Lecturer in Finance and Industry
GOEDDEL, FRANK W., Lecturer in Mathematics
GONZALEZ, ALFONSO, Lecturer in Accounting
GOODNER, ROBERT, Lecturer in Engineering
GOODYEAR, DON LYLE, Lecturer in Rehabilitation Counseling; Lecturer in Advanced Studies
GORMAN, KEVIN J., Lecturer in Information Systems and Decision Sciences
GRUEN, BETTY T., Lecturer in Women's Studies
GURLAND, GERMAYNE, Lecturer in Recreation Administration
GUSTAFSON, DAVID, Lecturer in Criminology
HADDEN, DAVID N., Lecturer in Anthropology
HAMAGUCHI, JOELLYN, Lecturer in Nursing
HAMILTON, TERRI A., Lecturer in Health Science
HANSEN, RICHARD TRENT, Lecturer in English

HARDEN, SUSAN E., Lecturer in Teacher Education
HARVEY, RICHARD C., Lecturer in Industrial Arts and Technology
HASLAM, PHYLLIS J., Lecturer in Information Systems and Decision Sciences
HAUGHEY, CYNTHIA, Lecturer in Nursing
HEINLEN, DOLORES G., Lecturer in Education
HERWATT, FRANK J., Lecturer in Agricultural Industry and Education
HESTER, MICHELE A., Lecturer in English
HIATT, CHARLOTTE J., Lecturer in Teacher Education
HIGGINS, FRANCIS V., Lecturer in Engineering
HOAGLAND, DOUGLAS A., Lecturer in Journalism
HOSHINO, LINDA, Lecturer in Sociology
HYLTON, SARA P., Lecturer in English
JACKSON, CAROLYN B., Lecturer in Teacher Education
JAMES, GREGORY E., Lecturer in Finance and Industry
JANJIGIAN, CHARLES A., Lecturer in Management and Marketing
JEFFUS, MACKIE J., Lecturer in Advanced Studies
JENSEN, CAROL A., Coaching Specialist in Physical Education-Recreation
JENSEN, URBAN, Lecturer in Advanced Studies
JESPERSEN, ALAN H., Lecturer in Management and Marketing
JOHNSON, ASTRID LINNEA, Lecturer in Health Science
JOHNSON, EDITH C., Lecturer in Physical Education
JONES, THOMAS E., Lecturer in Management and Marketing
KAWANO, DAVID M., Lecturer in Chemistry
KEHMEIER, LOUISE, Lecturer in Physical Therapy
KELLEY, BEN J., Lecturer in Social Work
KERR, NANCY, Lecturer in Social Work
KHUSHIGIAN, JACOB M., Lecturer in Engineering
KIM, HAE-SHIK, Lecturer in Communication Arts and Sciences
KIMBLE, PHILLIP, Lecturer in Psychology
KIMBLE, SYDNEY N., Lecturer in Chemistry
KIMMONS, GERALD L., Lecturer in Industrial Arts and Technology
KLASSON, ABRAM JOHN, Lecturer in Philosophy
KLEMM, JANICE L., Lecturer in Home Economics
KOCH, JAMES H., Lecturer in Agricultural Economics
KOLIGIAN, ALICE L., Lecturer in Chemistry
KRANCHER, JAN ADOLF, Lecturer in Health Science
KRUM, LEROY H., Lecturer in Animal Science
KRUSE-YODER, CAROL, Lecturer in Physical Education
LACY, LEEDS R., JR., Lecturer in Education
LaMONT, DONALD O., Lecturer in Communication Arts and Sciences
LAMPE, DAVID P., Lecturer in Accounting
LANDES, JAMES EARLE, JR., Lecturer in Linguistics
LANGLEY, GEORGE, Lecturer in Nursing
LARAWAY, LEAH MARIE, Lecturer in English
LASTER, DONALD E., Coaching Assistant in Physical Education-Recreation
LAWSON, JACK O., Lecturer in Linguistics
LEMPEL, JACOB STEVEN, Lecturer in Urban and Regional Planning
LEONG, JAMES G., Lecturer in Industrial Arts and Technology
LEUE, DAVID E., Lecturer in Industrial Arts and Technology
LEWIS, SUZANNE SLOAN, Lecturer in Art
LINDBERG, GORDON E., Lecturer in Teacher Education
LIST, EDGAR A., Lecturer in Foreign Languages
LIU, LILY, Lecturer in Information Systems and Decision Sciences
LONG, ROBERT, Lecturer in Journalism

LONGSHORE, DEBORAH, Lecturer in Psychology
LOPEZ, GUILLERMO, Lecturer in La Raza Studies
LORENZEN, DAVID, Lecturer in Engineering
LUCINIAN, NANCY, Lecturer in Women's Studies
LUKAS, GUS, Lecturer in Animal Science
LUMLEY, GAYLEN G., Lecturer in Journalism
LYDDON, BILL, Lecturer in Psychology
MADER, KENNETH, Lecturer in Accounting
MANJIKAN, YEGHISHI, Lecturer in Ethnic Studies
MARGARETIC, STEVEN J., Lecturer in Engineering
MARINO, MARY A., Lecturer in Home Economics
MARTIN, LAWRENCE, Lecturer in Ethnic Studies
MASSIE, SHERRIN L., Lecturer in Communicative Disorders
MATLOSZ, DONALD L., Lecturer in Criminology
MAYERS, AL P., Lecturer in Teacher Eduction
McALISTER, BRUCE, Lecturer in Social Work
McGRAW, VINCENT J., Lecturer in Ethnic Studies
McGUIRE, MICHAEL, Lecturer in English
McKEE, BRUCE, Lecturer in Social Work
McKINNEY, HAROLD W., Lecturer in Criminology
McLAIN, EDWARD B., Lecturer in Advanced Studies
McMAHON, WILLIAM M., Lecturer in Industrial Arts and Technology
McMENIMON, JOHN, Lecturer in Information Systems and Decision Sciences
McQUONE, RICHARD L., Lecturer in Industrial Arts and Technology
MELE, GERALD A., Lecturer in Engineering
MILHORN, RICHARD L., Lecturer in Urban and Regional Planning
MINAMI, DWIGHT D., Lecturer in Agricultural Economics
MISTRY, KAREN, Lecturer in Linguistics
MIZUNO, WALTER, Lecturer in Engineering
MOLANDER, ROBERT P., Lecturer in Journalism
MONTGOMERY, SCOTT L., Lecturer in Music
MOORE, GLORIA S., Lecturer in Home Economics
MOORE, HARRY DALE, Lecturer in Engineering
MORGAN, GARY B., Lecturer in Information Systems and Decision Sciences
MORGENSTERN, KATHLEEN G., Lecturer in Communication Arts and Sciences
MOSIER, FRANK M., Lecturer in English
MOTT, T. THOMAS, Lecturer in Accounting
MURPHY, CHARLES H., Lecturer in Rehabilitation Counseling
NEGRO, SERGIO PIERO, Lecturer in Philosophy
NEUFELD, JERRY D., Lecturer in Chemistry
NEUFELD, KATHRYN H., Lecturer in Health Sciences
NEWCOMB, JOAN, Lecturer in Women's Studies
NEWELL, ELIZABETH, Lecturer in Psychology
NISHIMOTO, HENRY K., Lecturer in Economics
NOLI, PAMALA M., Lecturer in Education
NUNES, MARVIN, Lecturer in Agricultural Industry and Education
NUNEZ, TOMAS, Lecturer in Social Work; Lecturer in Crimonology
NYE, SUSAN J., Lecturer in Social Work
O'CONNOR, TERENCE M., Lecturer in Management and Marketing
OLSON, JOHN C., Lecturer in Engineering
OLSON, MAXINE, Lecturer in Art
ORTIZ, VICENTE Z., Lecturer in La Raza Studies
OSBORN, DENNIS, Lecturer in Chemistry
PAIGE, BECKY, Lecturer in Physical Therapy

PALMER, HENRY S., Lecturer in Management and Marketing
PARRISH, JOHN, Lecturer in Education
PESCH, LARRY T., Lecturer in Information Systems and Decision Sciences
PETERS, JERRIE, Lecturer in Art
PETERS, LORRAINE K., Lecturer in Women's Studies
PONTECORVO, ANTHONY, Lecturer in Psychology
POOLE, JOHN, Lecturer in Accounting
POPP, JOHN D., Lecturer in Economics
PRANDINI, JOHN A., Lecturer in Physical Therapy
PRANZO, MARY L., Lecturer in Economics
PRICE, J. STEPHEN, Lecturer in Advanced Studies
PUTNAM, MARLENE, Lecturer in Information Systems and Decision Sciences
REED, DIANE M., Lecturer in Mathematics
REYNOLDS, ROBERT B., Lecturer in Communicative Disorders
RICHARDS, HERBERT D., Lecturer in Engineering
RIECHERS, PETER H., Lecturer in Engineering
RISCO, ELIEZER, Lecturer in La Raza Studies
ROBERTS, STEPHEN D., Lecturer in Communicative Disorders
ROBINETTE, GAIL, Lecturer in Teacher Education
ROBINSON, JONATHAN P., Lecturer in Physics
ROQUE, TONY, Lecturer in La Raza Studies
ROSS, JAMES HERSHEL, Lecturer in Engineering
ROWE, DIANE, Lecturer in Nursing
ROWE, WILLIAM, Lecturer in Finance and Industry
RUSSIER, MICHAEL, Lecturer in Nursing
RYS, STAN, Lecturer in Urban and Regional Planning
SADDLER, SUSAN, Lecturer in Foreign Language
SAGASER, HOWARD A., Lecturer in Agricultural Economics
SALZMAN, GERALD R., Lecturer in Information Systems and Decision Sciences
SAMPSON, GARY, Lecturer in Accounting
SATTERBERG, JAMES C., Lecturer in Teacher Education
SCHAAF, VONNIE B., Lecturer in Physical Education
SCHRAGER, STEVEN P., Lecturer in Communication Arts and Sciences
SCOTT, MERRY D., Lecturer in Home Economics
SCOTT, THAD, Lecturer in Accounting
SERABIAN, ARTHUR J., Lecturer in Advanced Studies
SHAPIRO, MYRON, Lecturer in Criminology
SHEPARD, ROBERTA, Lecturer in Nursing
SHERWOOD, MARY GAY, Lecturer in English; Lecturer in Information Systems and Decision Sciences
SHIELDS, ELIZABETH, Lecturer in Finance and Industry
SHULTZ, STEVE, Lecturer in Information Systems and Decision Sciences
SIMONIAN, PETER, Lecturer in Agricultural Industry and Education
SIMPSON, ELIZABETH P., Lecturer in Education
SLATER, JOHN H., Lecturer in Accounting
SRABIAN, ROBERT, Lecturer in Accounting
STANNARD, RICHARD D., Coaching Assistant, Athletics
STEINHAUER, GENE, Lecturer in Psychology
STOFFT, JOYCE R., Lecturer in Music
STOFFT, PAUL W., Lecturer in Music
STORNETTA, DONALD, Lecturer in Agricultural Industry and Education
STRAND, DENNIS, Lecturer in Urban and Regional Planning
STUART, ROBERT G., Lecturer in Management Marketing
SWANSON, CHARLES E., Lecturer in Management and Marketing
SZYDELKO, GARY S., Lecturer in Industrial Arts and Technology

TAYLOR, BUD E., Lecturer in Social Work
TAYLOR, CHARLES, Lecturer in Communication Arts and Sciences
TAYLOR, WALLACE, Lecturer in Education
TEMPLE, DONALD L., Lecturer in Information Systems and Decision Sciences
TERJIMANIAN, HAGOP, Lecturer in Ethnic Studies Program
THOMAS, BARBARA, Lecturer in Psychology
TREGUBOFF, WILLIAM J., Lecturer in Advanced Studies
TRIGLETH, MICHAEL B., Lecturer in Chemistry
UNRUH, RONALD P., Lecturer in Education
UPHOLD, WILLIAM B., Lecturer in Philosophy
VANCE, ELLIS V., Lecturer in Education
VANONI, CHRISTINE, Lecturer in Mathematics
VAN ZUUK, MARC ROY, Lecturer in Engineering
VAUGHN, RICHARD B., Lecturer in Communicative Disorders
VAVOULIS, JEAN, Lecturer in Social Work
VICE, KAREN, Lecturer in Physical Education
VINUELA, MIGUEL, Lecturer in Foreign Languages
VOGEL, T. WORTHINGTON, Lecturer in Criminology
WAGNER, KAY, Lecturer in Art
WALKER, PHILIP W., Lecturer in Social Work
WALSH, KAY D., Lecturer in Communication Arts and Sciences
WALTER, RILEY C., Lecturer in Agriculture Economics
WANG, LOUIS C., Lecturer in Physics
WATTS, GLORIA, Lecturer in La Raza Studies
WEINER, DEBORAH, Lecturer in Nursing
WEITZMAN, KEIKO H., Lecturer in Linguistics
WIDGER, ROBERT D., Lecturer in Education
WILLIAMS, MARILYN M., Lecturer in Teacher Education
WILSON, JAMES ROSS, Lecturer in Journalism
WISNER, ETHEL H., Lecturer in Teacher Education
WITTE, SANDRA S., Lecturer in Home Economics
WOOLLEY, VAN MARLIN, Lecturer in Advanced Studies
WRIGHT, STEVEN D., Lecturer in Plant Science
YAMAMOTO, KENNETH H., Lecturer in Information Systems and Decision Sciences

EMERITI 1980–1981

(Parentheses indicate years of service at CSUF)

ADDICOTT, IRWIN O. (1934; 1950–1966), Vice President Emeritus; Professor Emeritus of Education
BA, University of California; MA, BD, Pacific School of Religion; EdD, Stanford University.

ANDERSON, MYRON M. (1937–1973), Professor Emeritus of Physical Education
BA, Fresno State College; MA, University of Southern California.

BALLOU, STEPHEN V. (1953–1978), Professor Emeritus of Education
BEd, Duluth State Teachers College; MA, EdD, University of Colorado.

BEARD, C. NOBLE (1937–Spring 1970), Professor Emeritus of Geology
BA, MA, Indiana University; PhD, University of Illinois.

BEATTY, HAROLD J. (1937–1969), Professor Emeritus of Physical Education
BA, Fresno State College; MA, University of California at Berkeley.

BEATTY, WILLIAM C. (1947–1977), Professor Emeritus of Anthropology and Sociology
BA, University of Denver; MA, University of Colorado; PhD, University of Southern California.

BEIDEN J. PETER (1948–1969), Associate Professor Emeritus of Physical Education
BA, University of Redlands.

BERDAHL, ARTHUR C. (1932–1969), Professor Emeritus of Music
BA, Augustana College; MA, PhD, State University of Iowa.

BERRY, SARA C. (1957–1973), Senior Assistant Librarian Emeritus
BA, Occidental College.

BIGELOW, MARION E. (1932–1965), Professor Emeritus of Physical Education
BS, MS, University of Wisconsin.

BIGGE, MORRIS L. (1950–1976), Professor Emeritus of Educational Foundations
BA, Washburn Municipal University; MS, University of Michigan; PhD, University of Kansas.

BIRD, C. WESLEY (1932–1969), Professor Emeritus of Foreign Languages
BA, MA, Oberlin College; Diplome, Grenoble University; MA, PhD, Princeton University; MOPA, France.

BLISS, WILLIAM H. (1950–1976), Professor Emeritus of Industrial Arts and Technology
BS, Central Missouri State College; MA, University of Northern Colorado; EdD, Bradley University.

BOOLSEN, FRANK M. (1948–1973), Professor Emeritus of Criminology
BA, MA, University of California at Berkeley.

BRAUN, O. MARTIN (1936–1968), Professor Emeritus of Horticulture
BS, MA, University of California.

BREMNER, RAYMOND W. (1947–1973), Professor Emeritus of Chemistry
BS, MS, PhD, University of Washington.

BRENNINGER, RALPH A. (1946–1975), Professor Emeritus of Foreign Languages
BS, Lafayette College; AM, Columbia University; PhD, University of California.

BREWSTER, MARJORIE A. (1930–1964), Associate Professor Emeritus of Elementary Education
BA, Fresno State College; MS, University of Southern California.

BRYON, ARTHUR J. (1939–1941; 1947–1971), Professor Emeritus of Music
BA, Fresno State College; MA, University of California; DMA, University of Southern California.

BURGESS, ROBERT (1948–1980), Professor Emeritus of Physical Education
AB, Fresno State College: MS, University of Southern California at Los Angeles.

CADY, DOROTHY A. (1954–1976), Laboratory School Teacher Emeritus
BS, University of Minnesota; BA, MA, Fresno State College; Registered Nurse.

CAMPBELL, HOWARD J. (1946–1979), Professor Emeritus of Speech Communication
BS, North Texas State Teachers College; MA, Stanford University; EdD, University of California at Berkeley.

CANALES, JOSE C. (1946–1980), Professor Emeritus of History
BA, Manhattan College; MA, PhD, University of California at Berkeley.

COBB, GWENDOLIN B. (1953–1971), Professor Emeritus of History
BA, MA, PhD, University of California at Berkeley.

COLEMAN, EARL H. (1929–1954), Professor Emeritus of Biology and Health Education
BA, Stanford University; MD, University of California.

COMEGYS, ROBERT G. (1955–1980), Professor Emeritus of History
BA, MA, University of Washington; PhD, Stanford University.

DAVIS, VIOLA A. (1955–1977), Counselor Emeritus
BA, Pasadena College; MA, University of Southern California; PhD, Northwestern University.

DAUBS, EDWIN H. (1963–1975), Professor Emeritus of Biology
BS, MS, PhD, University of Illinois.

DETTINGER, DONALD J. (1947–1973), Professor Emeritus of Industrial Arts and Technology
BA, Chico State College; MS, Oregon State College.

DEINSTEIN, WILLIAM (1946–1974), Professor Emeritus of Sociology and Criminology
BA, Stanford University; MA, University of California; PhD, Stanford University.

DOWLER, LLOYD (1948–1978), Professor Emeritus of Agricultural Education
BS, MS, University of Wyoming.

DUKE, JOHN H. (1946–1973), Professor Emeritus of Journalism
BJ, University of Texas; MA, PhD, University of Southern California.

ELIASON, AFTON Y. (1935–1971), Professor Emeritus of Physics
BS, Utah State Agriculture College; MA, PhD, University of California at Berkeley.

EMMAL, MARIE (1964–1980), Professor Emeritus of Social Work
BA, University of California at Los Angeles.

ENSSLIN, WALTER (1959–1980), Professor Emeritus of Foreign Languages
PhD, University of Berlin.

EVANS, RALPH F. (1947–1975), Dean Emeritus of Education and Professor Emeritus of Education
BEd, Eastern Illinois State Teachers College; MA, PhD, State University of Iowa.

FALK, DORIS F. (1956–Spring 1972), Professor Emeritus of Biology
BA, MA, Phd, University of California at Berkeley.

FALK KARL L. (1938–1968), Professor Emeritus of Economics
BA, Stanford University; PhD, University of Berlin.

FEUCHES, CONRAD (1946–1973), Professor Emeritus of Industrial Arts and Technology
BA, Fresno State College; MS, Oregon State College.

FISHER, M. BRUCE (1941–1975), Professor Emeritus of Psychology
BA, University of California; PhD, Yale University; Licensed Psychologist.

GALE, JANE G. (1935–1959), Associate Professor Emeritus of Art
BS, MA, Columbia University.

GERARD, MARION M. (1952–1969), Professor Emeritus of Laboratory School Teacher
AB, Mills College; AM, Fresno State College.

GLEASON, KENNETH C. (1946–1976), Professor Emeritus of Physical Education
BA, Fresno State College; MS, University of Southern California.

GLIM, ROBERT J. (1948–1978), Professor Emeritus of Agricultural Economics
BS, MEd, University of California at Davis.

GURLEY, RALPH R. (1947–1960), Professor Emeritus of Engineering
BS, United States Naval Academy; MS, Columbia University; Registered Mechanical Engineer.

HARRISON, RAYMOND H. (1955–1977), Professor Emeritus of Education
BS, Central State College; MS, Oklahoma State University; EdD, University of Denver.

HARTON, JOHN J. (1941–1966), Profesor Emeritus of Education
BA, Hendrix College; MA, George Peabody College; PhD, Duke University; Licensed Psychologist.

HAWBECKER, ALBERT C. (1946–1973), Professor Emeritus of Biology
BA, Fresno State College; MA, University of California; PhD, Oregon State College.

HENDERSON, BETTY A. (1941–1961), Professor Emeritus of Home Economics
BA, Fresno State College; MA, University of California at Los Angeles.

HENFLING, PHYLLIS B. (1940–1945; 1952–1975), Professor Emeritus of Education
BA, MA, Fresno State College.

HERBERT, JOHN ED (1928–1966), Professor Emeritus of Art
BEd, University of California at Los Angeles; MA, Columbia University.

HIGGINS, FRANCIS V. (1958–1976), Professor Emeritus of Engineering
BS, MS, Indian State Teachers College; MS, University of Michigan; MS, Case Institute of Technology; Registered Civil Engineer.

HIXSON, FLOYD (1951–1980), Professor Emeritus of Animal Science
BS, Oklahoma A & M College; MS, PhD, Kansas State University.

HOAG, ALEXANDRA BRADSHAW (1917–1948), Professor Emeritus of Fine Arts
BA, Stanford University.

HOPKINS, JERRY D. (1964–1979), Professor Emeritus of Linguistics
BA, Indiana University.

HOWLAND, RUSSELL S. (1948–1975), Professor Emeritus of Music
BM, MMus, University of Illinois.

HUPPRICH, MABEL (1944–1969), Professor Emeritus of Physical Education
BS, MS, University of Wisconsin.

ILG, GEORGE F. (1948–1978), Professor Emeritus of Dairy Science
BS, University of California; MS, Ohio State University.

INGLES, LLOYD G. (1945–1966), Professor Emeritus of Zoology
BA, Redlands University; MA, Claremont College; PhD, University of California.

JEPSEN, VICTOR L. (1946–1975), Professor Emeritus of Management
BA, MA, University of Oregon; EdD, Stanford University.

JOYAL, ARNOLD E. (1948–1964), President Emeritus
BA, MA, PhD, University of California; LHD, California College of Medicine.

KALLAM, JOHN F. (1962–1979), Professor Emeritus of Criminology
BA, San Jose State College; MS, Fresno State College.

KARIKKA, KATHERINE (1967–1980), Professor Emeritus of Home Economics
BS, Utah State University; MS, Cornell University.

KREMEN, BENJAMIN G. (1950–1976), Professor Emeritus of Education
BS, Johns Hopkins University; MA, University of Maryland; PhD, Michigan State College.

KULHAN, EDWARD F. (1956–1978), Professor Emeritus of Engineering
BS, University of Nevada; MS, Pennsylvania State University; Registered Land Surveyor.

KYLBERG, BESSIE N. (1947–1962), Librarian III Emeritus
BA, University of California.

LANDRUM, ELIZABETH A. (1932–1971), Librarian IV Emeritus
BA, Fresno State College; MA, University of California.

LARRABEE, CARLTON H. (1947–Spring 1969), Professor Emeritus of English
BA, Clark University; MA, Harvard University; EdD, New York University.

LEAVENWORTH, RUSSELL E. (1955–1971; 1973–1978), Professor Emeritus of English
AB, Hanover College, AM, PhD, University of Colorado.

LESLIE, GLENN F. (1958–1977), Professor Emeritus of Education
BS, Central Missouri State College; MEd, EdD, University of Missouri.

LEWIS, KENNETH E. (1956–1970), Director Emeritus of Financial Aids
BA, MA, Fresno State College.

LIST, EDGAR (1961–1980), Professor Emeritus of Foreign Languages
BA, Carroll College; MA, PhD, Yale University.

LOMBARD, EDWIN H. (1947–1973), Professor Emeritus of Theatre Arts
BA, Oberlin College; MA, Columbia University; MA, PhD, Cornell University.

LUNDKVIST, LYLLIS D. (1939–1963), Professor Emeritus of Music
BM, MA, University of Washington.

LYON, EARL D. (1938–1973), Professor Emeritus of English
BA, University of California at Los Angeles; MA, PhD, University of California at Berkeley.

MADDEN, HENRY M. (1949–1979), University Librarian Emeritus
BA, Stanford University; BLS, University of California at Berkeley; MA, PhD, Columbia University.

MARKHAM, CHARLES (1967–1980), Professor Emeritus of Geography
BA, University of California at Los Angeles; MA, Colorado State College; PhD, University of California at Berkeley.

MASON, R. ELAINE (1956–1979), Professor Emeritus of Physical Education
BA, Fresno State College; MA, Stanford University.

MATTHEW, VIRGIL L., JR. (1948–1980), Professor Emeritus of History
BA, Fresno State College; MA, PhD, University of California at Los Angeles.

McGUIRE, PAUL J. (1966–1980), Professor Emeritus of Theatre Arts
BA, MA, San Fernando Valley State College.

MCKIM, V. CALVON (1942–1963), Professor Emeritus of Geography
BA, Nebraska State Teachers College at Wayne; MA, PhD, University of Nebraska.

MILLER, WILLIAM M. (1956–1979), Professor Emeritus of Chemistry
BS, University of Illinois; MS, PhD, State University of Iowa.

MUSSELMAN, DARWIN B. (1953–1978), Professor Emeritus of Industrial Arts and Technology
BA, Fresno State College; MFA, California College of Arts and Crafts; M, University of California at Berkeley.

NELSEN, CLAIR E. (1950–1953; 1955–1979), Professor Emeritus of History
BA, Fresno State College; MA, PhD, Stanford University.

NESS, FREDERIC W. (1964–November, 1969), President Emeritus
BA, Dickinson College; MA, University of Cincinnati; PhD, Yale University.

NOAKES, GEOFFREY B. (1947–1965), Professor Emeritus of Industrial Arts
BA, MA, Fresno State College.

ODORFER, ELLA M. (1928–1963), Professor Emeritus of Art
BA, University of North Dakota; MA, Columbia University.

OGDEN, LOWELL K. (1958–1977), Associate Professor Emeritus of Education
BS, Arkansas State Teachers College; MA, University of Wyoming; EdD, University of Southern California.

PARKER, WILLIAM M. (1950–1977), Professor Emeritus of Accounting
BS, MBA, University of California; PhD, University of Southern California; Certified Public Accountant.

PFLUEGER, CLAYTON (1957–1980), Professor Emeritus of Dairy Industry
BS, South Dakota State College; MS, State College of Washington.

PORCH, LOUISE W. (1942–1968), Professor Emeritus of Home Economics
BS, Rockford College; MA, Columbia University; EdD, Stanford University.

POTTER, KENNETH (1926–1947), Professor Emeritus of Social Science
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